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- Instant Video on Demand: Pushing the DVR into the Network
- David Montanaro on the Future of IP Communications

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The VoIP Authority

By Greg Galitzine

Here Come The Gadgets

Don't look now, but just in time for those responsible people who start their holiday shopping season early, here come the VoIP (define - news - alert) enabled gadgets! While the plethora of Skype-centric toys for big boys and girls might make it seem that Niklas Zennstrom is Santa and the North Pole is really an R&D lab in Tallinn, the fact of the matter is that Skype simply has one of the better developer programs since it launched its Skype Certified program, and it has potentially the biggest consumer audience. Skype (news - alert) works with more than 400 hardware partners, which means there's definitely going to be someone on your list who would just love the gift of VoIP. And with too many downloads to count, there's likely someone on your list who's using Skype as you read this.

This week, both Logitech and US Robotics announced new Skype Certified hardware products. Logitech, which seems to be among the largest developers of Skype Certified gadgets, announced three additions to its product family:

- Logitech EasyCall Desktop is a combination of a mouse, keyboard, headset, and speakerphone.
- Logitech Cordless Internet Handset offers the familiarity of a traditional phone handset and can be used to make Internet-based calls from anywhere in the home with the push of a button.
- Logitech Cordless Headset for PC and Mobile Phones fits comfortably on one ear, enabling PCs call as you they roam freely around the home; it also works as a Bluetooth mobile phone headset.

On the same day, USRobotics announced the shipment of two newly Skype Certified handsets:

- The USR9601 USB Internet Phone, which features a bright, high-resolution, blue back-lit LCD screen that provides access to contact and call status, and supports Skype caller ID.
- The USR9602 USB Internet Mini Phone, which serves as an alternative to expensive headsets and is priced with entry level users in mind.

Now, while not technically a "new" gadget, having been released in May, the Polycom Communicator (a blue one please!) is something I would love to see in my stocking. The USB speakerphone delivers high-fidelity wideband voice quality, and Polycom's (news - alert) Acoustic Clarity Technology eliminates echo and feedback.

I was on the road conducting a conference call with my cell phone tucked between my ear and my shoulder, clicking through PowerPoint slides when I jealously spied someone using a Communicator. That's when I thought, "I need to get one of these gadgets."

The Polycom Communicator can also be used as a high-fidelity speaker for other PC applications, including audio presentations, music, games, and so on. It also has a built-in stereo headset port for private conversations.

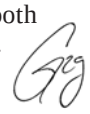
While we're on the subject of VoIP enabled gadgets, Sony announced the VAIO Mouse Talk. For some strange "consumers-will-probably-love-this" reason, Sony has morphed an optical mouse and a VoIP phone into one creative combination: The VAIO Mouse Talk product is a multi-functional mouse that flips open to become a VoIP phone, enabling users to make and receive high-quality calls.

The mouse component of the product operates like a regular optical mouse, offering a scroll wheel that enables users to navigate documents and Web pages without using an on-screen scroll bar.

The VoIP phone portion of the VAIO Mouse Talk offers echo cancellation technology and clear call quality. The phone connects to any notebook or desktop via USB. Most importantly for gift-ability: It is available in several colors.

If you're not in the market for one of the products I mentioned above, there are countless other items available to help enhance the VoIP experience. Bluetooth headsets, cordless handsets, webcams, VoIP sticks, analog phone gateways... there truly is something for everyone.

It's not too early. Beat the rush. Happy Shopping!



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convergence, meet the new guy.

With the new OfficeServ™ 7400 platform from Samsung, the converged work environment just got bigger, better and faster. In the tradition of the OfficeServ™ 7200, the new OfficeServ 7400 provides wireless functionality along with wireline, analog voice, VoIP and data capabilities. Unlike its predecessor, however, this new platform offers more ports, a gigabit Ethernet backbone and 64-channel IP cards. It also boasts a more robust infrastructure for more powerful applications for more users. All deployed simply in a standard office environment or data center. And all thanks to the new guy.

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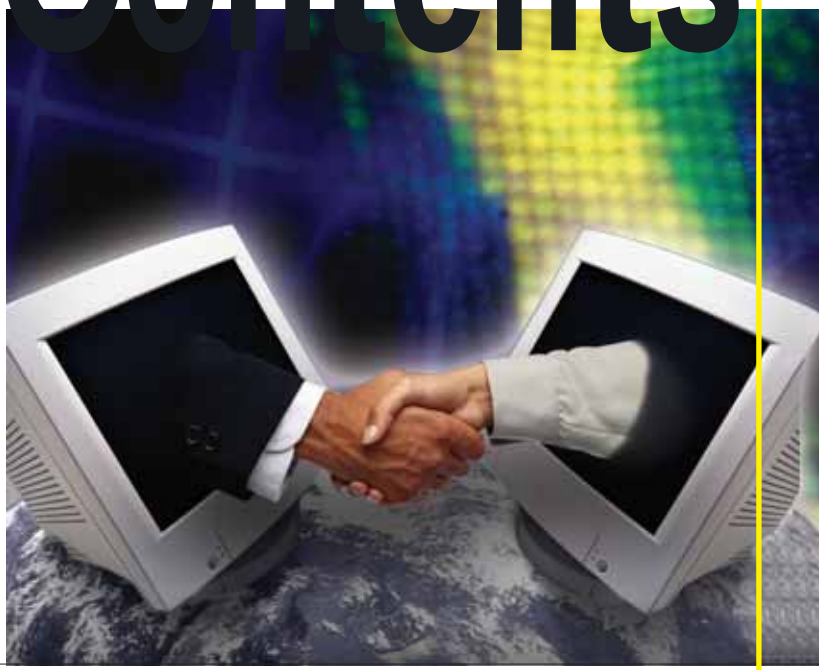

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QUOTE OF THE MONTH:

"For VoIP, the most serious competition does not come from a direct competitor, but from an entirely different model for delivering the same service: the mobile phone. The tech-savvy consumers who would be VoIP adopters have, as they say, "cut the cord." They've abandoned phones tied to the home, and instead rely only on their mobile phones. How can VoIP compete against the mobile phone? How can VoIP providers offer something of value to those who find home phones quaint? The untouched potential for VoIP is features. Most providers don't take advantage of the 'IP' in 'VoIP'."

— Sarah Pieri, page 148

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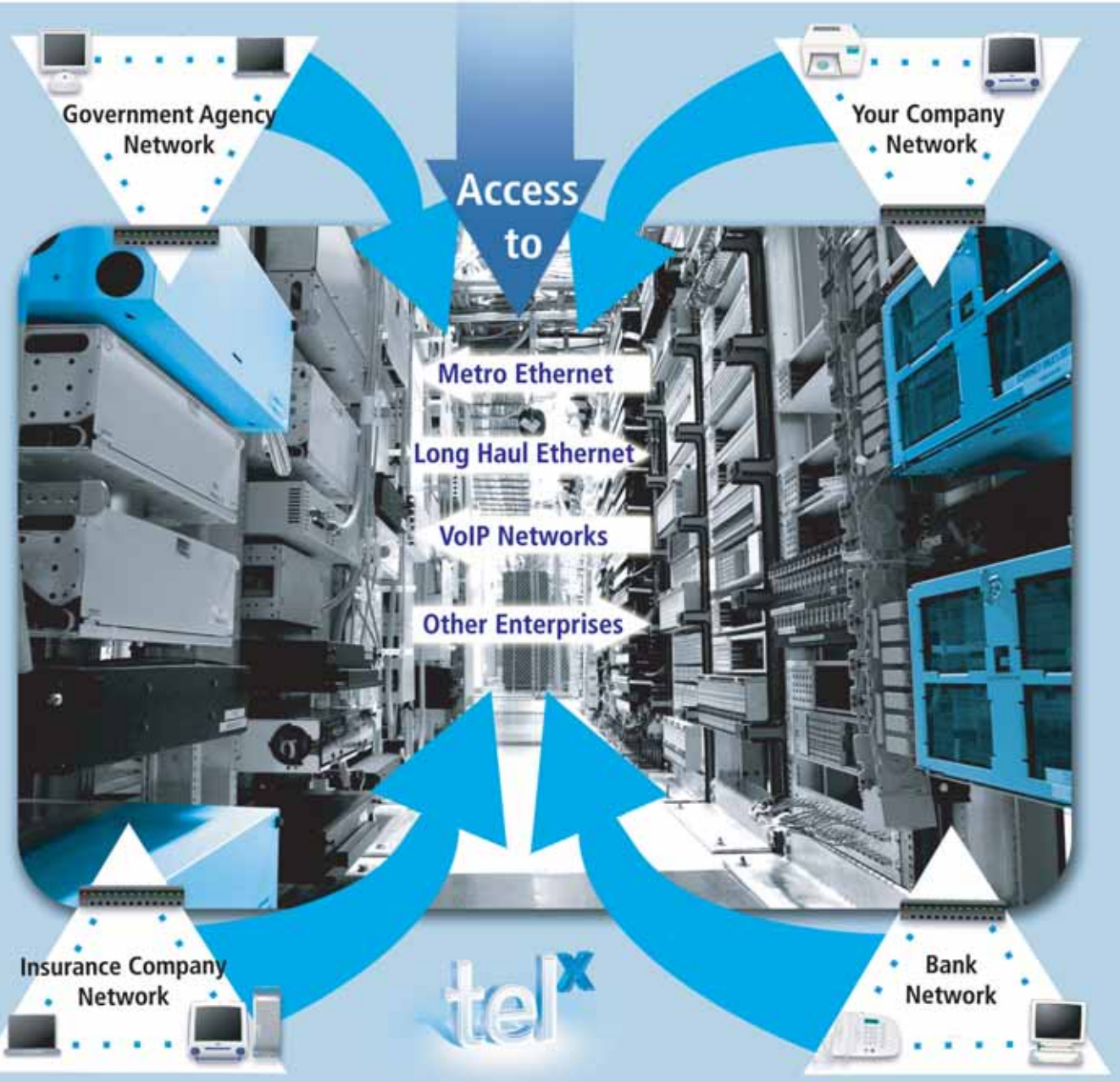

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6. Texas
7. Ontario
8. Washington
9. Illinois
10. Colorado

WHAT'S ON TMCNET.COM RIGHT NOW

TMC's IP PBX Channel
More and more enterprises are deploying on-premises IP PBXs to take advantage of the benefits VoIP offers. The IP PBX Channel on TMCnet features the latest news and features on IP PBX development and deployment. To learn more, visit http://www.tmcnet.com/channels/ip-pbx. It is sponsored by Sphere Communications.

TMC's E-9112 Channel
The E-911 Channel fon TMCnet features the latest news and original bylined articles related to the development and deployment of E-911 services for VoIP providers and customers. To learn more, visit http://www.tmcnet.com/channels/e911. It is sponsored by CommerceTel.

WHAT'S ON TMCNET.COM RIGHT NOW

To stay current and to keep up-to-date with all that's happening in the fast-paced world of IP telephony, just point your browser to http://www.tmcnet.com for all the latest news and analysis. With more than 16 million page views per month, translating into more than 1,000,000 visitors, TMCnet.com is where you need to be if you want to know what's happening in the world of VoIP.

Here's a list of several articles currently on our site.

The Telephone and the SOA
If you accept the assertion that telecommunications is succumbing to the service-oriented architecture movement, the logical question to ask is: "What happens to the telephone?"
On one level, the answer seems self-evident: the phone is an I/O device, and should be treated as such in the architecture in general. However, at a deeper level, the answer is not so obvious.
http://www.tmcnet.com/342.1

Group Works to Dispel Misconceptions about CALEA Compliance for VoIP
A group of companies that develop and implement lawful intercept solutions for VoIP have issued a "rebuttal" to a report from the IT Association of America (ITAA) spelling out potential obstacles for service providers in complying with the Communications Assistance for Law Enforcement Act (CALEA).
http://www.tmcnet.com/343.1

An Introduction to AdvancedTCA
For anyone not familiar with the AdvancedTCA (ATCA) standard, RadiSys' whitepaper, "ATCA: A Practical Perspective" is an excellent, and very readable, starting point. The company's CTO, George Shenoda, clearly explains ATCA's capabilities and advantages.
If you haven't the time to read the entire white paper — it's only seven pages —here's an executive summary of the whitepaper to get you started. http://www.tmcnet.com/344.1

Should VoIP Deployments Over WANs Be a Headache?
Voice over IP (VoIP) is finally gaining traction in the enterprise world. It has been hyped for quite a while, but its adoption by large enterprises has been limited so far. However, deploying a VoIP-ready network is on the minds of every conscientious network manager.
http://www.tmcnet.com/345.1

IPTV Subscriptions to Double Annually Through 2010
Global IPTV market conditions can be described in three phases — Basic service deployment, the addition of value-added and interactive services, and enhanced integration and interactivity. The market is currently in the first phase, where service providers — let alone consumers — are only just beginning to understand the potential behind IPTV.
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By Rich Tehrani

Something for Everybody

There's so much happening in the world of IP Communications. As usual, I've been traveling all over meeting with many companies and getting a good sense of what the industry's up to. And, as we get ready for next month's Internet Telephony Conference & EXPO West (San Diego Convention Center; October 10–13) I also feel that our conference team has put together an event that truly covers the breadth of the industry. The show will feature content for everybody: Enterprise and Contact center decision makers; Service providers; Developers; and Resellers too. Co-located events such as IMS Expo and Call Center 2.0, as well as IPTV and WiMAX content from our partners will ensure a thorough educational opportunity, no matter what segment of IP Communications you represent. To mirror a bit of what you'll find at our upcoming event in San Diego, I'd like to share with you some of the exciting news I've heard in the last few weeks.

NEC Managed IP Telephony

When it comes to hosted communications I have heard it all. I really have. After all, as some of you may recall, I launched a magazine called *Communications ASP* years ago — just before the bubble burst, in fact. I was always a believer in hosting. But as is sometimes the case, we were a bit early in the market and the VCs all pulled funding from the hosted companies we used to call application service providers or ASPs. Then, as is often the case, everyone seems to forget about a market for a number of years and, eventually, it becomes hot once again. This has happened more than once in the VoIP market.

So when I heard NEC (quote - news - alert) wanted to share something new in hosting called Managed IP Telephony (MIPT) with me, I imagined being bored. After all, hosting is hosting. Well, NEC is doing something different enough and novel enough to make you consider hosting, even if hosting isn't for you.

You see, in many cases hosting means losing control and it can mean you can't customize your PBX to meet your needs. So NEC decided to take the best of the hosted world and the best of the customer premise equipment or CPE world and blend them together. The way this is done is simple. Unlike a traditional hosted provider, who typically hosts everything from the cloud and provides phones or gateways, NEC actually provides the hardware for you. So it is really like a lease, but not exactly.

You see, the company will take care of the patches and keeping the system up and running, but here is the interesting part: After your hosted term, which could be a period of three, four, or five years, you are able to get new equipment if you choose to continue to host with NEC.

This gives some intriguing options, such as the ability to use the NEC APIs to build new applications or to go to third-party companies for their applications. You also have the security and satisfaction of knowing the equipment is in your office — if of course this is important to you.

NEC will also remotely monitor your IP communications network and can for an added fee monitor your entire network and help with security. In fact, the company can provide lots of value-adds.

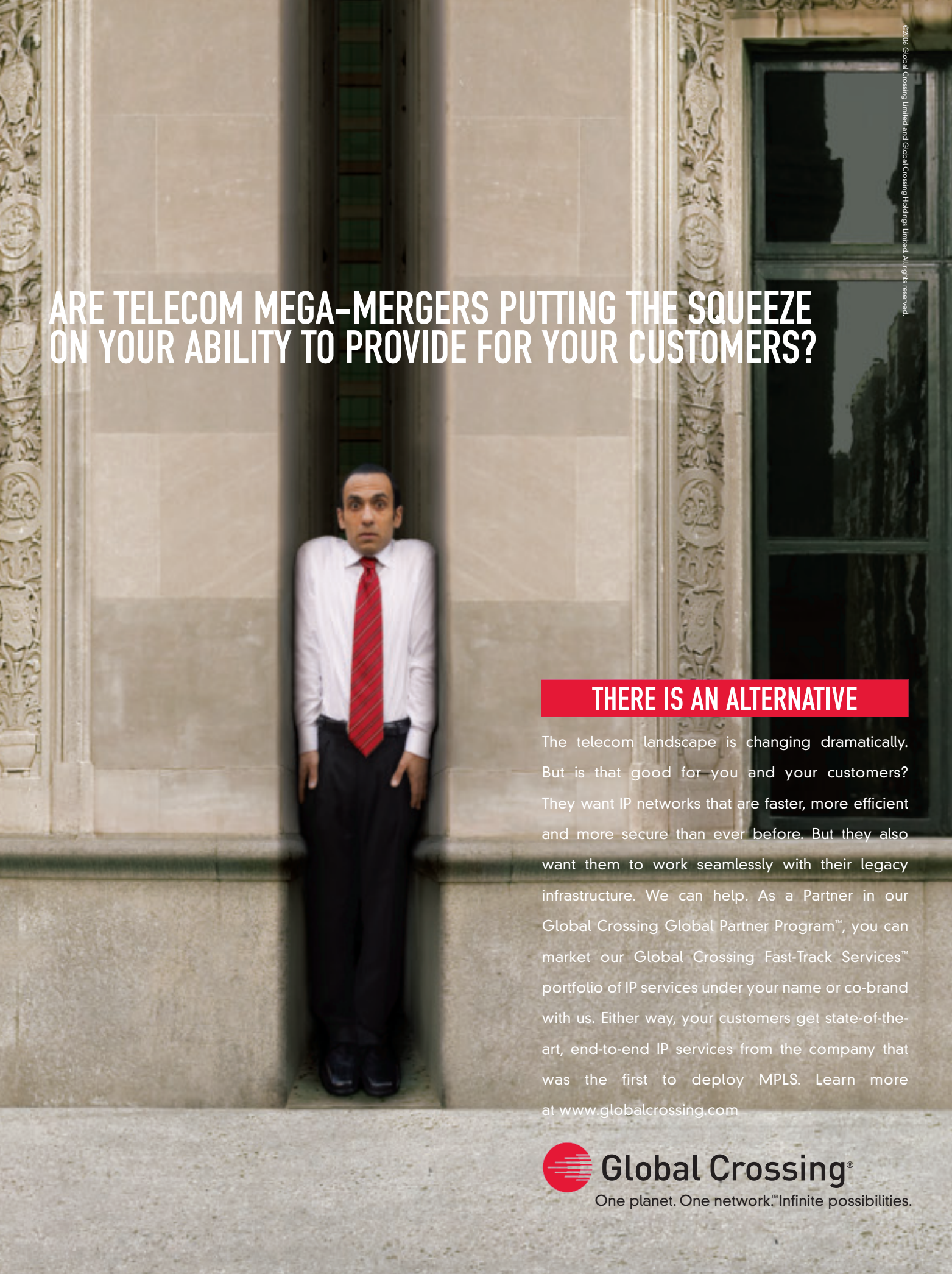
Oh and here is the weird thing. They can also provide you with Cisco equipment if you like, as they are already doing this as part of an agreement they have with the hosted offering from Verizon Business.

NEC is doing something different enough and novel enough to make you consider hosting.

Another interesting idea is that you can add up to 10 percent more seats through the term of your lease for no added cost. Generally, NEC thinks most companies won't grow more than this amount in a few years.

In an example the company uses, a 500-station install over five years would cost about $25 per station, per month and that would include a SV700 — 2xPRI with conference bridge capability.

So just when I thought I had heard it all, there you go... I have heard something new. In my opinion this is an interest-



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ing offering from NEC and the only downside is how people may confuse it with leasing. But other than that, it makes a good deal of sense for people who want the lower initial expenditures and other benefits that come with hosting while enjoying the benefits of keeping the communications equipment in their offices.

VoIP/IP Communications Development Trends

The world of IP Communications is continuously evolving and last month's VoIP (define - news - alert) Developer Conference afforded me the opportunity to speak with people from many companies who aren't allowed to officially disclose much about what they are doing. Most of the people at this show were engineers — technical people who likely shouldn't have been talking with the media about what they are doing.

Out of respect for these attendees and the companies that sent them to this event I am honor-bound not to disclose company names or products, but instead I will dwell on concepts and mention companies where there is no risk of divulging confidential information.

There is an insane battle taking place for the desktop IP communications client. Everyone wants in. We know about AOL (quote - news - alert) Google (quote - news - alert), and Yahoo! (quote - news - alert) but many companies who make software that already sits on every computer and most devices are looking for ways to extend their software by adding IP communications functionality.

This can only help the market, as it will allow native VoIP conversations to take place without the need to install software. In a perfect world, all of this software will interoperate, but I am not holding my breath just yet.

In addition, expect companies who make high-end audio products and technology to be adding VoIP and perhaps broader IP communications capabilities into their wares.

Moreover, the recent sale of Intel's media and signaling group means some companies who have policies in place ensuring they don't rely on a single vendor are now looking for product. Interestingly there were a number of shoppers at the VoIP Developer Conference looking for alternative DSP board development platforms.

Another trend worth noting is the mainstreaming of VoIP, which was made obvious by the attention showed to the conference by FOX News TV.

Many exhibitors told me IMS and dual-mode devices are being requested in large quantities for trials around the world. Open-source, too, continued to be a hot topic and many at the event were talking about how they can max out open source servers, enabling them to perform in massive operations in service bureaus or even small service provider central offices.

The rumors I had been hearing about for so many months generally came from Dialogic competitors and I hear so many rumors that I tend to discount them until I hear the same rumor from multiple sources. In this case, my intuition proved to be true. The feeling of the show attendees was that this announcement has the potential to be great news for all. Even Dialogic competitors seemed happy with the news.

For me, this show closes out an era. It seems the audience of this event now is past the "does VoIP work?" phase and is now firmly in the "how do I make money?" phase. This last question is getting more complicated to figure out because the obvious arbitrage opportunities are going to be limited leaving the market with other ways in which to have to make profit.

Ecosystems were a major focus of the event and AOL, who announced that they will open up their AIM PhoneLine APIs, was given great feedback by the developers in the audience. Most people here recognize how successful Skype has been building their ecosystem and they also want to get into the act.

In other AOL news, the company mentioned they will be giving out phone numbers with free inbound calling. This only makes the VoIP game that much more competitive. Oh and for less than ten dollars per month you can speak for an unlimited amount of time to 30 countries.

In the PBX space, Avaya and Inter-Tel have been doing an utterly fantastic job of evangelizing the opportunities in the enterprise development space and there was lots of positive feedback about Avaya's DevConnect Developer Day from attendees I spoke with.

From my vantage point, virtually every segment of the market has tremendous promise. The call center market will see large amounts of spending on IP as the cost savings and flexibility of IP contact centers just makes so much sense. Service providers, fueled by massive competition will spend hundreds of billions on new technology in the upcoming decade. The specific competition will be from wireless carries — cellular to WiMAX, and of course landline and cable. Satellite providers too are working to make more attractive IP communications alternatives.

That leaves the enterprises that are behind the curve. The technology to allow much more efficient communication in the enterprise is out there but vendors have confused this sector to death. Enterprise decision makers are trying to figure out why they should spend millions on new telecom equipment and, as an industry, we keep telling them this exciting new collaboration and communications technology is called unified communications or real-time communications. I prefer Just in Time Communications as the term of choice. The point is, there is confusion in the market and I believe it stems from terminology.

There is an insane battle taking place for the desktop IP communications client. Everyone wants in.

Why should a CFO budget for this great productivity boosting technology if it doesn't have a name? We need a buzzword as powerful as CRM was and unified communications, a term that is a decade old, may be too dated to get any traction.

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Of course, this is one person's opinion and I would prefer to be proven wrong on this point.

Still, the opportunities are there and the enterprise market will soon catch up with the available technology on the market and start replacing their switches in larger numbers and buying more communications applications.

I remain optimistic about the communications market overall. Generally speaking, when the service provider sector spends, the enterprise takes a breather, and it could just be that the enterprise market will experience modest growth for a few years while service providers spend tens of billions. In the ideal world all sectors will grow together.

Certainly the developers who attended the show last month are all eager to get back to their labs and start working on those next-generation products and services that will be indispensable to companies around the globe.

I look forward to seeing what they come up with.

Verizon Wireless: A Call Center 2.0 Case Study

The wireless communications sector is one of the more interesting businesses around as they generate billions and billions in revenue, and spend millions on ad campaigns such as "We have the fewest dropped calls." It just seems so weird in the world of business. Could you imagine a hospital billboard with a slogan like "Fewest accidental deaths?" How about a political campaign ad — "Lowest infidelity rate." Or better still, how about a slogan from McDonalds — "Fewest obesity-related illnesses!"

But the people in the wireless industry don't see things as funny as I do, and some of them are clearly looking for ways to annihilate their competition.

Over the past years, I have written about Verizon Wireless many times. I always said their network was fantastic but they had a slew of other problems. Some of my early articles discussed problems the company was facing with customer service issues. I then went on to a phase of complaining about the company's devices and how they were behind most other carriers in the world.

Amazingly, the company has turned around all of my objections in a period of a few years. Their service levels have dramatically improved and instead of ignoring leading-edge devices they are actually on the leading edge as far as U.S. carriers go.

In addition, the company saw it as an important task to ensure the world understands how Verizon Wireless (quote - news - alert) is focusing on being a success in the U.S. To that end they sent Tom Pica, executive director, corporate communications for Verizon Wireless to TMC headquarters recently to discuss what the company is up to.

It became apparent early in our conversation that wireless data is a huge part of the company's business and seems to be growing rapidly. Support is a critical area for Verizon Wireless and they have 26 first-tier call centers throughout the U.S. and three of these are wireless data technical support centers. This includes advanced support for the latest devices.

Tom tells me the number one call driver is wireless data, and I am not surprised, as the level of complexity and integration that is needed to get these devices configured and working is not trivial. There are the back end servers, the front end devices, the firewalls, the VPNs, and a host of other things that need to be taken into account when setting these devices up to work with corporate infrastructure in a secure and productive and cost-effective manner.

The technicians get continuing training every month and also get training on every new device as it comes out. In fact, the new flagship data technical support center will be in New Mexico. Verizon Wireless set up a temporary tech support center there with 300 people back in January of this year and now expects about 1,000 people by year's end. Obviously, this is rapid growth and it is impressive that the company has decided to keep these jobs in the U.S.

Specifically, Tom tells me "Our business model is to own and operate our own call centers and use outsourcers for seasonal and specialty situations. This is due to the increasing complexity of devices."

The company has a number of device emulators and actual devices in their centers so they can reproduce customer problems and help to rapidly fix the problems they may be experiencing.

I asked what the biggest areas of focus are and Tom answered the area of first call resolution. Basically, they don't want customers calling back with same problem, as it leads to dissatisfied customers and costs more money for the company. It is for this reason they don't rank their support people based on call length but on first call resolution.

Simply stated, Verizon Wireless has taken many steps to fix the problems that once plagued the company. I must congratulate them on doing a great job and doing an even better job of telling the story to the media. Either of these in a vacuum just doesn't get the job accomplished. I suppose after all my years of suggesting how Verizon Wireless can improve, they really could hear me then and hopefully can hear me now.

Verizon Wireless has taken many steps to fix the problems that once plagued the company.

Are you working in the call center 1.0 world when you should be in Call Center 2.0 like Verizon Wireless? Are your customers satisfied? Are you using the latest technology to ensure 100% customer satisfaction? If you have a call center in your company you owe it to your customers and bottom line to send them to the Call Center 2.0 Conference October 10-13, 2006 at the San Diego Convention Center. IT

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VoIP Head

Hot News From The IP Communications World

Brought to You by: COVAD

Covad Moves Ahead with ADSL2+ Network Build-Out

Covad Communications Group, Inc., (news - alert) is moving ahead with plans to continue the build-out of its next-generation telecommunications network. When the project is completed in the Q4 2006, Covad will operate the nation's largest ADSL 2+ network, enabling high-speed data and next-generation voice services to millions of businesses and residences.

The current phase of the build-out covers Atlanta, Chicago, Los Angeles, New York, Miami, Philadelphia, San Diego, and Washington, DC. Covad's next generation network is already in service in San Francisco, San Jose, Seattle, and Dallas. By the end of 2006, Covad will have the capability to offer higher-speed broadband access, such as ADSL 2+ and G.SHDSL, and new business-class services such as metro Ethernet and bonded T1.

"Covad's next-generation network build-out is progressing on time and on budget and will allow Covad to leap ahead of our competition in providing for the total telecommunications needs of our customers with unmatched business-class broadband services," said Claude Tolbert, Covad senior vice president.

Covad has chosen Samsung as its network equipment provider, and is now the vendor's largest North American customer of network equipment. "We're very excited to work with an innovative partner such as Covad," said Dale Sohn, president of Samsung Telecommunications America. "Covad has raised the bar in delivering advanced broadband services."

http://www.covad.com

New Pocket-Sized Communicator from Sony

Sony (quote - news - alert) has launched a WiFi broadband communication and entertainment device to capitalize on the growth of wireless Internet access. The new mylo personal communicator is capable of operating in any open 802.11b wireless network.

This product is designed for people who use instant messaging as a primary form of communication and networking for their social life. The name mylo stands for "my life online" and the communicator is designed to allow users to use instant messaging, browse the Internet, listen to music, send e-mails and view photos concurrently.

Perhaps most importantly, the device comes embedded with popular instant messaging services: the Google Talk instant messaging service, Skype and Yahoo! Messenger.

Small enough for a pocket or purse, the slim, oblong-shaped device features a 2.4 inch color LCD (measured diagonally) with a slide out QWERTY keyboard for comfortable and quick thumb typing.

http://www.sony.com/mylo

Aculab Releases Prosody X CompactPCI

Aculab (news - alert) announced that their Prosody X CompactPCI (cPCI) card has been released to general availability, following the success of recent evaluation trials. Prosody X cPCI is a highly configurable IP media processing platform — a new telco grade variant in the Prosody X product line that was released earlier this year.

Prosody X cPCI offers new levels of density and resilience for high availability solutions, combining support for rich media processing resources, VoIP telephony, and optional E1/T1 digital network access functions. The product leverages Aculab's core expertise in combining complex technologies into a powerful and flexible proposition that assures developers a simple, clear migration path. Prosody X cPCI offers 'mix and match' modules to scale a wide range of applications, including medium and very high densities, suitable for large enterprise, public network and telco grade environments.

The Prosody X media processing platform offers a comprehensive selection of firmware algorithms that can run independently on its DSPs, as well as the option of adding a primary rate trunk module. Up to eight DSPs can be selected to run the algorithms and with each DSP capable of supporting up to 150 channels, a total of 1,200 channels per card is achievable. Key media processing resources include record and playback with a range of compressions, DTMF tone generation and detection, matrix conferencing, echo cancellation, a wide range of voice codecs, fax processing, and data transmission protocols.

http://www.aculab.com

Sprint Nextel Moves Ahead with 4G Plans

Sprint Nextel Corp. (news - alert) announced its plans to develop and deploy the first fourth generation (4G) nationwide broadband mobile network. The 4G wireless broadband network will use the mobile WiMAX (Worldwide Interoperability for Microwave Access) IEEE 802.16e-2005 technology standard.

Working together with Intel, Motorola, and Samsung, Sprint Nextel will develop a nationwide network infrastructure as well as mobile WiMAX-enabled chipsets that will support advanced wireless broadband services for computing, portable multimedia, interactive, and other consumer electronic devices. These efforts are intended to allow Sprint Nextel customers to experience a nationwide mobile data network that is designed to offer faster speeds, lower cost, and greater convenience and enhanced multimedia quality.

The Sprint Nextel 4G mobility network will use the company's 2.5GHz spectrum holdings, which cover 85 percent of the households in the top 100 U.S. markets. To access that network, Sprint Nextel will work with Intel, Motorola, and Samsung to incorporate WiMAX technology for advanced wireless communications and help make chipsets widely available for new consumer electronics devices, connecting consumers to the Internet and to each other while providing them with the flexibility to do what they want or need to do regardless of time or place.

http://www.sprint.com

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Intel: Moving Ahead With ATCA

By Greg Galitzine

At the end of September, Intel is planning to formally release its new Intel NetStructure® Multimedia Platform. Currently in beta trials, the platform is being billed as an all-in-one multimedia server on a blade. The platform, which is intended to support developers building next-generation IP Multimedia Subsystem (IMS) applications, is designed to support up to 500 universal ports (with transcoding) and to handle multimedia processing, including voice, video, conferencing, and fax for wireless and wireline networks over both TDM (define - news - alert) and IP interfaces.

Built upon industry-standard carrier-grade Advanced TCA (ATCA) hardware, the new offering is designed to enable developers to build next-generation multimedia processing applications while reducing footprint and lowering costs associated with inventory and upgrades. (For more on ATCA, please see the sidebar entitled ATCA: *An Evolution in Open Standards.*)

According to Jim Machi, Senior Director of Product Management and Marketing at Intel, "ATCA is ideal for our new high-density, IP-enabled, multimedia products."

The runtime software is based on the Intel NetStructure Host Media Processing (HMP) software running on two dual-core processors. The solution also features a specialized hardware offload module, which further improves processing capacity and reduces costs.

Intel's NetStructure MPCBL0040 Single Board Computer acts as a baseboard for this product. It includes two Dual-Core Intel processors (LV 2.0 GHz) featuring multi-core technology designed to boost multitasking computing power.

Most media processing tasks are performed on Media Processing Software that runs on the baseboard, allowing the use of all the advanced media processing features provided by the software, including video support.

The TDM interface is supported via the Rear I/O Transition module (RTM), which also features two Gigabit Ethernet interfaces.

For IP connectivity, customers have a choice of using the ATCA base interface for signaling and file I/O and fabric interface for media streaming, or Gigabit Ethernet interface on an RTM to connect the blade directly to an Ethernet switch outside the ATCA chassis.

Machi told *Internet Telephony*, "The Intel NetStructure Multimedia Platform will provide a cost effective, powerful solution for the 3G wireless, IMS, and SIP Media server environments with features like a local/remote APIs, IP/TDM networks, signaling interfaces, enhanced video processing, and video conferencing."

The AdvancedMC mezzanine card is used for transcoding offload, which is designed to increase HMP performance when audio low bit-rate coders are required at high-density levels.

According to Machi, "The new offering combines our industry-leading host media processing (HMP) with Intel's latest dual core processors, while off-loading some processing intensive functions to a DSP based AMC module to provide the best overall price/performance."

The product supports an industry-standard remote media control interface — the Media Sessions Markup Language (MSML), also supported by a number of media server and application server vendors. This interface enables developers to rapidly create new services running on remote application servers in the distributed environment.

It should be noted that this new solution supports the same APIs as Intel's NetStructure HMP Software. This means that HMP can be used for developing lower density applications, reducing development costs. Because the different solutions support the same APIs, applications will be compatible across a broader range of development platforms, promoting application portability.

Another major advantage of this product is its open architecture with a "local host" that customers can use to install and run their applications or middleware. This enables developers to use application deployment models and media control protocols of their choice.

By standardizing on mainstream hardware platforms such as ATCA, developers can focus on creating applications that will serve their customers. These days, video and mobility are key applications that are demanding more resources than ever before. The new Intel NetStructure Multimedia Platform is designed to enable developers to create applications and services that will be able to take advantage of the increased media processing power offered by the solution. IT

Greg Galitzine is Group Editorial Director for TMC's IP Communications group of publications, including Internet Telephony, IMS and SIP magazines.

ATCA: An Evolution in Open Standards

By Robert Liu

Interoperable hardware standards are by no means a new concept. Open standards enabling the use of Commercial-Off-The-Shelf (COTS) components in the telecom infrastructure have certainly been around for the better part of a decade. For instance, since the development of CompactPCI in the 1990s, telecom equipment manufacturers have been using building blocks to speed deployment and hold down costs. Unfortunately, just as CompactPCI was picking up steam, the bubble burst and the telecom sector fell into a deep chasm.

In the midst of the recession, the PCI Industrial Computer Manufacturers Group (PICMG) began work on improvements to CompactPCI. By 2003, the Advanced Telecom Computing Architecture (AdvancedTCA or ATCA) specification was born. CompactPCI is still prevalent today. But even if you look at the ATCA spec in its original form back when it was initially approved in December 2002, many facets of the predecessors are already obsolete.

The basic elements of PICMG 3.0 form factor consist of Front Boards, Backplanes, the Subrack, and the Shelf. The Front Boards, which define power connection and Shelf management, Data Transport Interface and user-defined Input/Output (I/O) interconnect, are capable of utilizing a maximum of four Advanced Mezzanine Cards (AMCs). The Backplanes, which are designed to accommodate anywhere from 2 to 16 Front Board Slots, distributes power and manages metallic test bus, ring generator bus and low-level Shelf Management signals. The PICMG 3.0 spec dictates that systems are capable of dissipating as much as 200 Watts per single-Slot Board and further defines everything from airflow cooling to shelf management. The shelves comply with NEBS and are rack-mountable to ETSI specifications.

The new architecture has resulted in a high-speed switched fabric with peak throughput of 10 Gigabits per second (Gbps), 10 times higher than the peak throughput of CompactPCI. The ATCA fabric supports full-mesh interconnect and is also protocol-agnostic, capable of supporting Ethernet, InfiniBand, PCI Express and/or RapidIO. As such, ATCA provides reliable standardized platform architecture for carrier-grade communications functionality without sacrificing the high availability (99.999%) and manageability (Hot-Swap) that is associated with costly proprietary hardware. In addition, a vast ecosystem of vendors has formed over the last few years to support the ATCA initiative further reducing costs and time-to-market for potential customers.

Robert Liu is Executive Editor at TMCnet.

Intel Remains in the VoIP Business

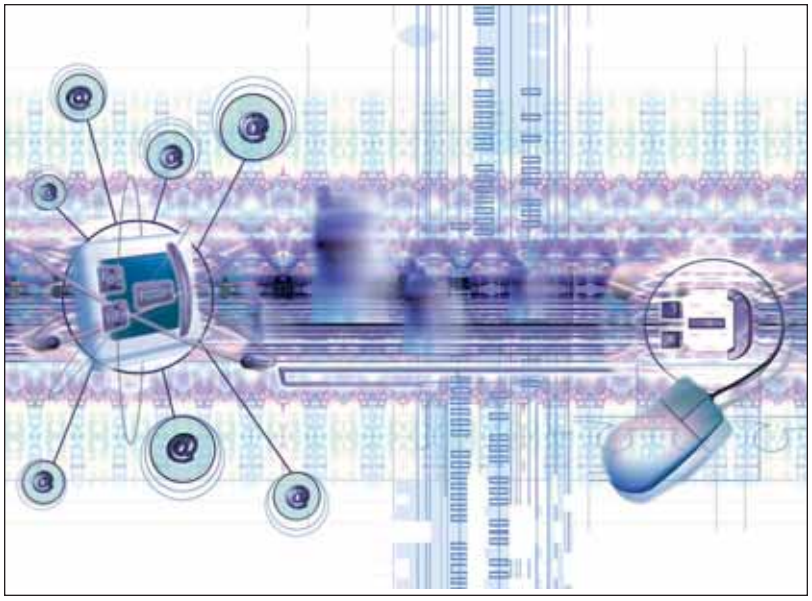
As this article was going to press, Eicon Networks Corp. announced plans to buy Intel's media and signaling business, which includes product from Intel's Dialogic acquisition and its Host Media Processing software. Intel's PBX (private branch exchange) integration and gateway products are also included in the deal.

The sale of this division advances Intel's objective of selling off non-core assets. In June, Intel sold its communications and applications processor business to Marvell Technology Group Ltd.

That's not to say that Intel is exiting the VoIP business. Michael Stanford, Director, VoIP Strategy, Digital Enterprise Group at Intel, speaking at the recent VoIP Developer Conference, clarified what exactly goes to Eicon: The (former) Dialogic voice boards, the Host Media Processing solutions, and Intel's complete line of SS7 technologies (former DataKinetics) and PBX integration and gateway solutions (from the VTG acquisition).

Intel (quote - news - alert) maintains several VoIP related business lines, including network processors, and supporting components as well as solutions based in the modular communications products division (CompactPCI, ATCA, and rack mount servers).

According to TMC president and publisher, Rich Tehrani, "Intel is still in the communications business, mind you. They are keeping their core communications and embedded businesses, including Intel Architecture and network processors, modular communications platforms, and optical modules."



News Analysis By Robert Liu
TMCnet Wireless and Technology Columnist

Industry-leading Vendors Combine to Develop Advances to IMS Framework

A group of leading communications companies is working to develop advances to the IP Multimedia Subsystem (IMS) architecture as deployments become a reality for carriers and telecom equipment manufacturers (TEMs) trying to help consumers and businesses bridge their legacy networks with the feature-rich IP realm.

The multi-vendor team — led by Verizon Wireless (quote - news - alert) and including engineers and strategists from Cisco Systems (quote - news - alert), Lucent Technologies (quote - news - alert), Motorola (quote - news - alert), Nortel (quote - news - alert), and Qualcomm(quote - news - alert) — has initially adopted the generic term of "A-IMS," which stands for "Advances to IMS," for its vision for the advancement of next-generation network (NGN) technologies. The ultimate goal is to provide practical, real-world solutions to implement NGN services, not only on IMS-based networks, but also current legacy systems. A-IMS hopes to create a foundation for the efficient rollout of both Session Initiation Protocol (SIP) and non-SIP-based services.

"What I would tell you is it is really an attempt to find a way to provide a logical evolution from where we are today to where we all know where we're going to be tomorrow," Dick Lynch, Executive Vice President and Chief Technical Officer at Verizon Wireless, told media and analysts.

But, during a conference call, Lynch and his team were quick to emphasize that the goal of A-IMS isn't to splinter the IMS architecture, which has already been accepted by the 3GPP wireless governing body in its Release 5 and 6 specifications. Verizon, itself, has committed to rolling out IMS components over the next 12 to 18 months.

"There is nothing here that is intended to in any way [degrade] or dismiss any of the work that has been done to this point in IMS," Lynch said. The teleconference also included Ed Salas, VP, Network Planning, Verizon Wireless; Larry Lang, Vice President and General Manager, Mobile Wireless Group and the Broadband Subscriber Applications Business Unit, Cisco; Paul Mankiewich, Chief Technology Officer, Network Systems Group, Lucent Technologies; Fred Wright, SVP, Networks and Enterprise, Motorola; Doug Wolff, VP and General Manager, CDMA, Nortel; and Roberto Padovani, Chief Technology Officer, QUALCOMM

Instead, A-IMS is designed to fill gaps that were left out when the standards were first developed. Among the key contributions of the A-IMS proposal, officials said, is its outline for a comprehensive security platform that includes a Security Manager mechanism to monitor the entire network at all times, rather than a single application or feature set. In addition, A-IMS also addresses uniform treatment of SIP and non-SIP applications, dual IP address anchoring; three-layer peering; and multi- tiered service interaction man-

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"A-IMS...it is really an attempt to find a way to provide a logical evolution from where we are today to where we all know where we're going to be tomorrow,"

agement.

"Two areas in particular to highlight: one in the area of supporting the applications that are aware of and use this architecture of IMS, but also acknowledging that there are other applications either pre-existing or, perhaps, developed in the future, that are not aware of or using this architecture. And yet, we have to be able to work with those as well," said Cisco's Lang.

"The other area that deserves special highlighting is security and understanding that what had gone before had been silent on this topic, and yet clearly that's not an acceptable way of deploying in the real world." Lang added.

To be sure, for A-IMS to become an actual standard, the work will likely need the support of market leading TEMs, such as Ericsson and Nokia, which is in the midst of merging with Siemens. For those dominant players to take advantage of the joint development, a vendor like Ericsson may have to reveal trade secrets like its proprietary security schema — a move that it might be reluctant to make. To this degree, Lynch and his team admitted that they will have to proceed with some level of "humility" in developing their documentation.

In addition, the work is likely to overlap with other standards groups. However, Motorola's Wright explained A-IMS would largely be complementary to the interoperability specs being developed by the Communications Platform Trade Association (CP-TA), which is spearheaded by Motorola and its long-standing partner, Intel.

Still, for vendors like Motorola, the solutions outlined by A-IMS couldn't come fast enough, as the company is currently in the midst of its first IMS deployment.

"We are commercializing our first IMS solution in the fall of 2006," Wright said. "We're frankly dealing with all of the issues that we are talking about on the call today, and we're having to deal with it in an ad hoc fashion instead of an orderly fashion because, frankly, they haven't been addressed by standards."

"As we've gone through the practical implement of our first IMS commercial solution that we will commercialize this fall, one of the things that we've seen is that the standards, as they exist today, simply don't address a seamless transition for a user from one type of an access network to another, and particularly between, let's say, CDMA-1x and DO-Rev A.

"Users expect to have exactly the same type of experience to be able to use features exactly the same way as they've always used them as they move from one technology to another because, frankly, the customers often times have no clue whether they are operating on a 1x network or one of our next-generation networks that we might be implementing. So, I think what this team is addressing are the white spaces, as I would call it, that, frankly, were not as adequately addressed as they should have been when the standards were first developed," Wright said.

Motorola officials declined to elaborate on the details of the IMS deployment, such as a customer name.

Despite the group's heavy influence in CDMA, Lynch also emphasized that A-IMS has the stated goal of being access-agnostic, meaning it doesn't matter if the users was accessing network services via a cellular or WiMAX network. "We believe this is relevant to any network operator, regardless of their access technology. And by that, I'm not only talking about mobile technologies, but I'm also talking fixed access technologies," he said, adding that Verizon Wireless has been working with its fixed-line counterparts at Verizon.

For the time being, the task force plans to work together to come up with a concept document and an architecture document. Afterwards, the task force companies plan to approach IETF, 3GPP, 3GPP2, CableLabs, and other standards bodies. IT

Robert Liu is Executive Editor at TMCnet. Previously, he was Executive Editor at Jupitermedia and has also written for CNN, A&E, Dow Jones and Bloomberg.

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New Tenors Ensure Branch Communication Will Survive

By Erik Linask

Quintum Technologies (news - alert) has announced the availability of its new enhanced Survivable version of its Tenor VoIP MultiPath Switch that will provide local support for branch offices when IP connectivity with the main voice server at headquarters is lost. Quintum's Tenors assure enterprises that even in the event of failure at the IP PBX, branch office communication can continue without delay.

In fact, The Survivble Tenor S requires no additional equipment (other than the VoIP endpoints) to support both IP devices and legacy analog devices at branch offices, providing connectivity to both the IP network as well as the local PSTN. The Survivable Tenor, in combination with the switching architecture, enables all the call processing and routing required to keep a VoIP system up and running, even when the main VoIP server connection has been lost.

The Survivable Tenor S uses a local SIP proxy to provide survivability for local SIP endpoints and intelligent call routing, which keeps any SIP-based VoIP network up and running should the connection with the main server be interrupted. Typically, in the event of server failure, IP devices would cease operation. The Survivable Tenors keep the local IP telephony phone network operational — regardless WAN connectivity — and combines that with its PSTN failover capabilities, ensuring not only that IP phones and legacy analog devices (i.e., faxes, security systems, PA systems, etc.) remain operable, but that access to the local 911 network is never severed.

The new Tenor is a viable solution for service providers offering hosted IP PBX or IP Centrex services, which have customers that, essentially, behave like branch offices and require trunking, connectivity, and survivability. Indeed, for these customers, it may be even more important to ensure communication is maintained than for many remote offices.

Quintum's Vice President of Marketing Chuck Rutledge emphasized that Quintum has service provider customers of all sizes, including a large number of NGN providers and VoIP specialists. He also noted that the company is making strides with larger and larger providers and hinted that an agreement with a major U.S. carrier could come in the near future.

Because the Tenor accommodates both IP phones and legacy devices, it is perfect for those companies engaged in a phased VoIP deployment. Perhaps the main office and a few key branches are set up with VoIP service, but the smaller branches are left with their legacy systems for the time being. Quintum allows the enterprise to integrate the existing branch office PBX with the IP PBX in the main office by dropping a Tenor in the branches. That Tenor will provide trunking to the IP network for the analog devices, essentially putting the IP and analog devices on one network without having to replace all the phones. When it comes time to convert the remaining branches to IP, it's as simple as replacing the phones, taking out the traditional PBX, and connecting any remaining analog devices to the Tenor, which retains it place in the network. Now, the Tenor that was providing trunking and integration is now acting as the survivable branch office gateway in exactly the same place in the network architecture.

Both versions of the Tenor are built on Quintum's MultiPath architecture, which provides the call routing between IP and PSTN, including network "hop-on" and "hop-off," and PSTN connectivity to 911 emergency services. Both offer easy, transparent installation in existing network infrastructure and assured voice QoS to monitor IP traffic and switch calls to an alternate network in the event that jitter, packet loss, or latency will jeopardize call quality.

In addition to announcing its Survivable Tenors, Quintum also has expanded its Tenor AF product line, which now features 2, 4, 6, and 8 analog line and trunk interfaces to support up to 8 simultaneous VoIP calls.

"The Tenor AF Series was designed to inevitably fulfill the destiny announced here," said Rutledge.

Quintum is phasing out its old low-end product (Quintum's Tenor AS series) and replacing it with the new AF series, which will now support 2, 4, and 8 ports previously supported by the AF and AS lines, and will also add a new 6-port option. The new Tenor AF is more scalable and versatile and able to support a wider array of configurations, including Quintum's unique MultiPath configuration, gateway (station) configurations, trunking configurations, and enterprise configurations.

The Tenor AF Series is also being offered in the new Survivable version to ensure communications stability in the event of IP PBX failure.

http://www.quintum.com

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New NetEnforcers Create Smarter Networks for VoIP Traffic

By Erik Linask

Allot Communications (news - alert) has launched two new additions to its line of network optimization devices, both in its NetEnforcer AC-800 series of traffic management devices — the AC-804 and AC-808. The new devices are designed for small to mid-sized service providers and medium to large enterprises. Using Allot's deep packet inspection (DPI) technology, the devices give network managers previously unrealized levels of visibility into their networks, enabling them to monitor and control traffic and user behavior.

Both devices also are equipped with Allot's new NetXplorer centralized management capability, which provides end-to-end visibility and in-depth analysis of bandwidth usage per application and per user. Working in tandem, the new NetEnforcers and NetXplorer deliver the network business intelligence and QoS control that operators need to guarantee the delivery and performance of VoIP, streaming video, and a host of other high-bandwidth services that are demanded by end users.

Because the AC-804 and AC-808 support multiple GigE links, operators can more easily implement traffic management within and across segmented networks, meshed networks, and other topologies. It also allows for flexible load-sharing configurations as well as robust redundancy schemes.

"Allot helps network administrators see what's actually on the network, and use that intelligent insight to manage traffic according to business requirements," said Rami Hadar, president and CEO, Allot Communications. "This ability to determine network content is invaluable for managing traffic while maintaining a high level of service quality."

http://www.allot.com

SightSpeed Adds Place Shifted TV in Version 5.0

By Erik Linask

Video conferencing specialist SightSpeed (news - alert) has announced the newest version of its personal video services platform, SightSpeed 5.0. With this latest release, SightSpeed offers improved quality and functionality in its suite of easy-to-use Internet-based personal video and voice services.

Version 5.0 brings enhancements to SightSpeed's video quality using the company's new enhanced video codec, which provides improved image clarity and performance optimization. Users of SightSpeed 5.0 will immediately see significantly enhanced video clarity across all network conditions, while continuing to experience full 30 frames per second video, no latency, and perfect synch of video and voice unmatched by any other service.

SightSpeed 5.0 also offers improved connectivity. It is a direct peer to peer connection enabled via a central directory, which then drops out, leaving the direct P2P connection traversing firewalls on both ends. It is different from the Skype-type supernode model, which many fear can compromise network security.

SightSpeed 5.0 also adds voice-only calling capability — PSTN Out- and In-calling — which work much like Skype's calling services, with competitive pricing and high quality voice transmission. SightSpeed 5.0 also introduces free and unlimited PC to PC voice-only calling. With 5.0, SightSpeed's real-time communications suite is complete with the best quality video and voice over IP (VVoIP), voice over IP (VoIP) and text (IM) solution.

The most innovative of SightSpeed 5.0's new features is a breakthrough extension of its personal video services, SightSpeedTV. SightSpeedTV is a place shifting television viewing feature that gives users with a TV capture card on their PC or laptop the ability to view their home TV anywhere in the world. The most noteworthy feature of SightSpeedTV is that, unlike many similar competitor solutions, it requires no additional hardware and comes complete with an intuitive "remote control" interface, enabling true channel surfing — from anywhere. SightSpeedTV will be introduced as a beta feature available for free to all SightSpeed users.

http://www.sightspeed.com

8x8 Intros Softphone with Voice, Video and E911 Support

By Johanne Torres

VoIP and video service provider 8x8 introduced today the Packet8 (news - alert) Softalk, a video-enabled SIP softphone for use with Packet8 voice and video Internet phone services. Packet8 Softalk will allow subscribers to make and receive voice and video phone calls directly from their personal computers. Along with traditional landlines and cell phones, Softalk users can also call Packet8 VideoPhone subscribers to carry out video communications when traveling, without needing to tote along a separate device.

"The Softalk service gives Packet8 VideoPhone subscribers the option of purchasing either one or two videophones to make and receive Packet8 video calls," said 8x8's vice president of sales and marketing Huw Rees. "This means that instead of a $400 investment in two standalone videophones, subscribers can now enjoy two way voice and video calls using their PC on one end and a Packet8 VideoPhone on the other."

According to 8x8, the softphone supports FCC-mandated E911 nomadic calling, now required as a standard feature of all VoIP services interconnected with the PSTN. The company also bundled advanced NAT traversal technologies and standards in the Packet8 Softalk offering, including IETF standard and draft ICE with STUN and TURN, to allow use of the service behind symmetric and asymmetric NATs.

In addition to a PC or laptop, the equipment required to use Packet8 Softalk includes a headset and microphone or USB phone. For video use, a standard, digital camera or off-the-shelf webcam is required to send video and images, though none is required to receive video images. Packet8 Softalk can be downloaded online.

http://www.packet8.com

Toshiba Unveils Small Business Communications Tool

By Greg Galitzine

Toshiba America (news - alert) Information Systems Telecommunication Systems Division (TAIS TSD) recently announced the launch of Strata CIX40 IP business communication system. Designed specifically for small companies, Strata CIX40 supports up to 16 station ports and eight IP channels.

The launch of Strata CIX40 also marks the complete transition of the entire Toshiba product line to Voice over IP. Now businesses of all sizes can take advantage of Toshiba's offerings, from the small scale 16-port CIX40 through the CIX100 and 200 (72 users and 160 users respectively) to full-blown CIX670's, which are designed to serve up to 560 users. All of these systems can run in a networked environment, so that businesses with varied office sizes and locations can deploy the appropriate systems as their branch office needs dictate.

The announcement of the CIX40 is a boon to small businesses looking to embrace VoIP. According to Yankee Group Director of Global Business Communication Strategies, Steve Hilton, "Offers like the Toshiba solution allow small businesses a full IP solution or a hybrid solution that combines TDM and IP. It gives small businesses a choice in when and how to make the move to VoIP."

Strata CIX40 has been designed to deliver virtually every feature to every user, regardless of the type of Toshiba endpoint they are using, whether they are fixed or mobile. The system supports IP phones, IP wireless telephones, IP softphones on notebook and tablet PCs, and digital (TDM) and analog telephones.

"Toshiba's Strata CIX40 offers all the benefits of Toshiba's larger Strata CIX systems at a size and price that is perfect for small businesses," said Brian Metherell, vice president and general manager of Toshiba's Telecommunication Systems Division. "With the addition of Strata CIX40, Toshiba has now completed the transition of its entire line of voice solutions to VoIP platforms, while still keeping its promise of a migration path from older Toshiba digital systems."

http://www.telecom.toshiba.com

IPcelerate Expands IPsession Suite with IP Video Surveillance

By Mae Kowalke

VoIP solutions provider IPcelerate (news - alert) announced the release of IP Video Surveillance, an IP network solution for recording and monitoring video sessions. The new product is an add-on to IPcelerate's IPsession suite, and operates as an extension to Situational Awareness, according to the company.

Key features of IP Video Surveillance include:

- Web-based interface
- Multiple camera views
- Camera control interface
- Configurable floor plan maps
- Support as many as 32 cameras
- Continuous, motion-detection and alert-based operation modes
- Compatible with IP, analog and digital cameras

"Safety is a primary concern for all businesses, including government facilities and schools, as well as the private sector," IPcelerate's Chief Operating Officer, Laurent Therivel notes. "IP Video Surveillance provides organizations the ability to see, hear, and understand what is happening in their facility, allowing them to respond quickly and appropriately."

Therivel added: "This solution is becoming a standard inclusion for our education customers, and just another example of how impactful IP technology can be for an organization."

http://www.ipcelerate.com

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2005 INTERNET TELEPHONY PRODUCT OF THE YEAR

Interwise Connects Swiss Re Employees

By Stefania Viscusi

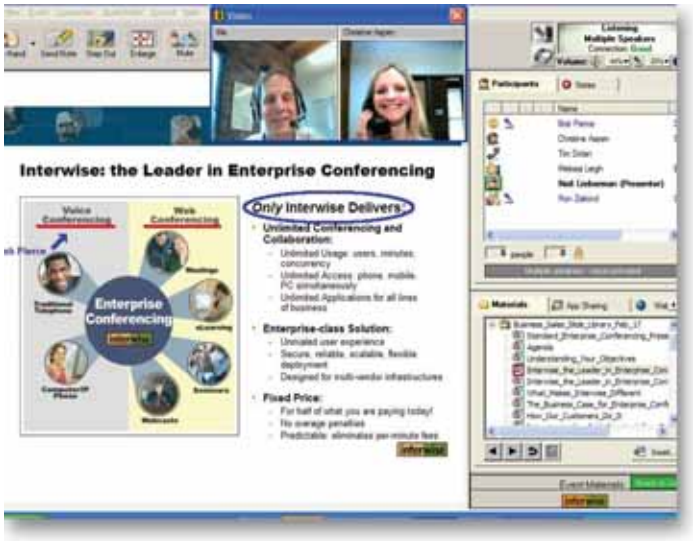
In a bid to better unify all of its geographically dispersed employees, Swiss Re, provider of reinsurance and financial products and services, chose Interwise Connect as its single corporate-wide conferencing solution. Swiss Re selected the Interwise solution among dozens of other vendors and after a one-year evaluation process noting its strong customer/client commitment, security, functionality, pricing and technology.

Using Interwise (news - alert) Connect, employees from across their 70 offices in 30 countries can all use an unlimited amount of conferencing capabilities for a fixed price.

"We chose Interwise on-site IP software approach for its ability to provide the full range of business functionality required by our many types of users, its fixed price/unlimited usage model, and its ability to truly meet all of our infrastructure requirements," commented John Schurdak, head of group platforms for Swiss Re.

"By choosing Interwise we are able to bring together multiple tools, including bandwidth optimization in one solution. Equally important, Interwise combined the pricing and technology to enable us to give conferencing to everyone in the company, like email."

http://www.interwise.com



Clearswift Simplifies Enterprise E-mail Security Management

By Anuradha Shukla

Clearswift (news - alert) has launched a new enterprise class version of its e-mail security appliance, MIMEsweeper SMTP Appliance version 2.4. The new version's next-generation SpamLogic engine and other enhancements deliver benefits to businesses of all sizes.

Several new features, outlined below, specifically address the needs of organizations with multi-box deployments: Enhanced anti-spam signature technology; multi-appliance support; peer appliance Personal Message Management (PMM); integration with third-party archiving and encryption solutions; innovative network configuration and diagnostic improvements.

The new version also includes dual disposal actions, which enables administrators to allow two actions when a content rule is triggered. Additionally, suspected e-mail messages can now be delivered and simultaneously routed to a server for archiving.

Clearswift is also launching what it calls "bullets," a new generation of its SpamLogic spam detection software that uses sliding-scale-based detection method that adapts to the needs of different businesses.

"The new features in version 2.4 of the MIMEsweeper SMTP Appliance are going to make a difference to the workload of your average e-mail administrator when deploying policy changes," said David Carr, chairman of the MIMEsweeper User Group. "With the inclusion of centralized PMM digests and enterprise management of e-mail policy, this product delivers multibox redundancy and ensures human error is minimized."

http://www.mimesweeper.com

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- IT Managers simply get a solution that relieves headaches associated with separate proprietary voice and data networks. EIC is a complete Voice over IP communications solution based on Windows Server, using open SIP standards, with out-of-the-box business application integrations, and centrally administered with familiar Windows-based administration tools. "Finally!"

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Inter-Tel Upgrades Software, Expands 5000 Family

By Greg Galitzine

Inter-Tel (news - alert) recently announced the availability of its CS-5600, the latest addition to the company's Inter-Tel 5000 Network Communications Solutions line, which includes the CS-5200 and the CS 5400. The new CS-5600 supports up to 250 IP endpoints along with 96 digital and analog devices.

The CS-5600 features a dual 1U design, and offers three modular bays for trunks. The system is built on the Linux operating system. Built on the same base chassis as the other members of the 5000 family, the CS-5600 interoperates with the full suite of Inter-Tel applications, such as presence management, collaboration, messaging, and mobility. The 5600 also supports Inter-Tel's full line of endpoints. The bottom half of the double 1U design acts as a Processing Server, delivering high-performance processing for additional IP users and heavy use environments.

So, the migration path is as follows: To upgrade from a 5200 to a 5400, users need to add a processing expansion card and add on the proper licensing; to move from the 5400 to the 5600, users would add the Processing Server, and again, obtain the appropriate licensing.

Inter-Tel also announced the version 2.0 of its Inter-Tel 5000 software. Now small customers can expand the capacity of their 5000 systems with a simple software upgrade. Designed to provide more efficient system resource management, the upgraded software expands the capacity if the CS-5200 from 25 to as many as 75 ports, and the capacity of the CS 5400 from 110 to as many as 175 endpoints. This means that current customers can grow via a simple software download, as opposed to having to switch out the entire system.

The new software also features support for a four-port analog station module as well as for Caller ID to be sent to an analog device. Inter-Tel plans an eight-port module by year's end, though company representatives do not have a specific date in mind.

http://www.inter-tel.com

TeleWare Launches Presence and Availability Solution

By Anuradha Shukla

TeleWare (news - alert) has launched TeleWare intelligent Presence Manager (iPM), a presence and availability solution for the corporate environment. The solution enables presence information without PBX type, network protocol, or handset model dependency.

Since iPM is a software-only solution, it allows a hardware independent deployment. It can also represent IP and traditional PBX hardware based extensions as virtual extensions through TeleWare's personal numbering solution. The virtual extensions are enabled for presence information by iPM, bringing presence management to traditional DPNSS and Q-Sig based networks as well as the SIP IP Phones.

iPM enhances the use of presence within the several mixed PBX networks and accommodates the many mixed vendor corporate telephony networks. It also provides a visual indication of the on-/off-call status and registered availability of each listed contact.

Additionally, iPM with intelligent eXchange (the next generation TeleWare IP-PBX application) can be connected to and is compatible with PBX hardware and SIP compliant handsets from major vendors. Teleware expects to integrate iPM with both Microsoft's LCS and IBM's Sametime for 2006 delivery following the completion of beta trials.

"Presence awareness is rapidly becoming a much sought after feature," commented Lesley Hansen, TeleWare Group marketing director. "The level of interest is likely to increase further as the PBX hardware vendors and desktop vendors develop solutions with much tighter integration between voice and instant messaging."

http://www.teleware.com

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MetaSwitch Launches Full-Service Telephony Platform for Cable

By Arthur Cole

MetaSwitch (news - alert) has launched a new platform that claims to be an all-in-one solution for cable operators looking to either launch or upgrade existing voice and data services. The company has dubbed its platform COMPETE!, or "Cable Operator Multiservice Platform for Enhanced Telephony Evolution." As the name implies, it's designed to give operators a leg up on telephone companies, particularly in the lucrative business services market.

"From a technology perspective, this is an entire network," said Andy Randall, vice president of marketing at MetaSwitch. "And we're backing it up with professional services for operators who want help deploying voice for the first time or with the next step in migrating to IMS."

The platform is built on Cisco's IP Next-Generation Network infrastructure (IP NGN) and utilizes the unspecified bit rate (uBR) series of cable modem termination systems (CMTS), Linksys multimedia telephone adapters, MetaSwitch's own multimedia session control and Scientific-Atlanta set-top boxes. It also uses Cisco's Service Exchange Framework (SEF) for seamless support for Web 2.0 and .NET applications.

While residential services have always been cable's bread and butter, MetaSwitch has an eye toward putting operators into the business enterprise. The platform offers a way to tap into services like hosted private branch exchange (PBX), unified communications and converged T1 services over IP.

"Access into the enterprise market is a key goal of both large and small operators," Randall explained. "Initially, the primary cable product was video for the residential market with DOCSIS 2.0 bringing in high-speed data to meet business requirements. Now, if you add voice to that, you've got quite a compelling service."

http://www.metaswitch.com

VoIP Meets the Browser

By Rich Tehrani

There is a race going on in the VoIP development community to allow IP communications functionality via a Web browser. No longer is it chic to download software, it seems. Many companies have policies against downloading unapproved software and consumers are fed up with having to deal with the clutter caused by dozens of programs and utilities piling up on their computers.

Browser-based communications will soon be commonplace and there are new developments in this area constantly being announced. Florida-based VoiceOne, a subsidiary of VoIP Inc., has now announced the beta release of its Web-click service, Click4Me.Net.

VoIP Inc.'s (news - alert) CTO Shawn Lewis said, "Cick4Me is designed to meet the needs of active, on-the-go businesspeople. It integrates the World Wide Web, VoIP calling, mobile telephony, and landline functionality, all within one product. It even enables users to connect with others without giving out their phone number."

Users aren't required to use IM or any software at all — they just go to the Web address and connect with whomever they like.

Registered Click4Me users maintain their settings online and can set their availability status to "Away," "Do Not Disturb" and "Available." Registered users can also change the unpublished number at which they wish to be reached. Additional features allow users to apply custom filters for blocking specific callers or require special PINs to complete calls.

VoiceOne plans to add additional Click4Me.Net features, including voicemail, text message notifications, and text message dialing.

http://www.click4me.net

Cable & Wireless Selects Veraz Switching and Verso Prepaid Wireline

By Laura Stotler

Cable & Wireless Jamaica (news - alert) has chosen advanced NGN switching infrastructure and prepaid wireline solutions from Veraz Networks (news - alert) and Verso Technologies. The new deployment features the Veraz ControlSwitch Softswitch and service delivery platform in addition to the I-Gate 4000 PRO media gateway. It also features the Verso IP-based I-Master Application Server and Revenue Assurance Platform.

The Verso (news - alert) solution is designed to deliver prepaid features and service to subscribers and was deployed and implemented within four weeks from the date of order. The Veraz ControlSwitch offers Cable & Wireless an advanced switching platform that is capable of integrating with and preserving the legacy infrastructure.

The I-Master solution offers convergence of calling card, prepaid and Internet service, which enables the provider to target prepaid wireline, calling card and prepaid Internet services. Cable & Wireless is focusing on an aggressive growth plan for prepaid wireline subscribers, and also plans to migrate existing calling card traffic to the new platform.

"We have been able to launch a new fixed line prepaid service leveraging existing distribution channels for calling cards, now widely available at many retail locations throughout the island," said Roger Richards, senior vice president, Internet, Voice & Data Services of Cable & Wireless. "In addition, we have also been able to introduce several new electronic options for adding credit to accounts. This will certainly further enhance our leadership role in the provision of telecommunications services in Jamaica."

"In this environment, with intense price pressure, Cable & Wireless Jamaica has a revenue producing application that also creates customer loyalty via personalization. The plan is to use this as a model for deployment in various markets throughout the Caribbean," said Allen Draa, vice president, I-Master Product Sales, Verso Technologies.

http://www.home.cwjamaica.com
http://www.veraznetworks.com
http://www.verso.com

Terremark and Eagle Broadband Sign IPTV Content Agreement

By Laura Stotler

Terremark Worldwide (news - alert) and Eagle Broadband (news - alert) have signed a multi-year, renewable colocation agreement to deliver IPTV content throughout the U.S. from Terremark's NAP of the Americas Facility. Terremark provides Tier-1 Internet exchanges and is a global provider of managed IT infrastructure solutions for the government and private sectors. Eagle is a national provider of broadband, IP and communications technologies.

Eagle chose Terremark's NAP of the Americas to provide a secure, fail-safe connection to customers throughout the US. The NAP of the Americas will serve as the central distribution hub for Eagle's IPTV solution. The company's IPTV services feature direct access to more than 200 channels of high-demand programming through a mix of SD and HD set-top boxes.

"This is a significant step for us in the delivery of our IPTV solution and our growth strategy for this service," said Dave Micek, CEO of Eagle Broadband. "Terremark's robust and secure NAP of the Americas facility is the right place for us to be as we continue to grow our business in the IPTV content delivery service market."

"As this industry trend continues to get traction, we are delighted to welcome Eagle Broadband as one of the first IPTV distributors to our facility," said Manuel D. Medina, Chairman and CEO of Terremark Worldwide. "Eagle Broadband will be able to connect their customers to their TV content providers by leveraging TWW's secure, redundant and scalable environment."

http://www.terremark.com
http://www.eaglebroadband.com

Alcatel, Motorola, Tellabs to Support Verizon's G-PON

By Erik Linask

Already delivering broadband speeds faster than most other telecom and cable companies, Verizon (quote - news - alert) is now set to up the ante by installing equipment from Alcatel, Motorola, and Tellabs that will dramatically increase speeds on the company's FTTP network.

Verizon will begin deploying Alcatel (news - alert) equipment later this year, followed by Motorola and then Tellabs. Initial estimates are the new equipment will be increase broadband speeds by up to four times on the downstream up to eight times on the upstream.

The company says that equipment from the three suppliers will support its Gigabit Passive Optical Network, or G-PON. Alcatel equipment will be installed in Verizon's central switching offices as well as in new installations of direct fiber-optic links terminating at customers' premises.

Motorola (news - alert) and Tellabs (news - alert) both supply electronic equipment for the current technology being deployed in Verizon's 16-state FTTP network, known as B-PON or Broadband Passive Optical Network, making them a natural partner for continued expansion of services and capabilities.

"G-PON is the next step in the evolution of the all-fiber access network," said Paul Lacouture, Verizon's executive vice president for network and technology. "When we first launched the nation's only large-scale FTTP program in 2004, we said that one of the most important competitive and cost-effective features is that we could increase speed and capabilities by evolving to more advanced electronics and without having to change the fiber we had already deployed or are deploying. Today's announcement begins to fulfill that promise."

Not only will the three vendors' hardware increase broadband transmission speeds via the fiber network, it also will enhance Verizon's FiOS TV product, enhancing its VOD capabilities and paving the way for an all-IP offering. Not surprisingly, the deal also brings additional cost savings for Verizon — the company says the costs of the electronics portion of the FTTP platform will be diminished by one quarter.

http://www.verizon.com
http://www.alcatel.com
http://www.motorola.com
http://www.tellabs.com

Sonus Intros New IMS-Ready NBS

By Erik Linask

Sonus Networks (news - alert) announced the general availability of its new Network Border Switch (NBS). This new network element has been designed specifically to provide carrier-class IP peering and security capability to both smaller IP-based voice networks and to less densely populated regions of larger IP-based networks. The introduction of the product expands the breadth of Sonus' IMS-ready architecture, offering both new and existing customers greater flexibility in designing their networks and offering smaller footprint solutions without sacrificing carrier-class functionality.

Unlike traditional peering and security products — like Session Border Controllers (SBCs), which some believe may be becoming outdated — Sonus' NBS incorporates session control, PSTN gateway services, and security into a single carrier-class system. Sonus has designed its IP-based NBS to allow network operators to leverage sophisticated media handling functionality, IP signaling options, network privacy and protection features, and traffic control features the system offers.

In addition to bringing an integrated solution to the market, the small form factor of Sonus' NBS should draw new customers, as they will be able to enter the market at a lower price point, yet with a solution that can scale seamlessly as needed. Like all Sonus solutions, the NBS is standards-based, leveraging IMS standards, which means existing Sonus customers can easily integrate the new NBS into their existing infrastructures.

For new competitive network operators or incumbent network operators looking to scale their networks into new regions, the NBS will facilitate increased operational and CAPEX efficiencies, introduce new revenue generating opportunities through media transcoding, and ensure the signaling and media security functionality required to ensure network integrity.

http://www.sonusnet.com


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RadiSys to Buy Convedia

By Erik Linask

Two companies at the forefront of emerging technologies like IMS will soon be under a single umbrella, as RadiSys Corporation (news - alert) has entered into a definitive agreement to acquire privately held Convedia Corporation. (news - alert)

RadiSys has now entered into a definitive agreement to acquire privately-held Convedia. The acquisition of Convedia will benefit both companies' customers bringing together two sets of complementary technologies under one umbrella with an expanded team with greater scale and breadth to fully support customers' driving needs. The combined facilities and staff will instantly expand global reach and the ability to service and support customers.

"We believe that IMS/VoIP is an important and growing market and that Convedia's products and strong customer relationships, together with RadiSys' ATCA leadership, creates a broader and more compelling portfolio of solutions for our customers across a larger addressable market," said Scott Grout, RadiSys President and CEO.

The addition of Convedia will facilitate RadiSys' penetration into the VoIP and IMS infrastructure markets and will aid in fulfilling RadiSys' vision of providing turnkey networking platforms. Convedia's Media Servers have been deployed at more than 200 customers around the globe, including half of the top 50 global telecommunication service providers.

The entire line of Convedia media servers will continue to be developed and enhanced under the RadiSys corporate brand. The combined firms also will leverage Convedia's eXMP (eXtended Media Processing) software technology to operate on RadiSys' ATCA platforms, which will create even greater opportunities for the combined entity.

http://www.radisys.com
http://www.convedia.com

Rebtel: It's Mobile, It's VoIP, It's Just $1 a Week!

By Johanne Torres

Have excess cell phone anytime minutes? Now you can put them to good use, thanks to a new service from Rebtel. The telecom recently launched a VoIP-based calling service offering low-cost international calls on their mobile phones. With Rebtel, (news - alert) users will be able to place these calls as if they were local for just a dollar a week.

"If you can make a local call on your mobile phone, you can be 'rebbing' within minutes for free," said Rebtel's president and CEO Hjalmar Winbladh.

To get started, users can sign up for a Rebtel account online, where they enter their mobile phone number and the mobile phone numbers of global friends. Rebtel then instantly creates pairs of local numbers and sends them in text messages (SMS) so they can be saved in the friends' phone address books and used to call each other from then on.

Once the account is set up, Rebtel then charges $1 per week for use of two services: REBin and REBout. With REBout, people use local numbers where they live to call anywhere in the world and only pay for the local call, plus a small per-minute fee to Rebtel. With REBin, no matter how many calls, how often or how long, there are no additional charges over Rebtel's service fee and the cost of the local calls.

http://www.rebtel.com

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Reliable Wireless Video Distribution Causing a Ruckus

By Erik Linask

Ruckus Wireless (news - alert) has combined two growing fields, wireless and video, with its patent pending technology for reliable transmission of digital video over standards-based in-home wireless networks. Improving on the consistency and range of standard wireless connections, Ruckus goes one step further, enabling WiFi users to transmit their IPTV signal to their TV sets wirelessly. Furthermore, while service providers may be able to bring triple play services to subscribers' homes, Ruckus' technology enables easier distribution of the voice, video, and data services throughout the home using any standards-based 802.11 wireless connection.

In an effort to extend its market reach, Ruckus Wireless has reached an agreement whereby the Communications Supply Service Association (CSSA) will market, stock, and sell, Ruckus' MediaFlex smart WiFi system for the home. CSSA member providers will now have easy access to some of the most compelling wireless technology available today.

"Extending next-generation, IP-based digital services in the home is a major issue for broadband providers. Ideally, a no-wire solution that is reliable enough to support IPTV is what providers and subscribers want," said Scott Davison, vice president of strategic product development for CSSA. "Ruckus Wireless has overcome the technical obstacles that, up to now, effectively prohibited WiFi from serving this purpose in the home."

"Our members have needed technology like this for a long, long time," added Davison. "Solving the in-home distribution problem has been a big hurdle for providers, and we really didn't think traditional WiFi would ever be made reliable enough."

http://www.ruckuswireless.com

Video to Go from Sony Ericsson and Actimagine

By Erik Linask

Adding another feature to the ever evolving list of mobile applications, Sony Ericsson (quote - news - alert) has now made it possible to watch full length feature films as you embark on those longer trips. Coinciding with the release of its newest smartphone, the M600i, Sony Ericsson has also launched its Mobile Cinema operation, which will make available DVD quality feature films for users to watch on their mobile devices.

At the click of a button, users can be watching feature-length movies — literally anywhere — in DVD quality at 30 frames per second, while limiting power consumption. All you need to do is insert the memory card into the phone, click on the icon on the screen, and the film starts.

With French firm Actimagine's (news - alert) Mobiclip codec, Sony Ericsson users achieve considerably better power consumption rates when watching video on the device, while still enjoying higher quality video. Actimagine's technology makes it possible to watch a video clip, a concert, or even a movie with an exceptional quality of sound and picture.

In addition to its video capabilities, the M600i also is a touchscreen phone for everyday business and leisure use, with everything needed to maintain contact with friends, family, and colleagues in every way. It gives you secure push e-mail, Internet and company intranet access — when browsing the Web, users can still make and accept calls. The device can also send, receive, and edit attachments, as well as print to an available printer. What's more, being a Symbian OS device, the M6001 is easily upgraded with additional applications and tools, like navigation and personal organizer features — all of which make the M600i a device that enables total mobility…totally.

http://www.sonyericsson.com
http://www.actimagine.com

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Vodafone and RIM Introduce Two New BlackBerry Handsets in Australia

By Patrick Barnard

Vodafone (news - alert) and Research in Motion (quote - news - alert) have launched two new BlackBerry handsets — the BlackBerry 8707v and the BlackBerry 7130v.

Both handsets support push email, phone, text messaging, Internet, organizer, and corporate data applications, and feature a high resolution LCD screen that automatically dims or brightens, depending on where the device is being used. This "intelligent light sensing technology" (which also adjusts the backlighting on the keyboard) is becoming popular in the PDA/smartphone market.

According to the companies, the 8707v is the first UMTS-enabled BlackBerry handset that runs on Vodafone's mobile broadband network and supports roaming internationally. The quad-band handset, which comes with a 35-key QWERTY keyboard, allows users to surf the Internet, send and receive emails, or use other mobile applications while simultaneously speaking on the phone. The 8707v can also be used as a tethered modem to enable users to access the Internet from their laptop computers.

The 7130v incorporates RIM's SureType keyboard technology, which merges a phone keypad with QWERTY keyboard to allow a narrower design and enable users to quickly and accurately type messages and dial phone numbers.

Both handhelds are supported by all BlackBerry software and services including the new BlackBerry Enterprise Server Express, which offers the same enterprise-level security, reliability, features and functionality of BlackBerry Enterprise Server v4.1 in a simple and effective solution.

http://www.vodafone.com
http://www.rim.com

Save with Solar Powered Wireless

By Erik Linask

IR Data Corporation (news - alert) has introduced its SWAP900 solar wireless Access Point, making it possible to deploy large wireless networks with total independence from external power sources and data cables. The SWAP900 provides secure Internet access and interoperability with WiFi-enabled computers. The fully self contained, system makes it possible to deploy networks of hot spots over large areas on a permanent or temporary basis.

The system features a 2.4GHz, 802.11/g access point and a 913MHz radio mesh network — the 913MHz broadband radio provides the long range mesh network connectivity, while the 2.4GHz radio provides the local network access for WiFi enabled computer users. The 913MHz radio enhanced by the use of dynamic channel coding, and modulation optimizations rapidly adapts to varying radio propagation conditions. This advanced radio technology greatly increases the network resiliency compared to other WiFi radio network systems.

The rugged aluminum weatherproof enclosure, solar module, and batteries are capable of 24-hour operation mounted on poles, towers, or rooftops that face the sun. Where there are trees and dense foliage, the 913MHz signals will provide much longer range connections compared to traditional WiFi-based systems. In fact, they will provide connectivity where higher frequency systems would fail. Naturally, this longer range also reduces the total number of units required per installation and, therefore, the total deployment costs. Of course, the very nature of a solar powered device also saves on energy costs, increasing the overall savings over the lifetime of the network. It also makes it possible to deploy networks where power is difficult to obtain.

http://www.irdatacorp.com

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Symbian Announces Version 9.3 of it Operating System for Mobile Phones

By Patrick barnard

Symbian (news - alert) recently announced the latest version of its operating system for mobile phones. Building on the success of its predecessors, Symbian OS v9.3 adds new enhancements to improve phone performance while reducing time-to-market for handset vendors and network operators. Fully backwards compatible with previous versions in the v9 family, the new OS enables shorter start-up times for phones and key applications; improved memory management; reduced development and ownership cost; new development tools; and awareness for the Eclipse/CDT IDE framework and Nokia's Carbide.c++.

"As the smartphone category broadens into different market segments and quickly expands across global regions, Symbian continues to focus on delivering a flexible and robust open mobile operating system," said Jorgen Behrens, Symbian's vice president of product management and strategy. "Symbian OS v9.3 will allow handset manufacturers and network operators to get the best and most differentiated phones to market faster, with lower costs and more easily. Approximately 35 million Symbian smartphones shipped in 2005. By providing enhanced market leading provisioning with Symbian OS v9.3 and a consumer market trend leaning towards convergence, we expect smartphone shipment numbers to increase rapidly."

John Jackson, director of wireless/mobile technologies for Yankee Group, explained that, "as smartphones' functionality becomes pervasive, the handset market will be able to meet segment-specific demands rapidly, and at low cost," Jackson said. "The burgeoning service environment around 3G networks in many major markets places increasing demands on handset requirements. A robust, scalable OS and associated enabling software is crucial to vendors' product roadmaps, and operators' ability to deploy differentiated services. Symbian OS enables significant market requirements in phone performance and hardware capabilities that allow handset manufacturers to bring more attractive differentiated phones to market more quickly."

http://www.symbian.com

Motorola's Phone for All

By Erik Linask

Fresh on the heels of introducing its latest RAZR and SLVR handsets, Motorola (quote - news - alert) has announced the MOTOFONE, the company's newest handset, which it says will redefine the mobile handset market by combining design and smart technology with affordability.

At just nine millimeters, the MOTOFONE is Motorola's thinnest phone yet. A flat keypad, colors, innovative materials and finish processes take elements of Motorola's RAZR and SLVR portfolios and combine them with additional innovations to make a device that's attractive and affordable for everyone.

MOTOFONE offers an intuitive, new interface built on icons and voice versus text. The use of imagery simplifies the device and makes it more user-friendly, especially for apprentice users, and voice prompts in local languages increase users' comfort with their handsets, in addition to making the units easier to learn and use. Navigating menus, placing calls, and retrieving messages will be simpler than ever before. The phone's large, high contrast screen, powered by Motorola's ClearVision display — which leverages Electrophoretic Display (EPD) technology — helps eliminate glare from direct sunlight, making it easier to use, even outdoors and on the go. The ClearVision display, along with the flush-fitting keypad and dust-resistant design, makes the MOTOFONE sleek, yet durable enough to withstand everyday use.

Proving the premise that uncomplicated, basic functionality can go hand in hand with style, the MOTOFONE includes the features every user wants, such as polyphonic ringtones, speakerphone, and long-lasting battery life. The device also includes a very powerful 'loud' volume to help ensure callers can hear phone conversations and will not miss calls, even in a busy marketplace or crowded street.

http://www.motorola.com

IMS Intros Safer In-Vehicle Option for Email Addicts

By Erik Linask

Intelligent Mechatronic Systems (IMS) (news - alert) has introduced a technology that will help those email-addicted drivers who hold up traffic to check their latest messages. The latest latest member of IMS' telematics line, iLane, is "the world's first hands-free and eyes-free email solution for in-vehicle use."

This patent pending technology enables a safe and convenient voice-based alternative for accessing email messages while in transit. Rather than taking his eyes off the road to scan a message or answer a call, iLane automatically notifies the user of incoming emails and other important information by reading a brief summary in a natural sounding voice in the language of choice. The driver can then listen to the entire email message, forward or compose a response, and manage meeting requests using verbal instructions. Phone calls, SMS messages, and a number of email attachment types can also be managed via the interface.

iLane consists of a small — yet powerful — device that interacts directly with existing Bluetooth-enabled handheld devices and vehicle audio systems or headsets to read messages out loud and to listen to driver instructions. The presence of the driver is automatically detected by iLane, which then assumes control to intelligently capture and manage inbound information as soon as it arrives on the driver's wireless email device. The driver does not need to remember to do anything differently to start taking advantage of benefits provided by iLane, which can be used via Bluetooth headsets, vehicle audio systems, or standard ear buds. Most importantly, the entire process is automatic, instantaneous, and seamless, with no buttons to push and no manual operation required.

http://www.intellimec.com

Sprint Accelerates EV-DO Rev A Upgrade

By Robert Liu

Sprint (news - alert) plans to start rolling out EV-DO Revision A (Rev A) technology onto its Sprint Power Vision mobile broadband network in Q4 2006 to a footprint of 200 million people, the nation's third largest cellular operator announced.

"By accelerating our EV-DO Revision A deployment, we are expanding the number of ways our customers can use the service to make their digital life simple, instant and productive," said Len Lauer, Sprint's chief operating officer.

Because the newer technology boosts upload speeds fivefold higher than current rates, it is ideally suited for richer applications, such as high-speed video telephony, music on-demand, video messaging, and large file uploads. Last week, Sprint successfully completed the first Rev A data connection over the Sprint Power Vision network in San Diego. This development, combined with a series of other positive performance tests, drove the decision to speed up the deployment plan.

The Rev A upgrade is initially expected to reach coverage of more than 40 million people by year end. Sprint's Power Vision network will be completely upgraded to the faster Rev A by the third quarter of 2007.

http://www.sprint.com

AirLink Modems Certified for Verizons EV-DO Network

By Erik Linask

Verizon Wireless (quote - news - alert) and AirLink Communications, (news - alert) a developer of fixed and mobile wireless data solutions, have announced that AirLink's line of rugged modems are certified and immediately available for use with Verizon Wireless' BroadbandAccess service via Verizon's EV-DO network. With the certification, Verizon customers will be able to use AirLink's Raven Ethernet (Raven-E) and PinPoint Ethernet (PinPoint-E) modems to run their wireless data on Verizon's robust wireless broadband network.

AirLink's Raven-E and PinPoint-E are intelligent modems providing Ethernet and digital interfaces to enable a host of data-intensive, fixed and mobile broadband applications. AirLink solutions are also well-suited for a number of machine-level fixed applications in a number of vertical markets, including financial and professional services, retail and distribution, industrial and utilities. Verizon's EV-DO network brings higher data rates to customers — typical download speeds range from 400 to 700 kbps — enabling more reliable, consistent, and efficient communications.

"AirLink's rugged intelligent modems are the newest addition to our extensive line of devices for business customers and mobile professionals, providing greater options to stay competitive, connected and productive in today's fast-paced business environment," said Cindy Patterson, staff vice president of enterprise data sales at Verizon Wireless.

Airlink's embedded operating system, ALEOS, powers both modems and provides the reliable and feature-rich embedded intelligence that enables extensive wireless capabilities, like remote monitoring and configuration, packet-level diagnostics, and over-the-air firmware updates. It also simplifies installation, operation, and maintenance of any solution and provides the "always-on" and "always-aware" connection management today's businesses demand.

http://www.airlink.com
http://www.verizonwireless.com

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Firetide Upgrades Software for Wireless VoIP Networks

By Erik Linask

Firetide, (news - alert) developer of wireless multi-service mesh networks, announced it is shipping software that expands system support of simultaneous video, voice, and data applications over a wireless mesh infrastructure. The new software includes significant enhancements that enable network providers to deploy multiple devices and applications over a wireless mesh with the reliability and security they would expect over a wired network.

To provide high levels of performance, the Firetide mesh now features flow-based routing for up to 32 Mbps throughput as well as a comprehensive set of new bandwidth metrics, including link quality and capacity, link type, and hop count, to enable flexible management and intelligent routing decisions. Load balancing, static routing, and broadcast containment round out the performance enhancements.

To provide enhanced transmission quality, Firetide's expanded QoS and prioritization optimize the network for multi-service offerings, including latency sensitive voice and video applications. Firetide also has added WPA2 encryption, digital certificates, firmware signatures, and expanded password protection as added security measures to protect customers' networks. Finally, in an effort to improve mobility, Firetide's mobile mesh nodes can now roam seamlessly throughout a Firetide mesh with no packet loss or handoff delay.

"What our customers need and are now looking for is something beyond basic WiFi data mesh networks," said Firetide CEO Bo Larsson. "They need secure, flexible, wireless solutions that are easy to install and manage and work with even more demanding applications, such as high speed video and voice over IP."

http://www.firetide.com

Olathe Unified School District Using Palm TX Handhelds as Learning Devices

By Partick Barnard

In Olathe, Kansas, The Olathe Unified School District is providing 2,300 Palm (quote - news - alert) TX handhelds and an equal number of keyboards to its high school students, teachers, and administrators. The handhelds — which retail for about $205 apiece — are already integral part of the district's high school curriculum. The district is already using about 1,200 Palm handhelds as communications and learning devices.

The PDAs give staff and students access to the Internet, email, and school networks, as well as providing connections to other devices, such as phones, PCs, and printers. The devices essentially serve as a lower cost alternative to providing students and staff with laptops.

Some of the handhelds will be used by students 24/7, while others will be classroom-only sets. One of the most common uses for the devices among students is writing compositions using word processing applications. Students can also use the devices to work on spreadsheets; create presentations for school projects or assignments; and access books and other documents the school has converted into the eBook format. This enables the students to highlight text, bookmark pages, make notes, and look up words in the dictionary. The handhelds also have many applications in math and science.

The school district — which boasts being one of the most technologically-advanced in the U.S. — has apparently adopted the philosophy that giving students and staff the freedom to access information anywhere, anytime will open up new learning opportunities.

The school district also plans to provide WiFi access at all of its high school campuses.

"Most other WiFi enabled products are out of our price range, but the Palm TX plus the keyboards purchased under Palm's Education Purchase Plan offer us an affordable solution and a way to place the technology into more classrooms and into the hands of many more students," she said.

http://www.palm.com

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SonicWALL Internet Security Appliances Now Avaya-Compliant

By Johanne Torres

Network security systems provider SonicWALL (news - alert) announced that its PRO 4000 Series and TZ 170 Series Internet security appliances are now compliant with IP telephony systems from Avaya.

SonicWALL's UTM PRO and TZ appliances provide protection against Internet threats at the network gateway. The application now is compliance-tested by Avaya for compatibility with the Avaya IP telephony suite, which comprises the Avaya Communication Manager 3.0.1 and the IP Office 3.1.

SonicWALL is also a member of the Avaya DeveloperConnection Program.

"Through our membership in the DeveloperConnection program, SonicWALL underscores its commitment to the interoperability of our solutions with leading IP telephony products from Avaya," said Mike Valentine, vice president of Americas sales at SonicWALL. "As a result, we can provide our customers a secure VoIP solution offering the highest levels of availability, reliability and quality."

http://www.sonicwall.com

Telchemy Awarded Two New VoIP and IPTV Patents

By Johanne Torres

Voice and VoIP performance manager Telchemy (news - alert) announced that the United States Patent and Trademark Office awarded the company two additional patents for its VoIP and IPTV performance monitoring and analysis technology.

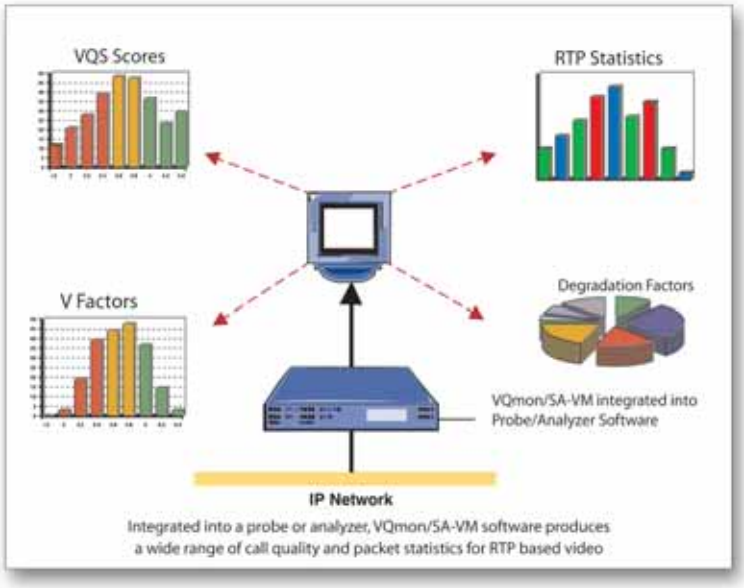
The patents allow for service quality monitoring systems that estimate subjective quality, also known as Quality of Experience (QoE) for VoIP, IPTV, and Videoconferencing services. The algorithms described in these patents provide more accurate and stable performance metrics in the presence of time varying and transient impairments.

Patent US 7,075,981, dubbed "Dynamic Quality of Service Monitor," covers VoIP and IPTV performance monitoring systems that represent the effects of the relative temporal location of transmission impairments on user perceived quality.

"Per-Call Quality of Service Monitor for Multimedia Communications System," patent US 7,058,048, covers VoIP and IPTV performance monitoring systems that measure call quality at discrete time intervals and combine these to form overall perceptual quality scores for each call.

"Telchemy continues to grow and innovate in this rapidly expanding marketplace," said Alan Clark, Telchemy's CEO and president. "These new patents illustrate our commitment to keeping our products on the leading edge of IP communications technology."

http://www.telchemy.com



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Voxeo Acquires VoiceReady

By Johanne Torres

IVR and VoIP platform provider Voxeo announced its acquisition of VoiceReady, a privately held company that provides a Web-based graphical design and reporting system. VoiceReady's offering enables the delivery and management of VoiceXML and VoIP-based telephony applications. The company will become part of Voxeo's Evolution family, with an August 30 re-launch under the name "Evolution Designer."

Voxeo's (news - alert) new product enables "Do it Yourself" or "Customer Self Service" delivery of speech, VoIP, and IVR applications. A non-technical interface allows users to quickly build, deploy, and manage telephony applications. Evolution Designer will be available at no charge to more than 21,000 members of Voxeo's Evolution Community developer program.

"The VoiceReady platform incorporates extensive speech application best practices, learned by our team over the course of five years of voice application development," said VoiceReady's CEO, John Amein.

Amein continued: "Evolution Designer brings this experience to Voxeo's existing developer base and to new users who have never built a speech application before."

http://www.voxeo.com

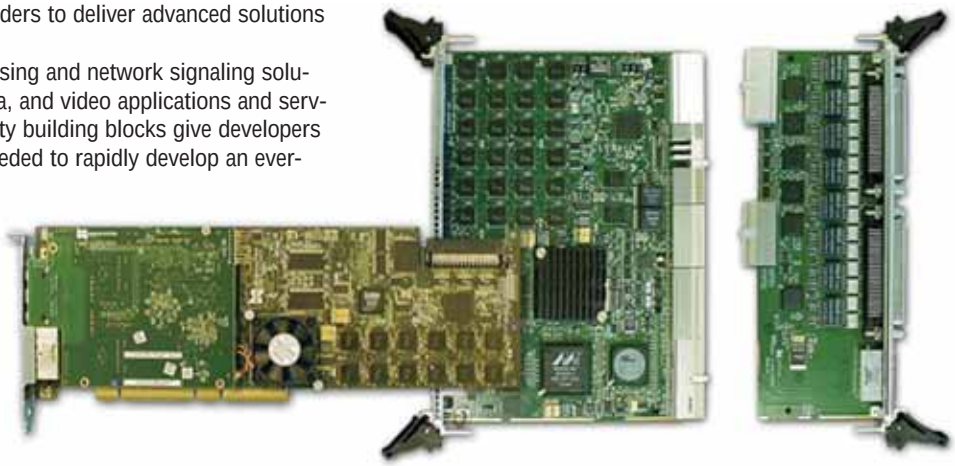
Comverse Selects NMS' Voice Technology for its InSight System

By Patrick Barnard

Comverse, (news - alert) a provider of software and systems that enable multimedia network-based enhanced services, has selected NMS Communications' (news - alert) Open Access platform as the underlying voice technology for its InSight value-added services environment.

Comverse's InSight is an open system providing next generation messaging, content and billing services – all integrated into a single, low-cost platform. These services can be tailored to help service providers increase revenues, strengthen customer loyalty and improve operational efficiency. Currently, more than 450 service providers in more than 125 countries are using Comverse's messaging, billing and, content solutions.

NMS' Open Access family of boards and software helps developers create next-generation multimedia applications for service providers. Whether it is live, streaming two-way video; speech-enabled call centers; VoIP conferencing; or prepaid call processing, Open Access lets developers create innovative products that take advantage of FMC networks and allow service providers to deliver advanced solutions to their customers.



Open Access delivers media processing and network signaling solutions for creating enhanced voice, data, and video applications and services. These open, scalable, high-density building blocks give developers the processing power and capacity needed to rapidly develop an ever-increasing array of next-generation services.

"Many of the world's major equipment providers use our Open Access technology to dramatically reduce time-to-market for their voice, data and video solutions," said John Orlando, chief marketing officer for NMS.

http://www.comverse.com
http://www.nmscommunications.com

Bradon Technologies Develops Codec to Compete with GIPS

By Robert Liu

A tiny Canadian company has developed an innovative Windows-based codec technology that serves as the basis of a desktop VoIP conferencing application that offers 100 percent live, full duplex, two-way voice communications.

The solution was developed by Bradon Technologies (news - alert) of Toronto. The technology, which is called Bradon Technologies Audio Codec or simply BTAC, is a frame-independent codec that competes with other technologies including the Internet Low Bit Rate (iLBC) codec developed by Global IP Sound (GIPS), which is used in Google Talk and Skype.

Because BTAC uses extremely low overhead, Bradon Technologies has been able to develop the Simultaneous Audio Video Interactive Internet (SAVii) Desk meeting software and Live presentation application to be very lightweight. In fact, the meeting host application is only 265Kb while the client/participant software is only 289Kb in size.

Bradon's SAViiDesk version 2.5 with iPBX integration bridges online participants with callers from standard PSTN lines. The latest version also can be used on most PDAs running Microsoft Windows Mobile 2003 SE or Microsoft Windows Mobile Version 5.0 for Pocket PC.

"Our proprietary voice technology based on BTAC voice codec ensures that all event members continue to receive the exceptional audio quality as well as the visuals they are accustomed to," Bradon's president Joe Compta said.

http://www.bradontechnologies.com

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CLARISYS

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The Clarisys i750H is a full-featured USB IP telephone and speakerphone that provides a crystal-clear digital interface to your PC essential for your VoIP phone communications. Its stylized design is equipped with all the familiar features of a traditional telephone with the added benefit of a specially designed headset port for hands-free communication. Plus the single number portability provides unlimited accessibility!

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Integration Tools Available – The Clarisys i750H lets you integrate your own applications, including methods, properties and events that simplify the process of working with audio devices and greatly reduce the task of routing audio, changing mixer settings and generating realistic DTMF, dial and ring tone.

CLA-i750H

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MicroTCA Becomes Official Standard

By Robert Liu

A consortium of the world's largest industrial computer manufacturers has officially ratified a new hardware specification known as MicroTCA that potentially extends interoperability in the communications sector beyond the network's core.

The PCI Industrial Computer Manufacturers Group (PICMG), (news - alert) which is home to the AdvancedTCA (ATCA) and CompactPCI specs, announced the new smaller form factor after 18 months of development from over 95 participating companies. The biggest advantage MicroTCA offers is the fact that it uses the same Advanced Mezzanine Card (AMC) daughter cards that are used on ATCA boards, allowing for greater cost efficiencies.

"We see MicroTCA and ATCA being very complementary with a shared objective of allowing customers to build modular communications platforms from a building block approach," said Tim Kober, Director of Strategic Platform Planning at Intel's Communications Infrastructure Group.

The smaller implementations of the MicroTCA form factor enable customers to make use of AMCs even if the larger, more expensive ATCA chassis is cost-prohibitive or prohibitive due to spatial constraints. The new spec was designed with all of the high availability and manageability features of its larger sister spec.

And because MicroTCA doesn't require as large of a footprint as AdvancedTCA, it is ideally suited for access and edge applications in telecom networks and may well extend into other applications including medical, industrial control and military. For example, Alliance Systems is currently developing a base station designed on the MicroTCA form factor using a WiMAX radio network controller.

http://www.picmg.org

Patton's SmartNode VoIP CPEs Certified by Thomson

By Erik Linask

Patton-Inalp Networks (news - alert) has announced that its SmartNode brand of VoIP routers has been certified by Thomson for interoperability with Thomson's Cirpack (news - alert) brand softswitches. The certification assures carrier customers of a smooth migration as they move from multiple legacy infrastructures to fully converged IP-based voice and data services.

Patton has actively sought softswitch interoperability for both its SmartNode and SmartLink families of VoIP and triple play platforms via its own Interoperability Program, which acknowledges third-party softswitches that passed tests proving they work with Patton's equipment — primarily in the area of live carrier deployments.

Patton certified switch manufacturers include the likes of Siemens, Alcatel, Tekelec, and BroadSoft. Likewise, several softswitch vendors have also certified Patton's VoIP platforms for interoperability, including, now, the Cirpack brand.

"Without question, SmartNode is the most interoperable Voice over IP platform in the world," said Burton A. Patton, Patton's Executive Vice President. "This Swiss-developed VoIP technology not only has unmatched features, but, unlike most VoIP gateways, is highly adaptable and configurable for any deployment scenario, with any Softswitch or IP PBX."

With solutions ranging from two POTS or BRI lines up to multiple T1/E1 PRIs, a SmartNode solution can be found for deployments of nearly all sizes — from a single platform. SmartNode products are designed with the future of the communications industry in mind, capable of supporting new advanced products as they emerge. In addition to being SIP-compliant, SmartNode supports H.323, T.38 fax relay, fax bypass, modem bypass, Voice over VPN, AES/DES-IPSec voice encryption, and DownStream QoS.

http://www.patton.com
http://www.cirpack.com

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Digium Integrates rPath's rBuilder

By Johanne Torres

rPath, (news - alert) a provider of a platform for creating and maintaining Linux software appliances, today announced that Digium, the creator of Asterisk, is now an rBuilder and rPath Linux partner.

Powered by the rPath platform, the Asterisk Business Edition now has built-in Linux distribution features, which allow Digium's (news - alert) customers to immediately install the necessary OS components within the Digium Business Edition platform.

"When we first began speaking with rPath, Asterisk Business Edition customers were required to install specific Linux packages," said Jim Webster, director of software technologies for Digium.

Webster added: "Using rBuilder Online, Digium was able to incorporate customized Linux distribution capabilities in less than a week, automating customer installation. We would not have been able to do this without the support of the rPath team."

The upgraded release of Asterisk Business Edition includes enhanced security and scalability provided by Ranch Networks' Asterisk security code, speech recognition capabilities through the LumenVox Speech Engine, text-to-speech applications through the Cepstral Text-to-Speech System and a customized Linux distribution to simplify installation.

http://www.digium.com
http://www.rpath.com

Spirent Communications Teaming with Anue Systems

By Patrick Barnard

In order to ensure that QoS and QoE are properly delivered, service providers are increasingly relying on testing solutions, such as those offered by Spirent Communications. Spirent (news - alert) delivers "high performance impairment emulation solutions," which means it conducts tests on networks by "simulating" peak traffic periods and other events that could cause disruptions in service.

In order to expand and improve its testing solutions, Spirent announced is teaming up with Anue Systems, (news - alert) which offers network emulation solutions for Ethernet, SONET/SDH and Fiber Channel environments. As a result of the partnership, Spirent will be better positioned to assist network equipment manufacturers and service providers with QoS and QoE issues across converged networks.

Using Spirent's TestCenter and Abacus test systems, Anue's network emulators are able to address the various challenges and scenarios of converged network services by simulating network delays, jitters, and other impairments. By running critical applications through an emulated environment, service providers can accurately assess and ensure performance of their services, equipment and applications, prior to service launch.

Spirent's solution addresses voice, video and data applications load testing; voice and video quality measurements; Real-Time Protocol (RTP) with IPTV tests; testing of content such as unicast and multicast video and channel change times; Dynamic IP network impairment tests; and, testing of all elements of Carrier Ethernet infrastructure. It also enables large-scale emulation of IP Telephony systems, customer premise devices (CPE) such as set-top-boxes, cable/DSL modems, passive optical network (PON) optical network units (ONUs)/optical network terminals (ONTs) and other devices.

http://www.spirentcom.com
http://www.anuesystems.com

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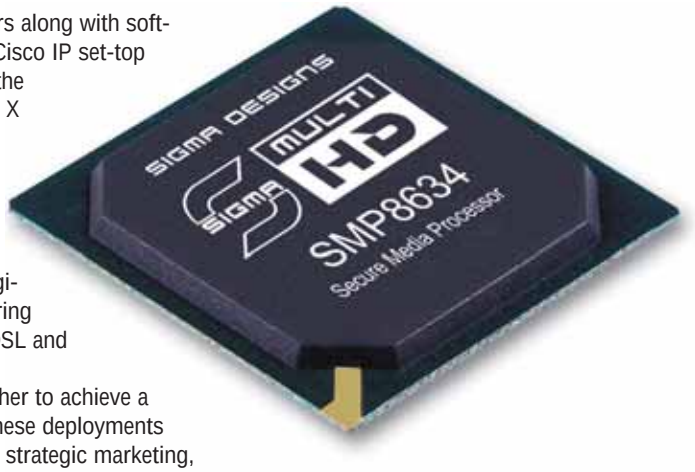
New Telco Operators Using Sigma Media Processors for IPTV Deployments

By Laura Stotler

A number of new telco operators in Europe are now using the SMP8630 series media processors from Sigma Designs for IPTV deployments. T-Online, a division of Deutsche Telekom, Neuf Cegetel, and AOL France are each using the processors in a number of difference deployments.

T-Online, which offers triple-play services, is using the processors along with software technology from Microsoft to deliver its T-Home services to Cisco IP set-top boxes based on the Sigma media processor. The services support the Microsoft TV IPTV Edition software platform and the Cisco T-Home X 300T Media Receiver enables high-definition IPTV and PVR and dual DVB-T tuner functionality.



Neuf Cegetel is also offering a high-definition video service, delivered over ADSL and TNT and based on the Neuf TV HD set-top box, which using the Sigma media processor.

AOL France is in the process of launching a new ADSL-based digital television services using the Netbox HD from Netgem and featuring the Sigma media processor. The hybrid set-top box connects to ADSL and digital terrestrial television to receive services in standard and HD.

"Sigma (news - alert) and its partners have worked closely together to achieve a stable high performance IPTV platform and we are excited to see these deployments take off at multiple telco carriers," said Ken Lowe, vice president of strategic marketing, Sigma Designs. "We are eager to continue building on this foundation and witness this trend-setting success in Europe and other parts of the world."

http://www.sigmadesigns.com

RADVISION Releases PC-to-Mobile 3G Solution

By Susan Campbell

RADVISION (news - alert) has announced the availability of its new PC-to-Mobile 3G solution. The new solution is designed to transform PCs into mobile handsets through the opening of a bi-directional channel for visual communication between 3G mobile devices and desktops. The PC-to-Mobile solution is intended to exponentially increase the 3G subscriber base to include PCs, immediately expanding 3G video call possibilities.

The solution offers an easy solution for mobile operators to offer 3G visual communications to subscribers on desktops and laptops in addition to 3G handsets. PC-to-Mobile permits operators to immediately increase the critical mass of 3G enabled handsets, encouraging and developing a larger community of 3G users and expanding the boundaries of peer-to-peer visual communications 3G networks.

The PC-to-Mobile solution is positioned as offering a new level of 3G service to both the enterprise and consumer markets. In order to enable the service on any desktop, the generic platform comes with a downloadable, branded client. Operators can then strengthen and differentiate their mobile offering.

Firewall and proxy issues can also be solved with the RADVISION solution without compromising audio or video quality. The PC-to-Mobile 3G offering is intended to ensure users experience easy, intuitive visual communications from the desktop or 3G Mobile device with features that include dialing using personal contact lists, flexible multiple video layouts and easy session control.

RADVISION is promoting its extensive experience in the desktop and mobile video communications arena as the solution offers operators high scalability and availability as well as full integration with back-end systems and third-party applications and services. This element will ensure interoperability between the desktop and all types of 3G handsets and mobile devices.

http://www.radvision.com

Onvoy Converged IP Services Now Rated "Avaya Compliant"

By Erik Linask

Communications solutions provider Onvoy (news - alert) has announced that its suite of Converged IP Services is compliant with IP telephony and SIP solutions from Avaya. Onvoy's Converged IP Services solution with SIP trunking allows businesses to connect to the public phone network virtually, thus improving voice quality and offering a flexible, cost-saving alternative to traditional telephony.

Onvoy's services have been tested for compliance and compatibility with Avaya (quote - news - alert) Communication Manager 3.1 and Avaya SIP Enablement Services 3.1, in addition to various Avaya media service, gateways, and endpoints.

"Open standards are critical for growth," said Janice Aune, chairman and CEO of Onvoy. "Compliance with Avaya solutions ensures our customers will benefit from open standards and are able to incorporate new technology innovations easily and cost-effectively."

http://www.onvoy.com
http://www.avaya.com

Covergence Joins SS8 Alliance Program

By Johanne Torres

SIP applications developer Covergence (news - alert) announced that it has joined the SS8 Networks (news - alert) Acceler8 Alliance Program, a partner program to shorten market implementation time for lawful intercept compliance for service providers and telecommunications equipment providers globally.

Under CALEA, the FCC mandated that all technologies offered by providers of broadband and interconnected VoIP must accommodate law enforcement wiretaps. Lawful intercept systems will soon become a requirement for service providers and equipment vendors, such as Covergence, to meet these standards.

"Our goal when creating the SS8 Networks Acceler8 Alliance Program was to deliver best-in-class Lawful Intercept solutions to our customer and Covergence clearly is a great addition to the program," said Steve Gleave, vice president of marketing for SS8 Networks. "With the FCC mandated compliance date rapidly approaching, Acceler8 Partners provide a compelling, fully interoperable solution set that enables carriers to quickly meet the requirements."

By joining the Acceler8 Alliance Program, Covergence will be able to make its Eclipse family of SIP-based products meet regulatory compliance. Adding integration capabilities with SS8's Xcipio lawful intercept platform into the Eclipse product family will extend Eclipse's ability for policy-based call control, recording and monitoring for large enterprises, and can be deployed as part of a lawful intercept system.

"Our Eclipse already has built-in capabilities for monitoring and recording all voice, data and video traffic across IP networks, so our membership in this alliance program is a natural extension of our existing capabilities," said Ken Kuenzel, CTO, founder and vice president of engineering for Covergence.

www.covergence.com
http://www.ss8.com

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Deploying Secure SIP Services and Applications

coVergence



Presenter

Kurt Bertone
VP Product Management, Covergence

Moderator

Robert Liu
TMCnet Executive Editor

Session Initiation Protocol (SIP) is the protocol of choice for multimedia communications over next-generation networks. Most voice over IP (VoIP) softswitches, IP PBXes, application servers, and enterprise collaboration platforms already support SIP, and the few that do not, will soon.

However, significant challenges remain before SIP services can be deployed to the mass market or for business-critical enterprise use. Chief among these challenges is securing and controlling SIP applications and services. The good news is that, if secured correctly, SIP services can be made as secure – if not more secure – than the traditional phone systems we have used for the last 50 years.

This Webinar, featuring Kurt Bertone, VP Product Management, Covergence, will delve into the next generation of secure SIP solutions - VoIP, instant messaging, video, file transfer, presence and others - being deployed today.

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TelTel Enables Digitrad and TelePlus to Deploy VoIP Service

By Johanne Torres

SIP-based Internet telephony service provider TelTel (news - alert) announced that it will enable Digitrad (news - alert) and TelePlus (news - alert) to rapidly offer VoIP service over TelTel's Public SIP Telephony Network (PsipTN). TelePlus will offer VoIP via the PsipTN thanks to a relationship with Digitrad, who is a TelTel SIP Virtual Network Operator (SVNO) partner. The addition of VoIP service would enhance TelePlus' service offering for its core product, Vocalyz.

The product bundles lower priced international long distance calling with a 24/7 live private assistant, who functions as a translator, concierge, or emergency dispatch, in the user's native language. TelePlus will offer Vocalyz by providing its customers a branded TelTel softphone over the PsipTN, and access to TelTel's suite of services including, presence, Instant Voice, Instant Text, and call forwarding.

Vocalyz and its new services are bundled through Digitrad's integrated GSM billing and IVR platform, Stand4U, in order for Vocalyz users to continue using the wireless local number, Teleplus services and the leftover account balances from the travel cell phone through the branded TelTel softphone.

"Extending our relationship with TelTel to the Teleplus Group and its customers reflects our confidence in the PsipTN network," stated Micha Benoliel, president and CEO of Digitrad. "Tying together TelePlus's value-added services and TelTel's softphone through our Stand4u integrated billing platform, creates the opportunity for Digitrad, TelePlus and TelTel alike to enjoy new revenue streams. This deployment also demonstrates how easy it is for our Stand4u platform to operate across various telecom environments including GSM and SIP."

http://www.teltel.com
http://www.digitrad.com
http://www.teleplus.com

Globe7 Releases Beta Version 3 of its Softphone

By Johanne Torres

VoIP-based calling service provider Globe7 (news - alert) announced the launch of a new version of its desktop software for communications, video and news applications. Globe7's softphone includes real-time, free voice communications; video streaming; 1 GB of free storage space for video and photos; and news feeds. Users of the SIP-based software get a U.S. telephone number that allows them to make and receive telephone calls from any computer, cell phone, or landline.

Globe7's video features allow users to search for video from categories including entertainment, latest news, and sports; as well as pulling images from an extensive library aggregated from various newswires and video content providers.

The technology also allows users to upload and share their own video, images and presentations on 1 GB of space that is provided to them for free. By watching favorite video feeds (e.g. latest news, movie trailers, and music videos), users get the opportunity to earn free international and local voice minutes.

http://www.globe7.com

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www.imsforum.org

The IMS Forum is a global, non-profit industry association dedicated to IP Multimedia Subsystem (IMS) services and solutions. Our mission is to accelerate the adoption of IMS by providing an environment for discussion and resolution of real-world implementation issues relating to interoperability, best practices, and standards-based architectures in the application layer.

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Join the IMS Forum Today!

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Convergin Announces Accolade SCIM Platform for SIP/IMS Connectivity

By Laura Stotler

Convergin (news - alert) has announced its Accolade convergence Service Capabilities Interaction Management (SCIM) platform, which offers functionality for wireline carriers with networks containing both legacy and next-generation equipment. The platform enables connectivity of softswitches and IMS call session control functions with legacy services.

The Accolade enables a number of legacy services to be extended toward IMS, including toll-free calls, local number portability, calling name database, and information database. The SCIM function enables interaction among IMS service platforms, and the Accolade also extends SCIM beyond the IMS domain for convergence between legacy and next-generation networks in addition to wireless and wireline networks.

The SCIM capabilities enable carriers that roll out VoIP networks to deliver the same services available in their legacy networks. ILECs may also expand their offerings to host services for CLECs, MSOs or VoIP-based long-distance operators. Additional features include the ability to issue SIP queries toward legacy wireline AIN/INAP services, enabling SS7 services to be delivered to SS7/TDM switches as well as next-generation softswitches and IMS/SIP CSCFs.

Operators may enable SIP access to existing SCP-based services and can also control access to those services from a number of switching platforms and service providers. Additionally, the platform may later be used to enhance service offerings to permit SIP-based services and SIP/IMS application servers.

http://www.convergin.com

CommuniGate Systems Rolls Out Upgrades for VoIP and Sip Services

By Laura Stotler

CommuniGate Systems (news - alert) has announced its "Trade In and Trade Up" program to enable carriers to upgrade to new value-added services including VoIP, SIP/XMPP secure IM, and hosted PBX. The program will enable carriers to trade in legacy email software, saving on support and maintenance services. They may then "trade up" to replace antiquated messaging systems and offer a full suite of IP communications solutions.

CommuniGate's initiative will enable service providers to smoothly migrate their communications services to an IMS-ready platform. It is targeted toward providers that have customers unable to access SIP-based IP communications networks because their email solutions use legacy technology.

Carriers may choose which features of the CommuniGate Pro suite they wish to deploy. The modules offered include SIP Proxy, Session Border Controller (SBC), IP PBX, clustered voice through a SIP Farm, audio conferencing, XMPP support and voice mail.

"The feedback we are receiving is tremendous as the world is now adopting SIP based Communications. Mobility and productivity will rise and traditional closed and location locked access will die," said Jon Doyle, vice president of business development for CommuniGate.

He added that, "We will witness a fundamental change in the communications landscape over the next five years just as we saw in the early 90s with email becoming the communication standard medium for business," added Doyle. "Holding users to a location with a phone number, or charging them for roaming to other locations will soon be replaced with the mobility and portability of VoIP — where one address finds a person anywhere, anytime."

http://www.communigate.com

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VONEXUS

Amcat's Soft IP PBX Increases Contact Center Effectiveness

By Erik Linask

Customer care and interaction solution vendor Amcat (news - alert) announced that is has begun shipping a soft IP PBX solution that operates with and broadens the capabilities of its Contact Center Suite product. Amcat's customers can now achieve the cost benefits of VoIP while transform their customer contact operations by leveraging the entire enterprise, regardless of department, function or location.

Amcat CEO Mike Rohleder commented, "In the past, companies often relegated customer service to a specific team of people, often in a single location. Historically it's been difficult or impossible to provide a seamless service experience for the customer because poor processes and expensive, inflexible technology required the customer to call back or needlessly repeat information."

The new IP-based soft PBX customer contact platform provides a technology environment where each customer contact is intelligent and productive, leading to a higher rate of first call resolution — which, in turn, raises employee moral and heightens customer satisfaction. The Amcat IP customer contact platform ensures that companies are appropriately focused on providing superior customer care and that their business goals are centered on achieving that goal — with a lower cost base. The result is increased customer acquisition and retention, which drive increase revenue.

"Amcat is extending the boundaries of what is possible for businesses today by integrating a software-based IP PBX into our contact center solutions. We recognize that the customer experience should not be handled by a contact center silo. Our aim is to turn the entire enterprise into 'the contact center,' making it more likely that a customer's request will be resolved on the first call," added Rohleder.

http://www.amcat.com

Nuance Increases Security with Speaker Verification Biometrics

By Stefania Viscusi

Answering to the need for contact centers to secure their self-service telephone applications, Nuance Communications (news - alert) has developed a speaker verification solution for telephone voice self-service applications that uses biometric security to authenticate callers by recognizing each unique caller based on their voice.

The Federal Financial Institutions Examination Council (FFIEC) has requested multi-factor authentication technologies for Internet-based services before the end of the year. With telephone-based authentication next in line, many banks have stepped up to the plate to incorporate Nuance's biometric speaker verification solutions into their voice self-service applications.

"With 16 speaker verification patents and a market leadership position for delivering custom solutions, we are well-positioned to meet the growing need for this vertical market," commented Peter Mahoney, vice president, worldwide marketing, Nuance.

Speaker authentication requires only a voice and a telephone to authenticate a person's identity, unlike other biometric solutions such as fingerprints, iris scans, and facial recognition technologies that are far more expensive and intricate.

Nuance's speaker verification solutions capture a callers voice based on the way they say speak their name and ID number, then analyze the voice to create a voiceprint that is stored in the systems database for verification each time the caller calls.

Voiceprints use a pattern of numbers that measure the behavioral and physical characteristics of the caller's voice. The system is also able to identify voices with changes due to colds, noisy backgrounds, or other changes, as well as safeguard against impersonations and pre-recorded voices played back over the telephone.

"Speaker verification is a natural fit for phone-based applications because the system can be seamlessly integrated into the existing self-service experience of the caller," commented Mahoney.

"Because of its convenience and ease of use, it may be perceived that voice is less accurate than other biometrics, but third-party research has proven that voice biometrics meet or exceed fingerprint, iris and facial scanning systems."

http://www.nuance.com

FrontRange Introduces HEAT 8.4

By Susan Campbell

The latest version of HEAT Service & Support is now available from FrontRange Solutions. (news - alert) The global IT service management, voice application, and customer relationship management (CRM) solution provider has released the fully customizable Help Desk and external customer support tool that logs and tracks issues through completion.

HEAT 8.4 features enhanced and improved functions based on HEAT 8.38 in combination with brand new streamlined technology and additional automation.

The Call Logging Dashboard, the newest feature to HEAT, provides a one-stop location for common views and metrics while allowing individual users to add hyperlinks to personal call groups for quick access to incident records based on commonly used search criteria.

The Metrics Section provides end users access to popular Help Desk metrics. A new Administration Navigation Dashboard has also been added to enable the administrator to quickly locate information and functions with a few simple clicks.

Available to new customers, HEAT 8.4 is also accessible to current users on maintenance as an upgrade. HEAT 8.4 also includes enhancements that provide for the ability to run Auto Ticket Generator as a Windows NT Service, allowing for greater functionality on any computer. Other enhancements include improved layouts, better navigation controls and redesigned icons that simplify the new interface, which in turn simplifies the workflow, as well as ramp time for new users.

http://www.frontrange.com

Genesys Leverages VXML to Alleviate Call Center Snafus

By Arthur Cole

Genesys Telecommunications (news - alert) Laboratories wants to put an end to non-interoperability issues and a host of other call center and customer service problems. The company is gearing up for the release of the latest version of its Genesys voice platform, which it bills as a major shift away from proprietary interactive voice response systems (IVRs).

According to Brian Bischoff, global vice president for platform sales and solutions at Genesys, the system is a logical next step for companies that are being forced to replace aging IVR equipment, most of which are losing manufacturer support over the next 18 months.

The Genesys system leverages the VoiceXML standard to bridge the gap between voice and data platforms that reside in most call centers. “What makes this a next-generation platform is that it allows enterprises to bring voice services to applications already developed for the web,” Bischoff said.

While this eliminates the need for customers to repeat information over the phone, it also opens up numerous sales and marketing opportunities for the enterprise. Companies could use customer information from the web to present a range of menus for up-selling or cross-selling any number of applicable products. And whether the customer is using the telephone or a PC, they are dealing with a single application.

“Our platform allows you to have a voice browser, rather than a PC browser, to exploit those applications,” Bischoff said. “So there is a common development team and the customer gets a common experience.”

http://www.genesyslab.com

Sphere and Adtech Partner with Ambassador Technical Services

By Mae Kowalke

Sphere Communications (news - alert) and Adtech Global Solutions, (news - alert) joint providers of the Sphere Business Communications System IP PBX (Sphere BCS), have added a new certified partner to their network: Ambassador Technical Services Incorporated.

Ambassador is a full-service provider of IP telephony, video teleconferencing, and data recovery systems. The company will be focusing its marketing of Sphere BCS to small and medium-sized businesses.

"The adaptability and durability of the Sphere BCS make it an ideal platform for us to build our business on," Ambassador's founder and president Mike Thom said. "We can now deliver customized IP telephony solutions offering enterprise-class features at prices our SMB customers can afford."

Sphere's BCS is "a modular, business-class IP telephony and unified communications system that is flexible, easy to use, and easy to manage." Key features include:

- Onscreen point-and-click call management
- User-defined intelligent call routing
- Multiple auto-attendants
- Departmental call center capabilities
- Desktop video conferencing
- Text messaging
- Unified email / voice mail messaging
- Smart directories with presence
- Integrated softphone for mobile and remote workers
- Call recording and more
- SIP interface for easy integration with business applications

http://www.spherecom.com
http://www.adtechglobal.com

Sprint Nextel Expands VoIP Services for Time Warner Cable

By Patrick Barnard

Sprint Nextel (quote - news - alert) has agreed to let Time Warner (quote - news - alert) Cable's VoIP signals to ride over its IP network in an additional 14 service areas, signifying strengthening of the existing relationship between the two companies.

Sprint's network passes 28 million homes in the United States; Time Warner's Cable VoIP will ride the network in every state the network serves, with the exception of New Hampshire and Maine, where the voice service will continue to be delivered via Time Warner's cable network.

Specifically, Sprint Nextel will provide interconnection facilities between Time Warner Cable's switch and the public telephone network for local and long-distance calling, as well as E911 management, new and ported management, directory assistance, operator services and a full suite of other local exchange carrier services. VoIP calls which originate on the Time Warner Cable network will first travel to its regional data centers before being terminated on the Sprint Nextel nationwide network. Sprint claims Time Warner's customers won't be able to tell the difference.

Sprint Nextel continues to lease out space on its network backbone, as well as providing telephony solutions to cable operators. The network now carries the signals of 1.2 million cable VoIP subscribers across more than 1,100 rate centers. Sprint Nextel says it plans to increase this number to 2.5 million subscribers in the near future. The company says it is finding its relationship with the cable industry highly lucrative.

http://www.sprint.com
http://www.timewarnercable.com

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Software for NetZero Voice and PrivatePhone Available At Best Buy

By Patrick Barnard

United Online, (news - alert) a leading provider of consumer Internet and media services, announced that the software for its popular NetZero Voice and PrivatePhone services is now being distributed through Best Buy stores.

As per the distribution agreement, consumers can get the NetZero service at a special rate of $9.95 per month — a five dollar savings off the regular price — when they pick up a free CD containing the software at Best Buy stores across the U.S. In addition, the first month of the NetZero service will be free for those who sign up through Best Buy. (quote - news - alert) PrivatePhone demo CDs will be distributed as well.

"Best Buy was our first major retail distribution partner back in 2003," said Mark R. Goldston, United Online chairman and CEO. We are proud to be extending our relationship with them to offer PrivatePhone.com and NetZero Voice in Best Buy stores. This partnership is a perfect fit because, like United Online, Best Buy is committed to giving consumers quality products and services at a reasonable price."

PrivatePhone.com offers a free phone number and voicemail that allows users to protect their privacy. Users of the service can pick their own number from most U.S. area codes and can use it instead of their home or mobile phone number as a way to screen calls. All calls go directly to voicemail, which can be checked either by phone or through the Web-based PrivatePhone.com message center.

http://www.netzerovoice.com
http://www.bestbuy.com

Global Connect to Use VoIP Inc.'s Call Termination Service

By Patrick Barnard

Global Connect, (news - alert) a Web-based voice broadcasting company, has selected VoIP Inc. as its VoIP service provider. The reseller deal means Global Connect will use VoIP Inc.'s (news - alert) VoiceOne Termination Service to handle its current call volume, which, during peak traffic periods, exceeds 36 calls per second.

"This is an important win for VoIP Inc.," said Gary Post, president and CEO of VoIP, Inc. "Voice broadcasting is a huge business serving the entertainment, political, retail, education, collections, emergency services, insurance, and other industries, and it is being revolutionized by VoIP technology. We are thrilled to be working with Global Connect in this growing industry."

Adrian Patten, Global Connect's director of technology, said it is critical for his business to be able to handle large call volume concurrently without failure. "This is a common struggle for many VoIP vendors. However, VoIP Inc. has proven its ability to manage thousands of concurrent calls with ease, with an extremely high success rate. Besides offering superior technology, we are also impressed by the VoIP Inc. team's flexibility, customer service, and willingness to get the job done right."

http://www.gc1.com
http://www.voipincorporated.com

Red Hat Launches Telecommunications Partner Program

By Patrick Barnard

Shifting its focus to include the development of open source software for telecommunications, Red Hat (quote - news - alert) has launched a Telecommunications Partner Program.

According to the company, the program aims to raise awareness about the availability of open source platforms for telecommunications and to promote Red Hat's products. The program is designed strengthen Red Hat's existing relationships with leading network equipment providers (NEPs), OEMs, telecommunications ISVs and operators.

The move makes sense, since the telecommunications industry is now starting to embrace integrated Linux hardware and software platforms targeting telcos' specific needs. Network applications are largely being viewed as a new cash cow for software developers, and Red Hat and its partners know they stand to gain from this.

Numerous partners, including HP and IBM, have already committed to the effort. Red Hat said it will be working with both firms to build carrier-grade equipment with Red Hat Enterprise Linux. The partners will promote the open source gear as an alternative to proprietary telecommunications platforms.

As part of the program, Red Hat also plans to provide services and support to software developers to encourage them to adopt open source alternatives. IBM, which partners with Red Hat on other projects as well, will include Red Hat applications as part of its Platform for Telecom initiative.

http://www.redhat.com

Canadians Amp'd for New Service

By Erik Linask

Canadian telecommunications firm TELUS Corporation (news - alert) has announced an exclusive relationship with Amp'd Mobile (news - alert) that will bring the Amp'd brand north of the border.

The deal will bring Amp'd Mobile's interactive, customized mobile services to Canadian customers via TELUS' high speed wireless network. In the U.S., Amp'd operates on Verizon's EV-DO network. The agreement with TELUS represents Amp'd Mobile's inaugural expansion outside U.S. borders.

Amp'd Mobile will avail its Canadian audience of the MVNO's highly personalized mobile wireless content, including music, 3D gaming, live sports action, downloadable as well as streaming video and music, and much more, not to mention cellular phone functionality. When the service goes into effect early next year, subscribers will be able to access the latest, trendiest entertainment services and products on handsets that feature the latest technology and fast download speeds.

While Amp'd will provide content from its more than 200 partners for the service, TELUS' role will include sales and distribution, billing, client service, network maintenance, and pricing — everything a carrier would normally do to ensure its subscribers have the best possible mobile experience.

http://www.telus.com
http://www.get.ampd.com

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Implementing Next Gen IPTV Infrastructure elements - B-RAS & SER - in AdvancedTCA

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Presenter

Curtis Miller
Product Marketing Manager, RadiSys

Presenter

Greg Galitzine
Editorial Director, Internet Telephony magazine/ IMS magazine/SIP magazine

IPTV has emerged as the vehicle for service providers to get into the TV distribution game and many of the service providers are looking at architectures and infrastructure to offer these entertainment services based on their IP networks. Distributing video requires much higher bandwidths and higher performance network elements and AdvancedTCA is one of the architecture choices being considered by many manufacturers. The webinar will discuss some of the requirements and implementation approaches in AdvancedTCA architectures by the way of switching capacity, processing and other security functions needed for the next generation B-RAS and Service Edge Routers that are part of the IPTV infrastructure.

This event will be available on demand after September 26, 2006.

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Targeting the "S" in "SMB"

By Greg Galitzine

Truly small businesses — those with fewer than 20 employees — have traditionally been given short shrift when it comes to telecommunications. Certainly there is no shortage of VoIP (define - news - alert) options for companies that employ dozens or hundreds of people; premises-based solutions as well as a variety of hosted VoIP solutions are on the menu for the more "medium-sized" of the small to medium business (SMB) set. But, what about smaller SMBs? To whom can they turn in order to embrace the features and benefits promised by VoIP?

According to Jeff Wilson at InStat, the small end of the SMB market is quite a large group, comprising nearly 11 million firms with fewer than 20 employees doing business in the U.S. That's a fairly large opportunity for telecommunications service providers with the right mix of technology, price, and customer service.

Well, Covad is looking toward a brand-new VoIP solution, which targets the underserved market of businesses with between five and twenty employees. These businesses are familiar with VoIP, but, in many cases, they don't have the resources or expertise to manage a complex phone system, and so, they are demanding a simpler product.

"With the continued expansion of Covad's VoIP portfolio, they are offering a full product package for the entire spectrum of the small business market — regardless of size and technology needs," said William Stofega, Research Manager, VoIP Services, IDC.

Covad aims to offer a new solution that features many of the services available to larger companies, but at a fraction of the cost, enabling even small businesses to have a professional looking, high-quality communications system. Just because a company is small doesn't mean they can't project a big-company image to the outside world.

For example, small businesses can take advantage of automated call answering and routing when customers call in. Or, they can raise the level of customer service by utilizing so-called 'hunt groups' that automatically distribute incoming calls to an available person when the caller reaches a busy or unavailable extension.

Some of the other standard features Covad includes in its business VoIP offerings are:

- Local and domestic long distance calling
- Voicemail
- Three-way conference calling
- Call forwarding (using *72)
- Call waiting with Caller ID
- Speed dial
- Four-digit dialing within the office
- 911 emergency service*
- Do not disturb
- Call waiting
- 411 directory service
- Call back

Furthermore, Covad wants to make managing the phone system a simple task, well within the technical capabilities of most people. Let's face it, a small business owner needs to focus on its core business, and hiring someone specifically to manage the phone system is a luxury for larger enterprises. Managing and customizing the features of Covad VoIP offerings is as simple as pointing and clicking a mouse in the familiar environment of a standard Web browser.

Small businesses are often extremely cost conscious as well. They don't necessarily have the resources to spend on hiring a full-time employee to manage their communications system. Yet, they have a need to maintain a professional appearance. They might not want (or be able) to invest in high-tech VoIP phones or a full-blown hosted VoIP solution, but small businesses still demand and deserve a high-quality communications solution. It's a challenge faced by small business owners everywhere: how to get professional quality service while keeping costs down to near consumer levels.

Of course, savvy business owners are willing to pay a bit more than the average consumer to reap the benefits of a professional offering, such as:

- Professional installation;
- A single bill for a bundled service;
- A wealth of productivity features;
- No need to hire, train, and keep IT personnel on staff;
- A stable system from a reputable vendor; and
- A single point of contact on the off chance that problems arise.

When small businesses consider the separate costs for services, such as local and long distance calling, broadband Internet access, e-mail, hosting, an so on, it makes great sense to consider an offering from a service provider that can deliver all of these disparate services — integrated with a communications package — for one price, on one bill. Remember, if the company offering these services provides them over its own managed network, then concerns about the quality of service are lessened.

Today's small business owner faces many of the same challenges that have plagued entrepreneurs for ages. "Am I in the right location?" "Is my marketing properly targeted at my key customers?" "Am I covering all my financial bases?" "What about taxes?" "What about health insurance?"

But the good news is that they have more options than their predecessors ever dreamed of when it comes to telecommunications. Today, small business owners can feel content that the service is sized, priced, and created with them in mind. IT

** E911 service will not be available if there is a power failure, a disruption in the broadband line, or a malfunction of the broadband router. Covad strongly recommends that you maintain an alternative method of calling emergency services at all times.*

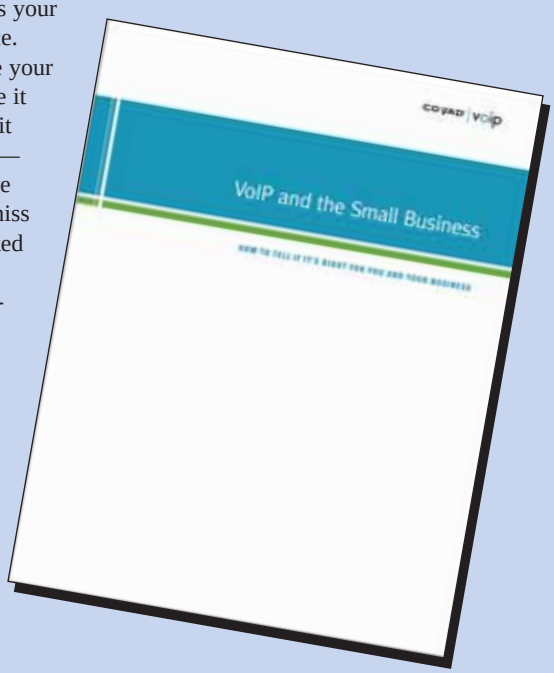
Greg Galitzine is Group Editorial Director for TMC's IP Communications group of publications, including Internet Telephony, IMS, and SIP magazines.

For More Information on Covad's solutions
Contact John Grady, Director of Product Management, Covad Communications:
jgrady@covad.com

VoIP and the Small Business: How to Tell if It's Right for You

VoIP: Can it really save your small business enough for a substantial ROI? Can it take the place of a PBX? Are voice quality and reliability really there yet? Covad has released an informative new booklet titled, VoIP and the Small Business: How to Tell if It's Right for You. The offering is designed to answer questions and educate prospective customers about the different varieties of VoIP and what to look for in a vendor.

If you are a small business and you're feeling overwhelmed and confused by the vast amount of hype surrounding VoIP and how it might benefit your bottom line, then this booklet will be a valuable tool for you to use as you navigate the decision making process as it regards your new communications service. Find out how VoIP can save your small business money, make it more agile, and even make it look larger than it really is — plus, get links to informative third-party articles. Don't miss this valuable overview packed with facts every small business should get before making the leap to VoIP.



To download your free booklet, please visit http://www.covad.com/itm.

Covad's Growing VoIP Portfolio

Covad provides its customers the best of both worlds by offering them a choice between hosted VoIP and a VoIP trunking solution. Covad's vPBX service is the company's fully managed hosted VoIP solution, which is particularly suitable for sites with roughly 20 to 250 stations.

Covad also offers PBXi Plus voice service, which is a business-class VoIP service that allows an SMB to keep its existing on-premises phone equipment while providing lower operational costs. Once the customer's equipment reaches the end of its useful life and the investment has been paid down, Covad can easily migrate that customer to its hosted VoIP service, vPBX.

Covad is also looking toward a brand-new VoIP solution, which targets the underserved market of businesses with between five and twenty employees.

By Marc Robins

Achieving Optimal IPTV Quality of Experience: Key Challenges and Opportunities

Not long ago, I authored a whitepaper on the importance of delivering subscriber quality of experience (QoE) for IPTV success, a project that was commissioned by Spirent Communications. I've been getting a lot of emails and calls lately about that paper — it seems to have touched on a number of important considerations service providers must take into account as they go down the path of IPTV service delivery.

The gist of the paper is this: As telcos rush to deploy new IP-based network infrastructures and launch new video services, they are faced with a unique set of challenges. First and foremost, they must deliver optimal QoE to their new and existing subscribers — if they don't, they risk mass defection to their competition. It's essential, then, that telcos employ a comprehensive video and IPTV testing solution that ensures quality of service (QoS), not only at each element in the network, but end-to-end in the network as well. Such service assurance initiatives must effectively deal with transport and signaling issues, employ the most relevant and accurate methods of measuring customer QoE, and provide ongoing monitoring and management of the live network.

A lot of IPTV discussion has focused on QoS considerations — making sure that the quality of the service delivered to the subscriber is as optimal. However, focusing solely on IPTV QoS is potentially shortsighted, since many impairments in video service can sneak under the thresholds established to detect problems. You need to be able to assess the quality of the subscriber experience — the actual quality of the delivered video signal and performance of the service at the network endpoint — and not just rely on gathering metrics from the network core or edge. What's more, video is far more problematic than voice, and using the same VoIP service testing and monitoring methodologies for IPTV simply won't do the trick.

The ability of a telco to deliver high quality IPTV service over its network can be broken down into a number of key, basic areas. Let's take a look at each one:

Ensuring the effective transport of the service — Regardless of the medium used for the transport of the data (copper, fiber, or coax), it is important to realize that an IP-based network is basically designed for the transport of data from Point A to Point B, and not for real-time services, such as IPTV. In order to enable real-time transport on an IP network, a protocol such as MPLS must be used in order to provide the ability to conduct traffic engineering.

In addition, a variety of QoS metrics must be added to the mix. With these capabilities, it becomes possible to test for and measure a number of service impairments that can negatively impact video service quality, including packet loss and jitter. Another factor that can affect video quality is insufficient available bandwidth on the network to ensure that video packets arrive in the correct order and within the allocated jitter-buffer time. Since the transport of MPEG-4 video signals requires bandwidth of approximately 2 Mbps for standard definition channels and 9 Mbps for high definition channels, it is critical that the required bandwidth be available at the time the IP video stream is viewed. In order to guarantee this, it is vital that the telco be able to measure the bandwidth utilization on the network as well as at the subscriber level.

Verification and monitoring of IPTV service-related signaling — In an IPTV deployment, there are three primary types of signaling used: subscriber to provider, provider to subscriber, and internal network to provider. For example, the most common signaling function from subscriber to provider is the request to change the channel.

Telcos must deliver optimal QoE to their new and existing subscribers — if they don't, they risk mass defection to their competition.

Another important subscriber to provider signaling function involves a request for a specific video on demand. Provider to subscriber signaling is primarily confined to the delivery of the actual video content to the set top box. Other such signal functions include the delivery of the channel guide. Internal provider signaling involves various authorization and authentication functions, such as whether a subscriber is allowed to access requested premium channels or order videos on demand. Other signals control the flow of the

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data, such as from a unicast to a multicast stream (for some of the IPTV transport technologies), and provide information about where video content is being transmitted.

The signaling-related challenges for the telco surround the need of the provider to be able to verify the signals sent over the network in order to ensure the proper operation of the service. Such a system must monitor signals for channel changes or VoD content and verify that the transition between a unicast and multicast transmission is made. If such signals are not passed properly, the user either will not see his show or too much network bandwidth will be consumed.

From a competitive standpoint, the channel change time must be as quick as it is with today's digital cable service. Actual performance, however, will depend on the ability of the telco to effectively develop, manage, and maintain the network elements for optimal performance during periods of a large number of concurrent channel requests (such as during the Super Bowl or the final episode of *American Idol*).

Measuring the quality of the video signal received — In practical terms, the quality of the video signal delivered to a subscriber's shiny new HDTV is really where "the rubber meets the road," and will determine whether the user will become a loyal, lifetime customer or bolt to the nearest competitor. Indeed, the quality of the video signal received in large part determines the overall QoE IPTV customers will have.

Video quality impairments can be grouped into three major categories:

1. Perceptual — These impairments can manifest as block distortions, image blurring and jerkiness.
2. Spatiotemporal — These impairments occur as repeated frames and energy differences.
3. Fidelity — These impairments consist of color problems and signal-to-noise issues.

As with Voice over IP (VoIP), it is vital for a telco to be able to measure the quality of the video signal — and the presence of impairments — in order to ensure optimal QoE. The standards for measuring video quality fall into three primary models: Full Reference, Reduced Reference, and No Reference.

Ensuring adequate scalability in the network infrastructure — The reality of IP networks is that they are extremely dynamic environments, meaning that, as more people come on the network to use a variety of applications, service is inevitably affected. As video services, and especially IPTV, are added to the network, the dynamic nature of the network is increased exponentially. Just consider the effects of the Super Bowl or a current event that captures the attention of an entire nation's population, and the strain this can cause a network. Therefore, it is essential that service providers fully understand how the network infrastructure — and especially various switching and routing equipment — will perform under a full service load. If the network infrastructure is not up to snuff, then not only will service suffer, but deployment costs will mushroom as additional equipment must be purchased and installed.

Maintaining security while ensuring service quality — The security issues associated with packet telephony networks are numerous and can be quite complicated. The deployment of an IP-centric network infrastructure for IPTV and triple play service provision may also require that service providers overhaul their network security measures. Service providers must consider the impact of new security apparatus on their network and with their new video services. In fact, many security measures can seriously affect the quality of video traffic by introducing additional jitter and other impairments to the network, and in some cases can cause total service failure.

Effectively delivering IPTV as an integral part of the triple play service bundle — With IPTV, the centerpiece of a telco's triple play strategy, it is important to remember that there are other services that make up the triple play bundle, such as voice, video telephony, and broadband Internet access. These services all have to contend for network bandwidth. Since multiple protocols and QoS processes may run on the same control and QoS planes, services will often interact with each other, oftentimes in unforeseen and unintended ways. Therefore, it is essential that telcos gain actionable, real-world QoS experience about how the triple play network infrastructure, services, and applications will perform as an integrated solution. In this way, service providers can ensure that, not only will IPTV service perform optimally under heavy load, but that the other services will also perform as expected. IT

You need to be able to assess the quality of the subscriber experience and not just rely on gathering metrics from the network core or edge.

Marc is Chief Evangelism Officer of RCG (Robins Consulting Group), a leading marketing, communications and business development consulting firm dedicated to the IP Communications industry. For more information, email marc@robinsconsult.com or visit http://www.robinsconsult.com.

By Tony Rybczynski

What's Behind the Ethernet Jack — Data 101

"Can you give me a high-level description of how a data network works?" This question (and it's not all that uncommon in this ever evolving industry) came to me during a side discussion with an end user at a recent Internet Telephony Expo. Let's start with how you connect to the network, and then look at what happens in the network once you are connected.

Getting connected

The connection between you and the network is a high speed on-ramp based on one technology family, called Ethernet. Ethernet is referred to as a Layer 2 technology, while IP routing is Layer 3 (Layer 1 is the physical wired or wireless connection).

Plugging your PC into any Ethernet jack (slightly bigger than a phone jack) at your desk or in a conference room provides a dedicated link to the wiring closet, an aggregation point on your floor typically handling 100 users. This is most likely over copper with a reach of 100 meters. The network automatically connects you at 10 or 100 Mbps and, more recently, at 1 Gbps, the actual speed depending on hardware used and transmission characteristics. It's all plug and play. Traditionally, you would have had a separate telephone and data jack at each desk. If you have an IP phone, plug the PC into the phone and the phone into the Ethernet jack and you're in business. DC power over Ethernet avoids the need for an AC plug on each phone — but is not enough to power your laptop.

You can also plug in wirelessly, but you'll need wireless Ethernet (WLAN) capability on your laptop (e.g., a wireless LAN adaptor card or a built-in capability) and, of course, you'll need to be near a WLAN Access Point (AP). An AP covers roughly a 50 meter radius in an office environment — the range is dependent upon walls and other obstacles as well as materials. The throughput you achieve also is dependent on a number of factors (e.g., technology used supporting 11 or 54Mbps peak, number of users, distance to the AP). The AP, which can look like a smoke detector with internal antenna, is Ethernet connected and powered back to the wiring closet. In a large site, you might have hundreds of APs, particularly if they are needed to provide coverage for roaming voice users.

You can also get connected remotely. You might be working from home or a hotel with some form of high-speed access, or from a coffee shop wireless hot spot. Your laptop could have security software (called a Virtual Private Network or VPN client) that you would use to set up an encrypted 'tunnel' across the Internet back into your enterprise. Across this tunnel, you could access all the data applications that you would have access to at your desktop. You could even set up an IP Telephony or multimedia call and use a headset plugged into your laptop and, optionally, a video camera. In this way, you can take your office anywhere and stay connected. The public Internet doesn't give voice packets priority, but you probably won't notice (most of the time).

Behind the Connection

Early Ethernet LAN technology was developed to allow users to share local printers and servers across a LAN segment, using only an Ethernet MAC (Media Access Control) address. The MAC address of every device is assigned in the factory. Using MAC addresses does not scale to allow you to connect to any of hundreds of millions of devices across the Internet.

Enter IP. Both Ethernet and IP are based on packet switching, whereby user information is broken into packets up to 1500 bytes, each identified by an address. This address is used to either switch traffic across the LAN using a flat MAC addressing space, or route traffic across the network using a hierarchical IP addressing space. Each time you connect at the Ethernet level, you are dynamically assigned an IP network address.

The function of IP routing is to dynamically adapt to network topology changes and route packets most effectively among LAN segments across the network. An IP router or switch keeps a routing table and, after examining the IP address contained in the voice or data packet, forwards the packet on the 'best' link towards the ultimate destination. Data packets also carry a Transmission Control Protocol (TCP) header, which allows lost packets to be retransmitted; not so for voice packets, since there's no time. So, your packets flow from your wiring closet Ethernet switch to either a very high capacity campus routing switch or to a branch router. After a number of routing hops, it reaches the LAN, which connects to the destination device (perhaps a server, a PC, or IP phone).

The public Internet doesn't give voice packets priority, but you probably won't notice (most of the time).

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Added Complexities

If only networking life was so simple.

At the next level of detail, there are added complexities and challenges associated with IP networking, some of which are identified here.

Converged networking: Voice has some specific requirements: end-to-end delays below 150 msec, as much as 80 Kbps per voice call, depending on coding scheme; the need to handle 50 packets per second for every voice call without packet loss, which requires end-to-end QoS and comprehensive traffic management capabilities; and sub-second failure recovery in various parts of the network.

Routing, traffic management, and timely recovery: The objectives are clear: optimally use the network resource and keep networks running while meeting application/user needs. These systems have been evolving over decades.

Multicast and streaming: To efficiently handle audio and video streaming, these streams can be optimally replicated close to the listeners (rather than at source). This has resulted in development of numerous 'multicast' mechanisms.

Layered security: This includes endpoint, perimeter, communications, and core network security functionality. Today, security and availability are inextricably linked.

Added application intelligence in the network: While IP networks were originally intended to be fairly simple (with intelligence left to the endpoints), enterprise core networks have evolved to provide value-added capabilities by looking deep in the packet to make applications work better and to offload servers.

Wire-speed operation: High-end routers and switches need to support the above functionality over multiple 10Gbps Ethernet links without dropping a packet.

The Data Networking Paradox

So there you have it. For users, it's a plug and work utility that allows connectivity across the enterprise or around the world. For IT, it's a strategic asset that needs to be planned, designed, and operated. Today, that often requires specialized networking, operational, and security skills. The good news is that vendors are moving towards real-time secure multimedia networks that dynamically adjust to changing traffic, topology, and threat conditions to optimize network performance and user quality of experience. IT

Tony Rybczynski is Director of Strategic Enterprise Technologies at Nortel. (quote - news - alert) He has over 30 years experience in the application of packet network technology.For more information, please visit http://www.nortel.com.

By Hunter Newby

Only Time Will Tell

Watching technical concepts move from thought and discussion to practical business application and necessity is like seeing the seasons change. Sometimes, it takes more than a year, but there are also instances where it takes less. As VoIP peering evolves and matures, it seems that new ideas extended from the foundation have a shorter cycle to their own maturity, or elimination, through the natural selection process.

This process recently played out in fast-forward at the Spring 2006 Voice Peering Forum held in New York City. The attendees were some of the most compelling and powerful supporters for VoIP peering in the industry today. Their real-life cases represent various pieces of the VoIP (define - news - alert) peering puzzle, and they are beginning to fall in to place. The foundation has been built for this group and now they are on to extending the idea to see what works best.

Besides a well run event at a great venue with excellent food, the true gems were in the presentations and Q&A from the speakers and attendees. It seemed that each and every person in attendance was educated and well-versed on the factual definitions of VoIP peering and the role each piece plays. This knowledge base is almost a prerequisite for meaningful sessions at any conference where the participants want to actually learn something. The Voice Peering Forum delivered just that.

What was particularly interesting about the attendee mix was the amount of people there who were focused on numbering issues for their respective organizations. By numbering issues, I don't mean their financial statements — although, for some, advancements being made may result in those types of issues. Numbering refers to unique identifiers, be they telephone numbers (ANI's), IP addresses, domains, ENUM, SIP URI's, or SRV records (email addresses), and the applications of those identifiers and their respective business models. For this particular event, the numbering people were focused on voice services. Representatives from Telcordia, Global Crossing, a certain RBOC, several pure VoIP service providers and many more were on hand to listen to and engage in constructive debate and knowledge development about the current state of numbering for voice services and what the present has and future holds for all.

Some of the most insightful commentary came from Mark Fedor, CTO, SunRocket, on the subject of voice peering service providers and how his company makes business decisions about the use and usefulness of their services. As Mark stated, "We don't want to use any voice peering service that dictates to us what our consumer price has to be. That would be any underlying fee per call, minute, or lookup." That is fairly direct and to the point. The legacy TDM voice carriers share this feeling on their operational expense side, of course, and, as they are rolling out new flat-rate offerings, they are figuring out that on-Net, inter-carrier calls are the way to go. Now that the issue of how and why on-Net (free) calls exist has been addressed, the next challenge has been identified by the community. That challenge is the creation, administration, management, and cost of the numbers and endpoint identifiers themselves.

The Telcordia Local Exchange Routing Guidesm (LERGsm), Neustar's North American Numbering Plan (NANP), and the databases that sit behind the SS7 transport networks are all essential to the operation of the PSTN. Until very recently, those companies and business models were so well protected that they were almost invisible and never discussed at conferences as far as potential improvements or alternatives were concerned. There just wasn't any other way, so it was assumed as a necessary method and cost of doing business. As Fedor sees it, "Exclusive databases, like the LERGsm, are restrictive." This statement goes beyond the voice peering service provider of the modern era to the original voice database services and their business models, as they all are based on fees per "lookup" as their revenue source. There seems to be a revolution brewing.

We don't want to use any voice peering service that dictates to us what our consumer price has to be.

As IP has moved in to take over the future of voice features and functions, many aspects of the "call" have been changed. The switching equipment, transport media, end user devices, and CODECs have morphed to the IP standards of softswitches, Ethernet, IP phones, G.711, and SIP. ENUM exists and works, but it is an E.164 number and is still tied to the number itself, even if it is transposed and mapped to a SIP URI. The full and final departure from the last vestige of the PSTN is moving away from the telephone numbers themselves. Only then will "calls" become "audio sessions" in a full IP domain. Moving from ENUM to SRV records is a way to do that.

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This will not happen overnight, but it has begun. In the same way that color TV was introduced after black & white, FM after AM radio, and digital telephone service after analog, the shift begins and takes several years, but the improvement ultimately dominates market share. Even with all of this change, the PSTN is not going away — just as I'm sure there are still a few people that have black and white TVs.

As opposed to the VoIP service providers, some carriers may have a difficult time understanding why they should make the move to SRV from E.164 numbers. This is due to the fact that all of their systems are tied to phone numbers. At the base level, there is the NANP and how digit dialing works, but there is also tied to that call routing, database lookups such as LNP (local number portability), and most importantly, billing. Everyone gets billed by their number. Minutes usage used to be the way users were billed for the service, but this is largely moving towards a flat-rate, on-Net model as we know. Many carriers contend that SRV would require expensive changes to their systems, which is probably true, and would require the users to have devices that can initiate a "call" using an email address.

The truth is that BlackBerry devices have the functional capability loaded in them today. If the software intelligence was programmed through the users contacts, they could, in fact, initiate a communication via email address "look-up" after selecting the method — email, SMS, voice, video. The same can be said about Microsoft Outlook on the enterprise network side. Open a contact, choose a method, and the routing intelligence is provided by an email address. Instead of Least Cost Routing for calls, think of it as Best Option Routing for sessions. SRV first, ENUM second, and off-Net (per-minute billed) last.

One of the top motivations from the VoIP crowd to use SRV was the cost of a URL and the ability to attach limitless extensions in front of the address verses the quantity and associated cost of numbers to reach the same amount of potential endpoints. There's just no comparison. Create extensions in front with URLs (name@url.com), rather than behind with ANIs (NPA-NXX-1234).

There was so much interest and discussion with all the presentations, it seemed that the sessions could run for hours and the participants wouldn't have even noticed. That's the sign of innovation at work. Beyond all of this wonderful discussion, though, will be actually doing the work — where the packets meet the pipe. How long will it take and how many networks will go this route? Only time will tell, but one thing seems certain: the time won't be measured in minutes. IT

Hunter Newby is chief strategy officer for TelX. (news - alert) For more information, please visit the company online at http://www.telx.com.

By Bob Aldrich

FCC's CALEA Orders Raise Compliance Questions for Manufacturers, Developers, and Resellers

Under FCC regulations effective May 14, 2007, a broad spectrum of IP facilities — potentially including some self-managed enterprise IP networks and possibly even PBX-type IP systems — must be configured to allow law enforcement monitoring of communications under the Communications Assistance to Law Enforcement Act ("CALEA"). Yet, the FCC's most recent CALEA order, issued May 12, 2006, leaves unresolved the compliance issues of greatest concern to manufacturers, developers, and resellers of enterprise IP solutions: Who is covered, what is required, and how soon must compliance milestones be met? Meanwhile, the FCC has imposed a tight timetable on industry. Preliminary compliance steps may be required as early as the end of summer.

Manufacturers and resellers should be sure to bring the CALEA regulations to the attention of customers to whom they may apply. To ensure that your products can comply and that market opportunities are not foreclosed, you may need to do some consultations to determine which of your customers are affected, what standards they must meet, and when initial compliance steps must be completed. In addition, manufacturers, developers, and resellers should keep a close watch on developments in standards-setting bodies and pending court proceedings.

Who Is Covered by CALEA?

Passed in 1994, CALEA, by its terms, applies only to telecommunications carriers. In the *September 2005 Order*, however, the Commission found that CALEA should apply to two types of entities not previously covered.

First, the Commission decided CALEA should apply to all VoIP service providers who are currently subject to E911 obligations — that is, all providers of two-way voice communications that require broadband connections and IP-compatible terminal devices or adapters and that permit communications to and from the public circuit-switched network.

Second, the Commission decided CALEA should apply to "facilities-based providers of broadband Internet access service." This term would encompass local exchange carriers, cable TV service providers, and others operating IP facilities that are generally available to the public. Closed private IP networks, such as those operated by education and research organizations, are not covered. In a footnote, however, the FCC stated:

> To the extent . . . that these private networks are interconnected with a public network, either the PSTN or the Internet, providers of the facilities that support the connection of the private network to a public network are subject to CALEA . . . .

In this ambiguous footnote, the FCC could be saying that any private network operator that makes broadband facilities available for Internet access — for example, a university that provides Internet access to its students — must comply with CALEA by May 14, 2007. Other kinds of facilities that offer Internet access, like broadband facilities operated by a large hotel or convention center, could also be covered, even if the facilities are contained within a single building. Conceivably, even a corporation that provides Internet access to its employees using privately owned broadband facilities could be deemed subject to CALEA. Application of CALEA to any of these entities would represent an unprecedented extension of CALEA to cover facilities that, in the circuit-

The Commission found that CALEA should apply to two types of entities not previously covered: VoIP service providers and "facilities-based providers of broadband Internet access service."

switched world, have been considered exempt "private networks."

The Commission's most recent order, which has been affirmed by the court of appeals, failed to clarify these issues, leaving industry uncertain who is covered. To respond to queries from customers, who may be looking for guidance as to whether they are covered, industry participants may benefit from access to a careful analysis of the FCC regulations.

What Does CALEA Require?

CALEA requires covered entities to establish the capability to provide law enforcement agencies (pursuant to legal process) (1) the ability to monitor the content of phone calls or data transmissions, and (2) information that identifies the origin, direction, destination, or termination of a communication.

The FCC had requested comment on how to define the second category for Internet calls, and also on whether a provider that follows industry standards should be automatically considered to be in compliance. In the *May 2006 Order*, however, the Commission deferred providing further guidance on what constitutes compliance. Apparently, it is up to industry standards bodies to try to define compliance, although there is no guarantee that following such standards will be deemed compliance.

Manufacturers, vendors, and resellers should make sure they are fully informed about likely interpretations of the rules, so that they can design equipment and software for compliance and help their customers determine the steps they must take to comply. In addition, they need to keep a close eye on the development of CALEA standards to ensure that standards are available in time to meet the May 14, 2007, deadline, and that they offer all companies a fair opportunity to compete.

What Is the Timetable for Compliance?

The third unknown factor is the timetable for compliance. Although the Commission's May 14, 2007, deadline is seemingly clear-cut, there are preliminary milestones to be met as well, and these are subject to uncertainty. The Commission required Internet access and VoIP (define - news - alert) service providers to comply with "system security rules" (addressing employee supervision and recordkeeping policies and procedures) prior to that deadline and to submit their policies and procedures within 90 days of the order's "effective date." The effective date for this requirement, however, will not be determined until the requirement, which involves recordkeeping and reporting, is approved by the White House Office of Management and Budget, which had not yet occurred at the time of publication.

In addition, the FCC will require VoIP service and Internet access providers to submit interim reports to the Commission showing their progress towards compliance, but has not yet set due dates for these reports. The uncertainty about due dates is compounded by the additional uncertainty as to who is covered and what standards apply. Therefore, manufacturers, developers, and resellers need to have a process in place to stay on top of developments.

With compliance deadlines looming, industry participants need to make decisions based on careful legal and technical analysis of how the CALEA regulations apply to you and your customers. Be sure to carefully monitor developments in the standards-setting and legal arenas to ensure that you retain and enhance your ability to market new and replacement products that enable your affected customers to comply. Manufacturers and developers need to keep their sales channels informed, and resellers should ensure that their customers are aware of potentially applicable CALEA regulations. IT

Bob Aldrich is a telecommunications law practitioner at Dickstein Shapiro Morin & Oshinsky, Washington, D.C. Aldrich represents the Enterprise Communications Association (ECA) and other competitive telecommunications firms and organizations. For more information, please visit the organization online at http://www.encomm.org.

By Tal Givoly

IPDR: Personalizing the Customer Experience and Improving Provider Efficiency

Consumers and service providers currently have a common goal: delivering customers relevant, tailored service. Traditional service providers are in a perfect position to supply bundles that are personalized to fit their customers' needs, which, in turn, will help them increase their profitability.

Today, being well connected doesn't just mean having more ways to reach the consumer; it means empowering the consumer to manage up time and down time and TV viewing experiences on their own terms. Because television, Internet, mobile, and landline services are being bundled, providers are obligated to do even more to personalize the customer experience.

In the age of convergence, with cable operators and search engines moving into bundled service offerings, it is not a surprise that traditional telecommunications players are choosing to focus on the customer in their business strategies — this is called adopting an integrated customer management strategy (ICM).

Creating Personalized Customer Solutions

Accounting management practices are one way in which service providers can monitor, and in turn, respond to their customers' personalized needs. The adoption of a single IPDR streaming protocol (IPDR/SP) is one way in which providers can lead in the race for convergence, while continuing to provide customers with top-of-the-line wireline services.

IPDR/SP, a lightweight, real-time protocol that quickly and reliably relays usage information from network to mediation center and to billing domain is the answer to enhancing ICM through accounting practices. It offers support for real-time access to accounting and usage information, which also facilitates highly reliable delivery of service consumption events.

One example of how IPDR/SP can benefit the customer and service provider is IPTV. Many households currently have access to hundreds of television stations, but they watch perhaps ten or fifteen regularly and ten more on occasion. Perhaps they have HBO and, therefore, have been given On Demand HBO, but never use that feature. So, how do service providers personalize packages to meet the individual users' needs? IPDR/SP.

IPDR/SP allows service providers to collect customer usage events, including channels and programs viewed and advertisements watched. The provider can then assess the user's needs and provide its customers with personalized, more convenient service bundles. Tailoring channels and advertising to create more relevant packages is a large stride in enhancing ICM.

Specialized Advertising and IPDR

While IPDR/SP gives service providers the advantage of meeting customer-specific needs, it also helps providers in their advertising account management by collecting when and how customers use their services. Currently, approximately 60% of providers' content costs are covered by advertising. Maintaining and developing relationships with advertisers is essential to surviving as a service provider today. IPDR/SP records viewing patterns and, in turn, facilitates accurate, specialized advertising, which leads to greater profitability from advertising.

IPDR Back Office Benefits

Most of today's accounting systems are simple, file-based models, but IPDR collects events in a continuous event-based manner. IPDR/SP is a more efficient, reliable, and robust accounting tool. This means that IPDR collections are more up-to-date and accurate. The real-time element of IPDR helps monitor fraud, abuse, and similar security issues.

IPDR/SP is also flexible in that is can support any service, including emerging and future upgrades, while reducing proliferation of accounting protocols. This flexibility allows service providers room for future service growth and expansion. IPDR/SP is also flexible in that it can support almost all billing models, from post-paid to pay-per-click to pay-per-view and even pay-per-time, which makes it a great protocol for the large multivendor deployments in the global telecommunications market.

IPDR was specifically designed for high performance in high volume contexts. For example, IPDR uses one-on-one encoding to translate from XML to XDR. This means that field names, types, and lengths are not included in encoding; instead each encoding is referred to and transmitted using a session-specific code.

IPDR in the ITU-T

Currently, an IPDR/SP recommendation from ATIS/TMOC is being considered by a group of the International Telecommunications Union Telecommunication Sector (ITU-T) standards body organization. This recommendation is a part of the work associated with the specification of standards for the evolving converged networks, also known as next generation networks (NGN)

As the ITU-T reviews these IPDR recommendations, the connection between the current customer oriented market and efficient accounting practices becomes more apparent. It is no longer enough to bundle services together and present a common bill. Account management needs to be accurate, reliable, and fast.

Service providers have begun to realize that, in order to achieve market leadership, they must undergo a significant business transformation from legacy voice platforms and network-focused business models to agile, customer-centric business models. Providers have recognized that they need to facilitate selling and buying in the supermarket of multi-play services, including account management, to ensure an intentional customer experience at all touch points. IPDR/SP is one way to ensure customer-centric service. IT

Tal Givoly is Chief Scientist at Amdocs and Director of IPDR.org. He has extensive experience in networking technologies and software development and has several patents to his credit. He also conceived, defined, and developed the CRANE protocol. Tal is actively involved with the IETF, particularly in the IPFIX working group. For more information about IPDR be sure to visit http://www.ipdr.org.

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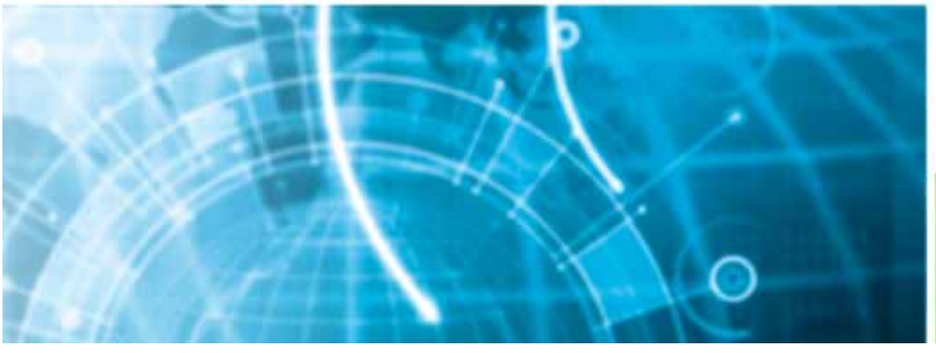

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By Rich Tehrani & Max Schroeder

Continuity Planning 101

A Continuing Educational Series

Disaster & Business Continuity Planning Seminar
Thursday, October 12, 2006 1:00 – 4:00 PM
INTERNET TELEPHONY Conference & EXPO
San Diego Convention Center, San Diego, CA
(http://www.itexpo.com)

The San Diego IT Conference will mark the first anniversary of the Disaster Planning Communications Forum. Last year in Los Angeles, the first DPCF Press Conference was held on Wednesday, October 12, followed by a meeting the next day of the companies that would later comprise the founding members. During the ensuing year, the DPCF evolved into a much larger group of vendors and resellers (see the full list next page) dedicated to educating enterprises on the need and value of business continuity planning.

The DPCF initiative was formally announced in the January, 2006 Enterprise View column (http://www.tmcnet.com/340.1) and the first column in the Continuity Planning 101 series appeared in March, 2006 (http://www.tmcnet.com/341.1).

TMC and the ECA have both worked diligently to launch this project and both display it prominently on their Web sites (http://www.tmcnet.com/339.1 or http://www.encomm.org). As you will note when you visit the TMC site, it references articles, DPCF member companies, and key reference sites, including FEMA, NOAA, the Red Cross, plus universities and other valuable planning resources. The mandate of the DPCF is to act as a conduit for information between business continuity professionals and enterprises seeking contingency planning information. As our initiative evolves additional information will be posted to the site and a separate library link will be established for white papers and case studies being submitted by DPCF member companies.

The seminar in San Diego will be a panel format with rotating panelists over the course of the three-hour session.

Panelists will include application vendors, resellers specializing in business continuity, hosted and managed services providers, and end user case studies. The actual panel sessions will be made up of several elements including:

- Presentations by the panelists addressing just why business continuity planning is critical and why it has become must easier to implement than in previous decades.
- Creation of real-time (live in front of the audience) continuity plans based on scenarios submitted by enterprises and resellers. Audience participation is welcome.
- A review of corporate governance as required by Sarbanes-Oxley, HIPPA, FISA, OSH Act, and other regulatory issues.
- Extended Q&A period plus a freewheeling discussion period for full audience participation.

The objective is to encourage companies that need a new or updated business contingency plan to come forward and participate in this seminar. Audience participation is not only welcome, but greatly encouraged. The DPCF is also asking for enterprises and resellers to get involved by submitting a Business Continuity Plan Request. The request simply requires basic information on your operations and just what you want your contingency plans to accomplish. For example, your goal may simply be to have most of your operations back up and running in 72 hours, but immediate failover for your help and support desks. A short summary with enough basic facts to define your goals is sufficient. Also include your name, company name, address, plus your phone, email and fax contact information to allow the panelists to contact you with any questions and to forward planning recommendations. Please send the requests to: maxschroeder@tmcnet.com or mschroeder@faxcore.com.

Most business interruptions are related to a power failure and last less than 72 hours.

Despite the fear that the word 'disaster' brings to mind when considering business continuity, most business interruptions are not caused by major disasters. Perhaps the following excerpt from the FEMA Web site will help (as defined in Emergency Management Guide for Business & Industry FEMA 141 — http://www.fema.gov/business/guide/index.shtm)

Go To Table of Contents | Go To Ad Index

What Is an Emergency?

An emergency is any unplanned event that can cause deaths or significant injuries to employees, customers, or the public; or that can shut down your business, disrupt operations, cause physical or environmental damage, or threaten the facility's financial standing or public image. Obviously, numerous events can be "emergencies," including:

- Fire
- Hazardous materials incident
- Flood or flash flood
- Hurricane
- Tornado
- Winter storm
- Earthquake
- Communications failure
- Radiological accident
- Civil disturbance
- Loss of key supplier or customer
- Explosion

As is obvious from the list, many interruptions are caused by common events we see mentioned in the news every day. One key fact to remember is that most business interruptions are related to a power failure and last less than 72 hours. If your company does not have a current contingency plan in place, perhaps the above examples will serve the purpose of a "call to action" and motivate you to attend this seminar. Many of the DPCF member companies listed below will be participating in the session.

Current Members of the Disaster Planning Communications Forum

- 3t
- Cantata
- CiBan LLC
- Cisco Systems, Inc.
- EarthNet Telecom, Inc.
- ECA
- Eicon Networks Corp
- FaxCore, Inc.
- Forsythe Solutions Group
- Haines Brown Inc.
- Iwatsu Voice Networks
- KoolSpan, Inc.
- MSI Services
- MWB Business Systems
- One Touch Global Technologies, Inc.
- Progressive Communications Mgmt, Inc.
- Promero, Inc.
- Quintum Technologies
- SafeHatch, LLC
- ShoreTel
- Skyport International, Inc.
- Sphere Communications
- Standley Systems, Inc.
- Tadiran Telecom Inc.
- Telephony@Work
- TMC
- United Telecom Council
- Wiresoft.Net, Inc.

A reminder to please visit the disaster preparedness channel on TMCnet for additional information provided by DPCF members, TMC, and the ECA. IT

Max Schroeder is a board member of the ECA, media relations committee chairman, and liaison to TMC. He is also the Sr. Vice President of FaxCore, Inc.

Rich Tehrani is President and Group Editor-in-Chief at TMC and is Conference Chairman of Internet Telephony Conference & EXPO.

If your organization has an interest in participating in the TMC/ECA Disaster Preparedness Communications Forum, please contact maxschroeder@tmcnet.com or rtehrani@tmcnet.com.

By Mike Katz

Prognostication — Truth sometimes is stranger than fiction

It's changing out there in the real telecom world, more quickly then most of us would expect. For example, applications we thought would be available years from now are popping up from within the walled garden, and outside of it. In a previous *Internet Telephony* article, I mentioned the potential revolution of PCDs (personal content distribution devices). At the time, I was thinking these devices would connect to mobile phones without service providers' participation. Within two months of my forecast, I was proven both right and wrong.

During the week of July 16th, Vodafone announced, for delivery in its German network, a very interesting new service as part of Vodafone's (news - alert) Live! portal. "Vodafone-Mein PC" enables subscribers on Vodafone's 3G UMTS network to stream their own MP3 music, video, or other media from their computer at home to their mobile. This is place shifting, not just time shifting, for any media type, meaning users can watch live TV programming that their computer is capturing from the broadcast signal on a TV in their home. As I noted in my previous article, Broadband Value Added Services (BVAS), like the Slingbox (which has the video portion of the offer) and Orb (which has both video and audio), could overrun the legacy carriers if they fail to take action.

Well, someone at Vodafone must be reading *Internet Telephony*, for the company has proven me wrong. While I forecasted the service correctly, I did not pick a walled garden operator to provide it to the market first — and not in the German market — nor did I suggest they'd use third party (non-walled garden) provider Orb to deliver it. Orb has been outside of the walled garden for its existence, until now, providing a free client and server offering to consumers to enable access to personal content. Vodafone provides a pre-configured PC installer (basically the same as you can get from Orb), which has to be installed on an always-on (broadband) connected PC. Then, the Vodafone customer can log in to the PC by using the Vodafone Live! portal from a mobile device. This is currently under public trial in Germany through the end of September. Vodafone charges users a fee of 5 per month to access Mien PC via its data service. It would appear that Vodafone's business model is to provide a network-based service that recovers revenue from just data pipe usage. This is exactly what I had predicted could be done to Vodafone by the likes of Google and others. Kudos to Vodafone: It has seized the opportunity and made it happen. For any operator, this is a radical step away from the pay-for-play media/walled garden business model, and a positive market move.

Personal Content Distribution (PCD) is a smart move for any operator. Mobile delivery of content that the user has already paid for eliminates the content cost the operator would normally have to pay for and then bury into a subscriber charge. Consumers get the value of portal access to the service and pre-configured solutions. Operators get the same market buzz effect that Mobile TV provides without the inherent costs. Service delivery can be made via multiple access methods; there's delivery over IP streaming media to a mobile and streaming via 3G-324M circuit-switched video via Video Gateways. This enables operators to bridge to user bases with the same solution, so operators can address the 2.5G and 3G mobile base. Could personal content distribution be a new category of content delivery for mobile devices? Will other operators follow s'

"

uit and capture more revenue per subscriber with out having to pay for video content? Stay tuned. IT

Mobile delivery of content that the user has already paid for eliminates the content cost the operator would normally have to pay for and then bury into a subscriber charge.

Mike Katz is director of product marketing for NMS Communications. (news - alert) For more information, please visit the company online at http://www.nmscommunications.com.

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Technology Helps Solve Contact Center Growth Issues

By Greg Galitzine

As contact centers grow, so too do the challenges associated with managing a growing team of agents and the technology that enables them to be as efficient and productive as possible. Not only are call centers tasked with delivering the best possible customer service quality, they are increasingly being called upon to save money and even generate sales to go from being cost centers to profitable parts of a company.

Larger contact centers have always been at the forefront of technology because they can afford the expense of new technology and the vendor community has always seen them as the bread and butter customers, building solutions to scale and meet specific needs of each large contact center.

Small companies, too, have been able to take advantage of IP-based contact center solutions that have been designed to run off commercial off-the-shelf PCs, but that do not really offer the opportunity to scale up to larger numbers of deployed agents.

So it's the middle market of contact centers — those around 200 agents or growing through 250 and beyond — who face the biggest challenges.

Among those challenges, agents remain the highest cost element of many companies' customer service mechanisms. And while self-service technologies and speech recognition/text to speech advances are increasingly being put to use to service customers, it all comes back to offering consumers choices. Frequently, a customer's first choice is to speak with a live agent. In fact, Richard Shapiro of the Center for Client Retention in Springfield, NJ, commented that roughly 40 percent of consumers calling a company's toll-free number immediately dial 0 to speak to a live agent. So, to that end, technology has to be put to use to aid a call center agent in an attempt to better serve clients, all the while being as cost effective and efficient as possible.

Among the challenges contact center managers face, keeping the technology of the contact center up to date is one of the biggest headaches. Constant upgrades, and keeping on top of the latest trends is proving to be an ongoing struggle. And they need to do this and stay on budget at the same time.

For one, there is the issue of improved connectivity and return on investment through CTI (computer telephony integration). A good contact center solution will offer hooks to tightly integrate screen pops with the database, in order to save precious seconds on each call. For those unfamiliar with the term, a screen pop is a feature that "pops" up a customer record automatically on the contact center agent's screen when a call is received.

The technology has been very successful in improving customer service and it also allows the agent to spend more time working with the customer rather than wasting time looking for a particular record. What's more, it affords the agent the opportunity to up-sell or cross-sell the customer based on the details of the record, such as call history, etc...

These days, screen pop technology is actually being used during outbound campaigns, in order to save even more time, by popping an outbound record or customer profile on an agent's screen while the system dials the phone. So you see, agents need only focus on their core competency. This makes the whole process more efficient. Some of today's latest applications actually generate lists of customers to contact, and then wait to dial based on an agent's status. As soon as an agent becomes available, the screen pops the next record and connects the two parties. In addition to being efficient, this is a valuable tool that can be used to generate revenue by streamlining processes and maximizing an agent's time and talents.

Another headache for contact center managers is the need to integrate the contact center application with other back office systems and enterprise applications. In the past, many enterprise business processes were kept

separate from the communications infrastructure. Nowadays we are seeing a trend that ties together all the disparate business processes with a company's communications applications in order to create a more complete application bundle allowing the enterprise to work more efficiently across the entire length and breadth of the value chain.

Agents and systems can now dial up customers straight out of accounting applications. When a screen pops up a customer's record there can be a total view of the customer into each and every element of how they do business with your firm. This "holistic view" of a customer allows agents to best serve them by providing complete and total "360-degree" view of the existing relationship.

Doug Hutchinson, product manager of Contact Center Solutions at NEC Unified Solutions stated; "NEC customers have demonstrated the need for scalable, customized solutions that can be easily integrated into their existing networked systems, delivering improved productivity for agents and a solid Return on Investment. Our complete suite of contact center solutions can grow with the customer's organization, allowing for new software and application upgrades, while still protecting their initial technology investment."

Perhaps the best news for the bean counters is that these types of technologies offer investment protection by easily tying in to existing ACDs or automatic call distributors. Contact center managers can upgrade all the surrounding applications but keep the expensive ACD components until such time as it becomes necessry to upgrade those as well.

The opportunity for vendors to serve the mid-size market (around 200–250 agents and up) is huge. This group has been underserved, and increasingly is faced with options such as investing huge sums of money to grow, outsourcing to make sure they are able to maintain a high level of customer service, or some combination of both. Solutions such as the eTHOS Contact Center offering from NEC (profiled in the accompanying sidebar) can go a long way to satisfying the needs of this market. IT

Greg Galitzine is Group Editorial Director for TMC's IP Communications group of publications, including Internet Telephony, IMS, and SIP magazines.

NEC Unified Announces eTHOS Contact Center Solution

NEC Unified Solutions, Inc. (NEC) (quote - news - alert) recently announced the availability of its eTHOS Contact Center (eTHOS) offering. The solution is designed to provide contact centers with an open development platform that provides scalability and customization to meet the individual needs of customers' unique environments.

Building on NEC's PBX/Automatic Call Distributor (ACD) technology, eTHOS meets the demand for contact center performance in the areas of multimedia communications, Interactive Voice Response (IVR) auto attendant and enhanced routing, real-time administration, and report generation for SMB, large enterprise and networked organizations. Culminating a ten-year partnership between NEC and Technologies for Business (TFB), eTHOS employs integrated contact center features and applications for the UNIVERGE SV7000, UNIVERGE SV7000 MPS, UNIVERGE NEAX 2400 IPX and UNIVERGE NEAX 2000 IPS, eTHOS provides customers with a clear migration strategy, enabling businesses to protect their initial investment.

Additionally, eTHOS will prove to be a valuable business tool, utilizing Computer Telephony Integration (CTI) applications such as Screen Pops to reduce agent call times and in turn improve user productivity and deliver a Return on Investment (ROI). The preview and power outbound dialing campaigns also allow for faster call launches, directly contributing to revenue generation.

"Providing our customers with solutions that respond directly to their unique needs and offer the flexibility to grow with their business is a main objective of NEC," said Jay Krauser, general manager, Product Management Division, NEC Unified Solutions, Inc. "We are proud to offer this next-generation contact center solution to further allow for greater scalability and efficiencies and increase organizations' networking and customization capabilities."

Designed to meet the diverse needs of SMB and enterprise customers, eTHOS employs an open software design for faster database access and increased integration. API and development tools allow customers to implement eTHOS to meet unique and individual contact center demands.

Compatible with CCIS and FCCS, eTHOS can network several PBXs to create a unified virtual call center including:

- Expanded prioritization and routing of inbound/outbound calls as well as multimedia communications via access to databases and network resources.
- Enhanced flexibility and easy administration of the Automated Attendant.
- Improved call handling and blending via Automated Callback and Automated Outbound Campaigns.
- Integrated multi-media communications via e-mail and chat.
- Cradle-To-Grave, real-time and historical reporting via ACD Reports and Contact Director.
- Increased information delivery via Screen Pop and other CTI applications.

For more information, visit http://www.necunified.com, or call (877) 463-2267.

Sprint's Tony Krueck

Rich Tehrani's Executive Suite is a monthly feature in which leading executives in the VoIP and IP Communications industry discuss their company's latest developments with TMC president Rich Tehrani, as well as providing analysis on industry news and trends.

The IP Communications space is evolving rapidly, particularly in the wireless arena, but pitfalls abound for service providers, not the least of which is deciding how to balance the varying needs of business customers and consumers. One thing they have in common is a driving desire for a more revolutionary user experience, which includes fixed/mobile convergence, global interoperability, and faster speeds, especially across wireless networks. But perhaps what matters most is that, while customers continually require more of their service providers, they also ask for new services and products to retain their intuitive nature and become overly complicated to use.

Founded in 1899, Sprint (quote - news - alert) long been a major player in the telecom market, from its days as the nation's largest local telephone service provider, to completing the nation's first nationwide 100% digital fiber-optic network, to being the first major carrier to offer the original triple play (local, long distance, and wireless). But it, too, must cope with the changing telecommunications landscape and the varying needs of different customers and evolving technologies. Recently, Rich had the opportunity to speak with Sprint's vice president of product development Tony Krueck, who explained how Sprint is approaching the dilemmas that face carriers today.

RT: What changes are you seeing in the VoIP and IP Communications space?

TK: In terms of the things we are doing from a VoIP (define - news - alert) perspective, the first set of VoIP products that we've brought to market in some time has been our CPE-based managed IP PBX solutions, which have been deployed by our managed services group for a couple of years. We work with an enterprise to install, deploy, and manage IP PBX capability on an ongoing basis, so the company doesn't have to do it on its own.

We have also deployed IP Voice Connect, which is an IP Centrex type solution, where there is no CPE involved — at least there doesn't have to be. There could some CPE in cases where the customer wants to the IP Centrex solution to interface with traditional, digital voice phones or even analog phones.

With this solution, we're targeting any business looking for a solution where they don't have to make large capital investments to buy telephony equipment. It is especially attractive for customers that want to have PBX capabilities spread across a large geographical area.

For instance, if you have a central headquarters, like an campus center, and, say, 350 remote locations around the country, you could tie all those different locations together — regardless of how big or how small those remote locations are — to a central telephone system. By doing so, the entire company can be on the same voicemail system and can use four-digit dialing. In fact, all the typical things you would get in a campus PBX environment can be spread across the entire nation. It also alleviates the need for remote offices to be left with separate systems.

We also have our next set of voice-over IP solutions for the enterprise in the pipeline, which will provide the ability to integrate wireless phones with other PBX capabilities. Initially we will look at it from an Avaya perspective, meaning it will be integrating your wireless device with either a hosted Avaya IP PBX or with a CPE-based Avaya PBX. If the customer has an Avaya PBX on campus, we have the ability to essential-

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ly turn their wireless device into what amounts to a remote extension to the PBX itself, with the look and feel of a phone attached to the PBX.

But the coolest thing is that you can be on a phone call at your desk and suddenly need to move elsewhere. While still on the line, you can, by pressing a single button, hand it off to your mobile phone seamlessly and without loss of functionality. This solution is actually an internally built IMS solution, using a SIP interface. We also have a few additional IMS-based solutions in the works.

The goal is to be able to attach this integrated wireless capability so enterprises can — regardless of which PBX they are using — extend that capability to wireless devices and enjoy a fully converged, integrated product.

RT: That's big news because it's one of the first apps that I've heard of that is actually in use. One of the things about IMS is that people are asking, "Where are the applications?"

TK: There is so much hype over the technology that, right now, companies are saying that it is over-hype and asking when will we actually see things that are interesting.

Initially, even before the IMS hype got started, we started the development of some of these VoIP products, and we utilized a lot of the pieces of the IMS standard before they were even locked out — honestly, because it was cheaper. We knew we would have multiple session-based applications that were going to need to be integrated and also that we would have multiple means by which customers would to want to access the same application.

So, instead of building the applications for multiple networks, it was considerably cheaper to build them using a single set of applications that could interface back with the multiple types of access and networks that people would be utilizing.

RT: It looks like you are ahead of the curve.

TK: Yes, I think we're a little bit ahead of the curve, but a lot of other companies are also investigating IMS, and we've got to stay on our toes. I would estimate we're 12 to 18 months ahead, which could easily get erased, given how quickly things can change in the telecom industry.

But we are pushing to stay ahead with a new high-level sponsored IMS strategy group inside the company. That group is constantly developing and altering and changing our IMS strategy. With this dedicated IMS strategy team, we are staying on top of the changes around IMS and ensuring the company, as a whole, has a consistent focus to keep us on the leading edge.

RT: Is the enterprise a big opportunity for IMS? It seems like a much bigger opportunity than most of us realize.

TK: Well honestly, when you go to all the IMS forums and conferences, a lot of the talk is about consumer products, which is also where all the hype is, but Sprint, along with a few others, are looking at IMS applications in the business space. The idea is that, from a business perspective, all of the IMS apps that we have developed to date are really business applications, and the consumer apps are going to be secondary. We believe that IMS was the right approach from a business perspective with the different networks we have built and integrated.

RT: What about WiFi integration?

TK: We've done many trials with integrated WiFi, but it's not certain that enterprises are really interested in it. Our research shows that if you are going to do a Voice over WiFi play in the enterprise, and the enterprise is going to own that play, then that play really only works when you are on campus or in the enterprise space, geographically. As soon as you leave the enterprise, unless you have a player that is going to help converge those capabilities, you are really looking at a very siloed solution that doesn't provide much flexibility.

When we looked at all of the fixed/mobile conversions possibilities, we found that the best way to fully integrate the solution is via the IMS-based integrated wire solution I described earlier. That gives the customer the ability to have all of the features and capabilities they enjoy today on a wireless device, and allows them to port those over the enterprise as well. It really doesn't require a lot of WiFi integration. Honestly, there is not a lot of real good ways for Sprint to make money when people are using Voice over WiFi in the enterprise. So clearly, there's a problem there as well.

I think all the other wireless carriers would find the same problem, which is why it hasn't really taken off in a big way.

RT: What about the consumer side?

TK: On the consumer side, it's a different story. Customers that have WiFi in the home clearly have the ability to utilize it in any way they choose. If they are paying for that broadband connection anyway, and they have Voice over WiFi capabilities, then it is something that we are willing to take advantage of. We do have some products in development that offer Voice over WiFi capabilities.

There is one, in particular, we call, 'combo phone.' It is basically a device that will be CDMA in the macro network, and when you enter the home, there's a small piece of CPE that resembles a wireless router, but will have a peering capability to the wireless phone. The phone will identify itself in the home and will pick up the WiFi signal. Then, all calls back on the wireless network will be seamlessly routed, via the WiFi network, to the wireless phone.

RT: How does that benefit the customer?

TK: The benefit for the Sprint customer is improved in-home coverage, because no matter which wireless carrier you are with, when you are inside the home, there are always places where there's a chance your wireless connection might

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not be as strong as you would like. The router basically provides a home base station through which in-home coverage should be phenomenal.

The wireless router we are going to use will have two to three times the power of a standard home router, so the capability of broadcasting through the home is going to be much better and the voice quality should be excellent — unless you live in a 25,000 square foot house.

The other benefit is unlimited minutes of use while you are on the WiFi connection, while still having access to the benefits of the different applications that we have developed for our wireless phones. So, we see definite value in Voice over WiFi in the home and are developing solutions for it.

Voice over WiFi in the enterprise we're not as excited about. We're still doing trials, we're still talking to customers about it, and we still have equipment in our labs that we are testing, but there's nothing today that we are pushing hard with our customers.

RT: Since the domestic carriers are generally in control of the devices, doesn't that give you control over potentially having a plan where, for $20 a month additional, you can have unlimited WiFi telephony? That would be a way to encourage a single device to be the primary device within an office. Or is that not a good business model?

TK: That could work. Personally, I think it would, especially for something like a $20 upcharge, but it might be pretty hard to get a company to pay an additional $20 a month for the WiFi capability in billing.

RT: There are challenges with service quality and access to different carriers' networks and whose network is a particular call attributed to, but that seems to be where things are headed because we are trying to consolidate devices as much as possible. Instead of upgrading the office phones, couldn't a customer supply its mobile employees with wireless devices, which they likely do anyway, and eliminate the desk phones altogether?

TK: We actually sell a device today that has Voice over WiFi capability. If someone wanted to enable that in their enterprise, they certainly could. It's the Sprint PPC 6700.

Another piece of the complexity is that everybody's wireless LAN is configured a little differently. Enabling seamless handoffs between WiFi hotspots, between floors, between buildings, and various other on-campus scenarios is still something that, from a WiFi perspective, has not been really standardized. It's not a very clean solution yet.

A contributing factor, of course, is that WiFi was never designed for that. Even today, when I try to take my laptop from one building, where I'm connected, to another, it never hands off cleanly — and that's not even real-time traffic. I would like to be able to sit down in another building on the same campus and be able to flip my top open and still be connected, but it just doesn't happen very cleanly. I typically have to reboot my computer. Imagine trying to do that instantaneously while you are on a voice call without dropping the call.

RT: We have a couple more years before this becomes reality — maybe five years — but isn't that where we are headed?

TK: We could be headed that way. We have the other aspect of Voice over IP coming as well, which will be over our 4G 2.5 Gigahertz spectrum. Our intent is to roll that out nationwide and, clearly, Voice over IP will be one of the solutions we offer on that network.

There is also a solution where it isn't going to be necessary to have integration with all of these enterprise networks, and that's primarily the reason why our integrated wireless solution is more elegant today. It has the capability for seamless PBX handoff and moving from building to building, because you are really traveling across our wireless network that is completely integrated and there are no concerns about WiFi handoffs. That solution is available today.

Maybe some day, the Voice over WiFi solutions will become more standardized and will have the capability of offering those same types of services, which is why we continue to explore them and continue to run trials.

RT: Bandwidth-wise, where does that leave us, in terms of technologies like EV-DO?

TK: We have several wireless data networks. We have what we call 3G1X, with which you are probably familiar. That was the original, what we used to call a high-speed data network. But it was essentially 50 to 70 kb per second up and downstream and has been replaced with EV-DO, which has average speeds of 500 to 700 kbps on the downlink, but still only 50 to 70 kbps on the uplink.

Most Internet traffic is downlink intensive, so the experience, when you are downloading, is very quick. But, when you are uploading data, it is still a little slow. However, when you are doing standard Microsoft Office work, it is significantly better than 3G1X. When we launch EV-DO Rev A, you will see DSL-like customer experiences across the network. EV-DO Rev A will basically give you the same 500 to 700 kbps speeds on the uplink as you have on the downlink.

We plan on launching EV-DO Rev A nationwide on the entire footprint. We will start to incorporate the capability in the network in the Q4 of this year. We will have a card that's able to offer Rev A service for sale in Q3, even though service won't be available. By the Q1 2007, Rev A will be available to about 154 million pops covered on our network.

RT: Whose equipment are you using for that?

TK: All of the radio access networks will use the core radio access networks that are there today — Motorola, Lucent,

Nortel, and Samsung radio access networks.

RT: Are you first to market with EV-DO Rev A? It seems like you are ahead of Verizon at this point.

TK: We already consider ourselves ahead of Verizon with total pops covered on EVDO Rev 0. Clearly, we are on a warpath to put as many of our cell sites on EV-DO Rev 0 as quickly as we possibly can. EV-DO Rev A, as soon as it's available, will start pumping out as well.

We actually have EV-DO Rev A products that are in development, so not just the core network, but also some new exciting products that will flow across that network will launch at about the same time. Those will include some of our new IMS applications

It's a busy time at Sprint; we've got a lot of huge projects we are working on.

RT: I have been a wireless user for years, and I remember when Sprint was one of the first to roll out a reasonably priced wireless network, and then the Verizon people did a good job of quickly getting the 1X network up and then the EV-DO network up.

TK: Well, remember too, and we've got many business drivers that are pushing us in some very specific directions. One of them our merger with Nextel and our desire to develop a high-performance push-to-talk capability, which will ride on our EV-DO Rev A network.

RT: Where do we stand in terms of the rest of the world in terms of GSM networks? How do you see that shaking out in the future? Are we going to change the networks in this country, or are we just going to get used to using devices that have multiple radios in them?

TK: Clearly, Sprint is on a CDMA path, and has been. That is our future architecture. What the European countries are planning to do, I'll leave it to you to ask them.

But internationally, they are clearly on a GSM path, though they're also deploying wideband CDMA data networks. We would love to have full interoperability with many of the European carriers. I think one way we will be able to integrate with our partners overseas is IMS.

Once you have access using some kind of IP access, you have the ability to interface applications, so the core technology becomes less and less important, as long as you are all talking IP. It doesn't help us from a roaming perspective because the device would have to support both GSM and CDMA. Incidentally, Sprint does have multiple devices that support both GSM and CDMA technologies for our customers that travel overseas.

> Combining wireless and wireline might sound great but if it doesn't work for the customer and make their lives simpler and easier to manage, it becomes a fruitless effort.

The bigger problem for Sprint is that European customers don't have dual band devices that are capable of operating on a CDMA network, so when they come over to the United States, they don't have the luxury of using our networks, although our customers have the luxury of going over there and using theirs.

It's an inbound versus outbound roaming concern, and I can't tell you what the future holds with respect to a worldwide standard. I do know Sprint is spearheading work with other carriers worldwide on 4G to try and get as many companies worldwide to agree on a standard, so that we can have worldwide roaming capabilities across countries and networks.

RT: Can you talk about Net Neutrality?

TK: I'm not really in a position to talk about Net Neutrality, mainly because Sprint does not have an official position on it yet. We see the benefits of both sides. IMS is a technology that would say Net Neutrality is a must. If you want to use applications across suppliers, it would have integrated capabilities, regardless from which carrier you buy your service.

Then, clearly, we can't see ourselves becoming the bit pipe either. If we are not able to charge for the specific bandwidth and types of services that customers are buying, there has to be a way for carriers to stay in business. There are two sides to the equation, and the company is still working towards exactly how to approach it.

RT: Wouldn't the price of having to become an ISP over the price of service just go up if you have to guarantee Net Neutrality?

TK: In the real world, logically, yes. But there are enough companies that would call themselves ISPs today that it would be a commoditized business and, basically, the business would go to the lowest bidder. You would see many of the companies go out of business, and there would be very, very low margins for the carriers. Clearly, that is not the direction Sprint is headed. We are just as much a content company as we are a telecom company, as we are an Internet service provider. We are all those things to many customers.

RT: So, where is communications heading in the next five years?

TK: I think both the consumer and business sides are clearly headed towards converged services — and converged means a lot of things to a lot of different people. Even internally, we describe convergence in many different

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ways. We have device convergence, where multiple devices are converging into a single device, like MP3 players, video camcorders, cameras, email, gaming, laptop functionality, and, of course, telephony going into the same device — that is clearly a form of convergence.

I described several products that Sprint has that are converging wireless and wireline capabilities into a single capability, single service that we can offer customers. Voice mail convergence is occurring, so that you have only one voice mail solution for multiple types of service. There's also network convergence, where voice traffic and data traffic are now flowing across the same access and the same core networks, all enabled by IMS.

There are so many different types of convergence coming that, clearly, both consumer and business customers are heading toward a converged world. Our idea is not to make convergence a complicated thing for the customer — it has to be intuitive, and useful for the customer. So, combining wireless and wireline might sound great from our perspective, but if it doesn't work for the customer and make their lives simpler and easier to manage, it becomes a fruitless effort. So, all of our convergence efforts are geared toward driving simplicity for the customer.

RT: So that's the end game, simplicity for the customer?

TK: Simplicity for the customer in a converged world where it doesn't matter which of our networks you are on or what kind of device you are using. We want you to be able to access all of the different applications from any network of ours that you use, with the look and feel being the same.

Sprint clearly has an agenda for shaping the telecom industry in the United States as well as abroad, both in terms of business customers and its large consumer user base. Notably, the imminent rollout of its latest products and services are focused on one thing above all else — that the end user experience must not become more complicated, but more intuitive and simple. But that is the nature of the game, where ever more complicated technologies enable a more exciting communications environment, but the customer has neither the knowledge nor the time to understand how it works. They simply want it to work. That is where carriers are likely to differentiate themselves from their peers as the telecom landscape continues to mature. IT

Cantata's Marc Zionts

What new things can we do and where can we do them? Those are the two questions asked each day by users of communications devices, like cell phones, PDAs, softphones, and the like. For the customer, the answer, ideally, would be everything and everywhere. That, of course, presents dilemmas for the service provider as well as the hardware developer, for they must not only ensure the services are available, but that everyone involved realizes benefits, either financially or in the form of services rendered.

When Cantata Technology (news - alert) was established in 2006 through the amalgamation of Brooktrout Technology and Excel Switching Corporation, that was the challenge it faced — how to ensure everyone in the value chain gained something, from partners to customers to end users to Cantata itself. It's not a simple proposition, as there are many factors in play, including geography, demand, finances, and regulatory issues. I recently spoke with Cantata's CEO Marc Zionts, who explained some of the nuances of the creation of an integrated company like Cantata, as well as the intricacies involved with achieving the company's goal of enabling anytime, anywhere IP-based communication.

RT: What are you seeing in the IP Communications space?

MZ: First, I like the direction you've gone with *SIP Magazine* as well as *IMS Magazine*, because SIP and IMS are fundamental to what we're doing. If we see a big trend, it's clearly the emergence of VoIP (define - news - alert) services and IMS.

That's pretty much driving what we're doing, especially from our perspective of not just thinking about it from a carrier role, but thinking about the whole picture, including fixed/mobile convergence. This is a theme that you've heard from us before, but it's one of the fundamental reasons for combining Brooktrout and Excel together — you have both the enterprise channel and the carrier channel.

Developing products is easier than developing a presence in a channel into a vertical market. With Cantata, we have created a company that can bring this technology into both vertical markets, which is very important because the line between the two is clearly erased — I don't know if I would even say blurred, but erased, in terms of how services are provisioned.

Whether it's call center services, unified messaging services, IP Centrex, IP PBX, or what else, IMS is really revolutionizing things in terms of how does the service provider think about the products they are going to offer, and also how an enterprise thinks about the services they need and where and how they're going to get them. So, IMS will have a very significant business impact that goes above and beyond just the carrier world.

RT: What do people think of the name change?

MZ: I think they fall into two camps. There are the people that get it right away. They often have a musical background and they are familiar with what a cantata is — it's a musical composition — and when they see the logo, they understand that it is the abstraction of a measure. We have partners who build applications, which are kind of like notes that, together, form a composition. So, we're like a cantata, and many people understand the thought process behind it.

But the world is interesting, and there are others that think we made up a word. Still, when we explain the thought process behind it, they understand it much better and appreciate how much went into it.

What I am also happy about is that, since we've rolled out the name — and I have been in Asia and Europe and just came back from the Middle East — and there are people who like it. It makes me happy that I haven't offended anybody; nobody has come up to me and said, "Do you realize that means you don't care for my mother," or something like that. I think it has gone as well as a change can go, but sometimes you have to explain it; sometimes you don't.

RT: Is there any truth to the rumors about you buying the Dialogic division of Intel?

MZ: My comment is no comment. But what I can certainly comment on, from an overall standpoint, is we just combined these companies in October and it's going well. We are excited about our product roadmaps and our internal growth plan.

That being said, we have now acquired a couple companies. We believe in the consolidation in the

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industry, from both a service provider standpoint and an equipment provider standpoint, and we don't think the Lucent/Alcatel deal is the last big one that will happen. I think you will continue to see consolidation just like you have seen AT&T and Bell South, Telefónica and O2.

I think it will continue as a theme around the globe; it certainly makes sense. We have a great platform here; we have many capabilities here; and we will continue to be smart and look at opportunities out there and consider if they make sense. The key driver, of course, is looking at things from the customer's perspective.

If the customers in our channel, enterprise or carrier, are buying products from somebody else, would they get more value if they could get that product from us instead? Would the customer benefit from a move? That's how I rationalize consolidation.

I also try to generate ideas about where I should look for potential targets for mergers or acquisitions. So, nothing specific, but it's generally our number one task to run our business, number two to grow our business, and number three to keep our eyes open for other opportunities.

RT: I keep hearing just about the pain of Sarbanes-Oxley and how companies are almost buckling under having to deal with it.

MZ: It's like Y2K in a way. Some people just went nuts about it and they changed the way they do business, not necessarily because they had to, but they didn't know how not to. Some people have responded similarly under SOX, but even if you haven't felt a major impact operationally, there's certainly still a cost — a real cost from an accounting perspective, from a directors' and officers' insurance perspective, from a legal expense standpoint, and that tax is meaningful. Imagine what many companies could do with an additional three million dollars to spend each year, or if they generated an additional three million dollars in revenues.

How would that drive stocks and then enable you to use that stock for further acquisitions? The authorities should think about this and look at cost benefit, because we are derailing innovation in the startup world. If Microsoft had had a three million dollar penalty tax when it was young, would it have grown as fast? Would it have become the giant it has? Of course, for the Microsofts and the Oracles and the Intels of the world, despite being more than three million dollars, these costs are negligible as a percentage of their sales. But to that 100 million dollar company, it is extremely meaningful.

When you add the fact if those 100 million dollar companies are not generating income, they are not worth much and become micro caps — it is not fun being a micro cap these days. There are not many equity analysts that are going to write about you, and if they are, they are not important and you end up with very little liquidity in your stock. Then you have to sit back and question, what is the benefit of being public here?

You say to yourself: I don't have liquidity; I don't really have access to capital; I am not really enjoying this; I am not getting any benefits of being public; yet I have every disadvantage with SOX. Maybe I shouldn't be public. That is why there have been more public to private deals than IPOs in the last couple of years.

RT: I didn't realize that the trend was that high.

MZ: It is a huge trend; look at all of the private equity funds. Every one of them has raised billions and is raising new billions. Many are flush with cash, but you hear about some really, really big deals out there, where multi-billion dollar companies are being privatized.

RT: Is there an arbitrage play there? I suppose that even these private companies are adhering to some of the Sarbanes-Oxley concepts.

MZ: We have a big six accounting firm and we run our business according to the gap. We think about stocks, but we don't have a full stock program here. There is no need.

RT: So there is a little bit of an arbitrage play, kind of like VoIP in the beginning, like going private.

MZ: You cut out that expense, without a doubt. The other thing is that it is hard for a public company to change. Are you staffed right? Are you working on the right products? Does your product portfolio have the right focus? Should you discontinue some products? When you are in the public eye, those are all things that are really tough to do because you have to be wary of sending the wrong messages.

For instance, maybe you don't need 50 people in your business any longer. You don't want to say, "I just let go 50 people," because people will think you are not growing any more. So, even making sound business decisions is harder when you are public. Indeed, it is a marvelous time to be private.

RT: Have you been following the Vonage stock at all? It has, I think, more ramifications for our business than we would want.

MZ: I know today is its first day of trading. I don't have any insights and I don't know the particulars, but it seems like it is Vonage's idiosyncrasies versus the industry? There have been many articles about its service, which seems to imply they may have issues.

RT: My take is that, because the company doesn't really want to be profitable and cares more about market share, it has immediately alienated the institutional investor, and the volatility that we are going to see in this stock is because they are selling a lot of these shares to their customers — they like Vonage, but are not necessarily the right kind of investors.

MZ: Vonage (quote - news - alert) will end up with hedge funds and skittish retail investors, without a strong base of institutional longs. But the day is early and the stock market is like Chicago

weather: If you don't like it, it will change — give it a few hours.

RT: You mentioned the enterprise, call center, and service provider markets. What are you seeing in terms of growth rates from service provider to enterprise? Are you seeing a division between those different growth rates?

MZ: In our case, I don't know that we are, but we have kind of a different road, in that we play markets and have some products that are traditionally oriented for each market that are somewhat mature products. Then we also have products in each market that are growth oriented.

So, it may just be the idiosyncrasies of our situation, and I don't know that, given our size, that we are a macro-economic indicator of the two sectors. Certainly, the enterprise space is good for us and we are seeing growth there. My fantasy is for corporations to start spending again on technology in a big way. The last time the corporate market opened its checkbooks was seven or eight years ago, heading into Y2K.

Since then, there hasn't been a real technology refresh. There has been a kind of incremental spending, but largely, there are companies, in this country in particular, that are sitting on record amounts of cash but are not spending it. So, while the enterprise is fine, I have this dream that someday, there will be a catalyst for change. Maybe it is VoIP. Maybe VoIP will cause people to say, "OK, let's try and upgrade everything."

On the carrier side, our carrier business is disproportionately international. Our total business is 50/50 (U.S. vs. International), but enterprise is disproportionately domestic and carrier is disproportionately international. Because the subscription growth rate in mature markets is not as high as in many developing markets, the name of the game in the carrier world is application growth and service growth. The irony is that that the newest and most innovative services often are rolled out in the fastest growing markets before they are rolled out in more mature markets. But that may be a function of people's philosophy on network engineering. U.S. and Western European companies are typically larger carriers — the Tier 1s — and they are not likely to roll out a new service until it is gold plated.

It is a very different perspective. In markets like India or the Middle East or Southeast Asia or Eastern Europe, where there is still phenomenal growth, they are also very innovative and quick to try new applications. One of the reasons the carrier business is disproportionately international is simply that you have higher subscription growth and new services growth internationally.

RT: I expected you to say that the carriers are spending more because they are upgrading to the IMS architecture.

MZ: We have growth in both and, again, I caution you to use offset as a macro-economic indicator. I think you get much better feel about trends when you talk to a Lucent and an Alcatel, a Sysco or a Nortel just because of the dollar volumes. Just think about our size. We have a very particular model. So we enjoy growth on both; one tends to be domestically oriented, the other tends to be more internationally oriented.

RT: Let's jump into the future and where we are going with technology and VoIP and communications. What do you think we will see in the next five years?

MZ: Five years is so long. I am trying to figure out what is going to happen later this year. I know what is going to happen tomorrow. I would hope that, five years from now, IMS is a reality in that the initial trials and the initial implementations have gone well and that IMS has become a reality. That would be my greatest hope, and it may be that we will be in some next generation of IMS or testing some next generation of IMS, and that the world will have ubiquitous broadband mobile services that are highly personalized. If that happens in the next five years, we will be in good shape.

That said, will there still be much tedium? Will there still be people at various states of evolution? That is the one point I would want to make, that you can't give up the installed base; you can't ignore it. There will still be people trying to get from where they are to where they want to go at various times.

It will almost certainly vary from market to market. Take India, for example, where mobile subscribers have gone from five million to 70 million in five years and are expected to go from 70 million to being the second largest mobile subscriber market in the world in the next five years. I don't think that IMS necessarily plays out there.

Basic, super cheap 2G may be the right solution, because, if you are taking people from no communication to communication, or to people who just want to do instant messaging because it is cheaper, because they have low incomes, and the carrier has to make money on sub-ten dollar, maybe even sub-five dollar ARPUs, there may be a different requirement.

So, I don't think that, as much as I am encouraged and excited about IMS, that it is necessarily a one size fits all world. There will certainly be different economics that play out, which is why we believe in our product approach. We have products that are pure IP oriented, but we also have a lot of products that can deal with the different migration patterns of different customers and different regions. Sure, I hope we will be there, but I am sure certain places will not — for good reasons.

RT: I hadn't actually considered the third world market, in terms of IMS.

MZ: India really has two worlds. There are 200 million people that are middle class, which is bigger than our middle class, but there are another 800 million people who are poor. If you want to get the handset market to 350 million users, you have to have a product that dips below that middle class market into the poor market, which means you will need very, very cheap handsets.

The model there is a little different than we're used to. The carrier doesn't

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provide a handset for you. Each subscriber must go buy their own, which means manufacturers are coming out with ever cheaper handsets. It is a marketplace that is difficult for Motorola or Nokia or Erickson. Instead, there are homegrown cell phones, because they want to be able to sell these things — and make money selling them — for $20, because there are 800 million people each making less than $1000 a year.

RT: It is a very different market than what we are used to here, right?

MZ: I am always amused when I think about places like the Philippines or India, where they actually have very low ARPUs but still make money, whereas here we have carriers with giant ARPUs that are not necessarily making a lot of money. It goes back to my comment about the timing of service rollouts and whether they have been gold plated or not. We have costs that correspond to our ARPU and they, likewise, have a similar scenario.

RT: In terms of the service provider world and competition, what do you make of the roles of VoIP providers?

MZ: As is traditional with an early market, there are literally thousands of ISPs. Then comes a natural sorting process, where some go under, others consolidate, and, eventually, natural leaders emerge. Not only do you see that in the ISP world, it happened with the mobile market as well. Still, never count out the traditional incumbents. People predict their death far too often. They are smart; they are powerful; they have tremendous cash flow; and they are not going to sit idly by and let things happen to them.

This scenario is not unique to the U.S. In Hong Kong, at one point there were six providers; now there are three. Ultimately, you don't need so many types of providers, though VoIP is a little bit different. VoIP promotes somewhat niche oriented providers, so maybe there is room for more providers, but there will probably still be a few giants.

RT: The other thing about VoIP is that you don't necessarily need the infrastructure. So it is just a joining of these virtual companies, regardless of geography, whereas the mobile and ISP markets are definitely a local product.

MZ: Right, which is why I said there could be niche providers, because VoIP is different. There could be people that have specific vertical packages and services. They just have to make sure there is value there and that they can get the distribution they need to have a logical business model.

By logical business model, I mean does everybody in the value chain make money? That is one definition of a logical business model. Certainly, we have seen markets where that is not the case — you mentioned Vonage. But, in the end you have to provide your customers the opportunity to make money, and if they are offering a service, they have got to make money on it. If you are offering a service with which they plan to save money, there has to be economic value in it commensurate with what they pay.

Of course, you also have to make money. If your model doesn't include everybody in the process, there is something unholy about it and it likely won't survive the test of time. Think about the early days of broadband. I was there with WestTel. Those were tough days. With WestTel's forward pricing, the chip vendors were not making money, the modem vendors were not making, carriers were not making money. In fact, nobody was making money. So there had to be a time out to ask, "What is good here? How do we keep this up?" Sure enough, corrections were made.

With VoIP, you still have to look at that, too. What is the business model and, at the end of the day, is everybody in the model receiving an appropriate value equation that satisfies their needs? If not, something has to change. Hopefully, we all learn lessons; certainly my lesson from the year 2000 was to be more disciplined and understand the fundamentals — growth is good, profitable growth is better.

RT: Growth is good, profitable growth is better?

MZ: The implication may be less growth. If you were to reinvest all your profits into growth, you would certainly be growing faster. But would you ever get back to a sustainable profitable business equation.

If you decide you are going to grow by cutting prices by 10%, you will grow, but you must understand that you will never get that 10% back. You are not likely to come back later and raise prices 10%. So, it is important to understand that you are making very deliberate, long-term decision.

RT: What do you think about Net Neutrality and the IMS wall-guarding comments that are floating around?

MZ: I don't know that I am the best expert to comment there. It seems like this is not a new debate — you kind of saw it in Japan and there is just natural tension that exists. Carriers are trying to figure out how they can capture more and different kinds of revenues. Third parties are trying to figure out how they can provide services without having to pay carriers. I think it is a natural tension that is solved better by business arrangements and business logic than political debate. Yes, I am radically simplifying, but I think it resembles many things we have already experienced, like AOL and I-mode in Japan. These things get sorted out. It all comes down to my statement earlier: How does everybody make money?

RT: Now that you have formed a single integrated company, what do you see as your greatest competitive threat?

MZ: I think that we have a couple of things to think about. First of all, on a product basis, we have individual competitors we look at and we do the traditional kinds of analyses on them in those product areas.

We also have strategies. In some

cases, risk may be risk that we can't really have a strategy with, because we may have a known market — like for the integrated media gateway. We believe we have a better mousetrap and we are going to take market share from a couple of companies we have targeted. To me, there, the primary risk is one of execution.

Can we do it or not? It is not a market risk, because the market is there. It is not a timing risk, because, again, the market is there and it is known. So, can we have the product that has the differentiating features? Can we sell it effectively against the competition? Can we grab the market share?

RT: The integrated media gateway came from Excel or Brooktrout?

MZ: This came from the Excel side. From Brooktrout came the media server, which is a different kind of play because there, the market is clearly nascent. What is the global market for application independent IP media servers? It is a pretty small market with just a few players.

A recent Infonetics report ranked us number one for the first time over Convedia — that's the good news. The bad news is it is a small market, so my risk here is more a market risk: When and where does the market happen, versus execution. It will move to execution when the market has been defined. Still, we are doing everything we can within the small market.

So, I kind of look at each product line in that manner. If it is a more mature product, there may be very little risk from competition because maybe it is mature to the point that there are very few natural competitors — like Excel's traditional product ESP. If think back to the late 90s, we would have been duking it out with Semafor, Harris 20/20, and Red Com, none of which are around today. The market is more mature.

If you look for a carrier-grade, switch-based converged services platform, how many are there? There are not a lot. That is the state of the market. Or if you look at the traditional Brooktrout business with facts, what is our market risk there? It is not a lot.

So you kind of dive into it a bit, but I can't give you a single black and white answer as to our competition. I actually started diving into the different segments where our technology is applicable and have different viewpoints based on each market

RT: What do you hope for the future of the communications market?

MZ: I have never, like you, been a biased person, and I have never been in any other industry. The future to me is ubiquitous, broadband, mobile communication. You want your mobile device to look like your desktop device. You also want the applications on your desktop to travel with you wherever you go.

It's interesting that, sometimes, to think about the future, we put ourselves in our children's shoes. Our children will grow up never having had a wired phone in their life. Why would they? That would be as ridiculous as having a remote control for you TV attached to the wall. Why did you have a phone tethered to the wall? What was that about? Are you crazy? So they will just think differently. They will think about communications differently.

Also, it has proven a benefit to have been in this industry, because it has made me a fairly intuitive user. Others have to learn everything and new technologies are more challenging. Along those lines, for our kids, the notion that they would ever look at a user manual is ludicrous to them. If you have to look at a manual there is something wrong with you — either there is a problem with the device or there is a problem with you. It is hard reflecting on the future, but I think if you pose the question to a pre-teen or teen, you might get an interesting glimpse.

Let's face it, some of the biggest areas of growth in our industry were complete accidents, or things industry professionals would have laughed at. I'm talking specifically about SMS, because all of those brilliant people who scoffed at it. Then it happened, an accidental killer app that is now a multi-billion dollar market and still growing. It is huge in places like the Philippines, which is, I think, the biggest SMS market in the world. There are operators there that have 50% of their revenue being non-voice.

Then there are music downloads. Did the brilliant people in the industry think ring back tones and ring tones would be a multi-billion dollar industry? What is driving this? The youth market.

The other market I look at with the kids is harder to figure out. What are they going to want from video? What are they going to want from a chat? What are they going to want from a video chat and other applications that become available with more and more bandwidth? Overall, my long term outlook is very positive.

But talk to young people to understand the future more, because we who are approaching our 30s and 40s and 50s are no longer the ones to predict where this is all going, as frustrating as that may be.

So you think about communications, and think about the business market as a market where the pricing is relatively inelastic and where people want services. I think of myself; I go with my Blackberry, and I don't care where I am. I am going to use it; I am going to talk on it; and I am going to use the device and try to have functionality equivalent to being in the office.

It is clear there are many details involved with tackling a task as complex as providing ubiquitous communications on a global scale. It also is interesting to hear how different the game is in developing markets and how that plays into business strategy. Perhaps most intriguing, however, is the proposition that the formula for success is, in theory, as simple as ensuring everyone in your business model benefits from the relationship. If Marc's hope comes to fruition and we see another spending spree in the corporate world, that theory may suddenly become easier to realize. IT

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VoIP Development Tools

VoIP (define - news - alert) has clearly begun changing the global communications environment and, going forward, it will continue to evolve. That growth, while presenting challenges for the market as a whole, also introduces a wealth of opportunities for companies and individuals designing applications and hardware VoIP networks. As demands increase, developers, service providers, and end users alike require newer and more powerful technology.

The companies in this month's Product Round-Up all have one thing in common — they provide ways in which VoIP products and services can be improved to enhance the services offered by network operators, thereby improving the end user experience. And while these hardware vendors, software developers, and testing solution providers do not comprise an all-inclusive listing, it is a reasonable place to begin your search for a vendor. The round-up includes brief descriptions of a limited number of firms — firms that represent a wide variety of vendor types — followed by a listing of many more vendors and the type of product(s) they offer (hardware, software, and/or testing).

Aculab
http://www.aculab.com

Aculab (news - alert) offers developers a wide range of enabling technology communications hardware and software for integration into high performance business solutions — from contact centers and IVR to media gateways and media servers. Products for use within telco or enterprise solutions include digital network access — SIP, H.323 and SS7 as well as media processing resources; speech processing, fax, conferencing and echo cancellation in both IP and PSTN environments. Support is available to help developers through each stage of their product's lifecycle. Aculab's portfolio ensures solution providers have the mix of capabilities required to meet the ever changing needs of the communications market. Aculab's portfolio includes; Prosody (certified for use with the Asterisk open source IP PBX Business Edition), Prosody S, a software only host media processing product and Prosody X, a highly configurable IP-based card that combines support for rich media processing resources, IP telephony and optional E1/T1 digital network access functions.

AudioCodes
http://www.audiocodes.com

AudioCodes (news - alert) enables the new voice infrastructure by providing reliable and cost effective Voice over Packet technology and voice network products to OEMs, network equipment providers, and system integrators. AudioCodes' enabling technology products include VoIP and CTI communication boards, VoIP media gateway processors and modules, and CPE devices. AudioCodes provides its customers and partners with a diverse range of flexible, comprehensive media gateway, server, and processing technologies based on VoIPerfect — AudioCodes' underlying core media gateway architecture.

The company provides voice compression technology and is an originator of the ITU G.723.1 standard for the VoIP market. AudioCodes voice network products feature media gateway and media server platforms, which function as core gateways or CPE voice gateways for packet-based applications in the wireline, wireless, broadband access, and enhanced voice services markets. AudioCodes enabling technology products include VoIP, CTI and call logging communication boards, VoIP media gateway processors and modules.

Avaya
http://www.avaya.com

Avaya (quote - news - alert) is a global communication systems, applications, and services provider, which designs, builds, deploys, and manages networks for enterprises. Driving the convergence of voice and data communications with business applications, Avaya helps customers leverage existing and new networks to create value and enhance business performance.

The Avaya DeveloperConnection program offers access to a comprehensive set of innovative support and marketing programs that help create a new generation of innovative communication solutions. Benefits of

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Registered Membership include: access to Avaya APIs and SDKs; use of the Avaya DevConnect logo; discounted purchase prices on Avaya products and platforms used for development; enhanced developer education and support. In addition, Registered Members can apply for Enhanced Membership, which involves a greater commitment between you and Avaya in the areas of support, testing, compliance, promotion and sales.

Cantata Technology
http://www.cantata.com

Cantata Technology, (news - alert) established in 2006 through the combination of Brooktrout Technology and Excel Switching Corporation, provides enabling communications hardware and software that empowers the creation and delivery of anytime, anywhere IP-based communications applications. Leveraging more than 20 years of experience, Cantata offers a broad range of products, along with a worldwide network of partners that allows service provider and enterprise customers to develop new products, introduce new services, and cost-effectively transition networks to IP.

Cantata's available services include a comprehensive suite of support plans, professional services, integration, and training. Whether you are a distributor, VAR, OEM, enterprise, or service provider, Cantata services can ease deployments and ongoing servicing of your online systems. Cantata's developer partners features can assist you with your planning, development, and implementation, ensuring you have the support you need in real time to leverage your technology investment.

Data Connection Ltd. (DCL)
http://www.dataconnection.com

Data Connection Limited (DCL), (news - alert) along with its MetaSwitch division, provides telephony and communications technology to OEMs, service providers, and entereprises, with a focus on software and hardware products that span traditional and next generation networks, including the move towards IMS.

With over 20 years of experience, Data Connection is a one-stop shop for high quality network protocol software, giving OEMs the solutions they need to get to market quickly, cost-effectively, and with the features they need for next generation network devices and servers.

Data Connection and its MetaSwitch division deliver next-gen switching and telephony services service providers worldwide, with products designed for TDM, VoIP, and IMS networks, including a class 4/5 softswitch, a complete voicemail/unified messaging solution, an audio, video and data conferencing solution, a highly scaleable LDAP directory and a unified communications platform.

Eicon Networks
http://www.eicon.com

Eicon Networks (news - alert) provides media processing hardware and software that enable developers and system integrators to deliver applications for voice, speech, conferencing, and IP based solutions. Eicon's Diva Server products share a powerful common architecture, along with development tools and world-class market leading support.

Eicon focuses on key markets, developing products representing high quality and function with simplicity and value. Key markets areas in which Eicon operates are: voice, speech, and conferencing; fax, unified messaging, and document management; IP migration and transaction processing; professional ISDN remote access.

Eicon's wide product range seeks to provide products, tools, and support that enable businesses to communicate with their customers and with one another, providing the hardware and software platforms and network connectivity for a wide range of communications applications.

Inter-Tel
http://www.inter-tel.com

Inter-Tel (news - alert) offers communications products' applications utilizing networks and server-based communications software; and a wide range of managed services that include voice and data network design and traffic provisioning, custom application development, and financial solutions packages.

Moving toward the multimedia, virtual enterprise environment, Inter-Tel's hardware solutions, presence management applications, and VoIP, IP, and SIP technologies reflect a goal to provide new solutions, resources, and alliances that help empower enterprises to improve business processes.

Inter-Tel is focused on developing and delivering business communication applications that are designed to integrate into your communications infrastructure to address your business challenges. Additionally, business communication applications can be deployed across your business cost centers, such as facilities and materials management, sales and marketing, personnel and human resources, and more, to reduce operational expenses and improve your business processes.

LignUp Corp.
http://www.lignup.com

LignUp Corporation (news - alert) delivers a converged IP communications platform deployed with hosted telephony, voice mail, unified messaging, auto attendant, and other Web applications. The 100% software, native-SIP platform is powered by LignUp Call Control XML (CCTRL) and LignUp Media Control XML (MCTRL) and enables solution integrators and service providers to quickly and easily create unique, high margin VoIP applications and services.

LignUp makes it easy for any organization to quickly realize advantages from synchronized Web, video, voice, and data applications and services on top of a powerful, Web services-based VoIP communication platform.

The LignUp Communication Platform enables Web developers to build presence-aware voice and voice-enabled applications for enterprises, next generation service providers, traditional ISVs, on-demand software service providers, and online portals based on call control and media control, robust API languages CCTRL and MCTRL, telephony applications (IP PBX, voicemail/IVR, unified messaging), and additional API layers Web services and VoIPlets.

Linkbit, Inc.
http://www.linkbit.com

Linkbit (news - alert) is a market-driven designer, manufacturer, and supplier of advanced test instrumentation for the global communications industry. Linkbit products include protocol analyzers, network simulators, and complete test solutions. Its customers are developers of new services and infrastructure, carriers, equipment manufacturers, operators, and service providers. Linkbit's Simulation Studio is a powerful tool enabling rapid development of functional and load tests for modern communications networks.

Linkbit's software simulates, analyzes and troubleshoots a variety of PSTN, mobile, VoIP, and IMS protocols and network elements. It allows customers to rapidly develop, verify, and deploy multimedia applications across diverse networks and platforms. Linkbit's intuitive, Microsoft Windows based GUI provides users with full control of test setup and execution.

Mu Security
http://www.musecurity.com

Mu Security (news - alert) offers a security analysis system to reduce product and application vulnerabilities. The security analysis process and the Mu-4000 Security Analyzer platform is equally applicable both to VoIP development organizations as well as to VoIP end users. The symbiotic relationship between the security analysis lifecycles of any end user and development organization is manifested by the improved information flow during product evaluation, bug report, and patch delivery.

Mu Security enables enterprises and service providers to evaluate new products and software updates for known and previously undetected security vulnerabilities. It also introduces security readiness as a metric for end users' product purchase and deployment decisions and allows development teams to efficiently identify security flaws in their products before release. Finally, Mu Security significantly decreases the number of security events in production networks through a proactive methodology that detects security flaws before systems and applications are deployed.

NetModule
http://www.netmodule.com

NetModule (news - alert) offers communication solutions for embedded systems, allowing customers to integrate and use state-of-the-art communications and Internet technologies. The company's focus includes VoIP solutions especially deployed for European Telecommunication standards. NetModule offers a set of VoIP platforms consisting of proven hardware modules as well as a comprehensive suite of Software. Professional Services raging from support projects to complete OEM/ODM developments round out NetModule's offering. Customers benefit from a reduction of development risks and costs, being fast to the market and having more complete and competitive products.

NMS Communications
http://www.nmscommunications.com

NMS Communications (news - alert) is a provider of technologies and solutions for converged and mobile applications and infrastructure. NMS develops products that enable new mobile voice, data, and video applications and improve the performance and quality of wireless networks. NMS' solutions help customers improve capacity and performance in their wireless networks and expand their offerings with compelling multimedia solutions and services for businesses and consumers.

NMS also works with application developers, systems integrators, content providers, handset manufacturers and technology suppliers to jointly develop, market, sell, and deliver solutions to customers around the world. These partnerships make it possible for equipment manufacturer and operator customers to deploy solutions and launch new services rapidly and cost-effectively.

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Patton Elecetronics
http://www.patton.com

Patton Electronics (news - alert) provides its customers the technology required to gain the benefits of today's exciting communications applications. Patton offers a comprehensive range of pedigreed VoIP and Convergence products, including hardware platforms (SmartNodes) that deliver a wide range of telephony port densities and interface options operating on a common in-house developed software suite (SmartWare). SmartNodes are software configurable to enable VoIP deployments in ubiquitous or unique networking environments.

Patton Electronics produces network access and connectivity products including, Voice over IP (VoIP), G.SHDSL ipDSLAMs, broadband transmission, dial-up (V.90) and dedicated (xDSL) access servers, network termination units (NTUs), base-band and short-range modems, fiber-optic modems, interface converters and surge protectors. Patton is building on its expertise in integrated network access, transmission, IP and Frame Relay technologies and to help guide the development of right-priced products to simplify access to the growing global network.

PIKA Technologies, Inc.
http://www.pikatechnologies.com

PIKA Technologies (news - alert) designs and manufactures computer plug-in media processing hardware and software building blocks that connect a computer system to both TDM- and IP-based networks to provide advanced voice and fax services. PIKA Technologies servews application developers around the world that require components to design sophisticated phone services for recording systems, voice service applications, fax broadcast, and PC PBX systems including connectivity to Envox, Asterisk, Eurovoice, and Skype platforms..

For nearly two decades, PIKA has focused its efforts on analog and digital telephony hardware design; DSP technology; real-time device drive design; and API software design. At the heart of PIKA's technology is a portfolio of media processing applications and a proprietary embedded operating system. PIKA's media processing applications can be delivered either on the board or on the computer host.

Psytechnics, Inc.
http://www.psytechnics.com

Psytechnics (news - alert) is a global provider of voice and video quality assessment software deployed in telecommunications test and infrastructure equipment, OSS environments, and mobile handsets to predict customer experience. The company's software solutions enable telecommunications providers to monitor and test the quality of their Voice and Video services and express this in subjective human terms on an MOS scale of one to five.

This simple measurement scale enables carriers to quickly reduce the mountain of complex management data to one meaningful number and, therefore, radically reduce the operational efforts needed to test, manage, and monitor their services. Psytechnics' software has been calibrated against a database of 300,000 subjective tests for voice and video, and has been adopted as several of the international recognized standards at the ITU. This accuracy ensures that test and measurement and network management companies can be confident when predicting MOS values within the network, providing the ability to reduce the mass of complex network metrics to just a single meaningful number that is a measure of quality based on real subjective tests.

Sangoma Technologies
http://www.sangoma.com

Sangoma Technologies Corporation (news - alert) develops and manufactures a leading provider of connectivity hardware and software products for Wide Area Network (WAN) and voice infrastructure, including PCI-based T1/E1/T3/E3 solutions for Asterisk/softPBX applications, voice transport, and WAN communication hardware/software. Its voice, data and video gateways support all popular WAN networks, line protocols and all standard PC operating systems and platforms including Linux, Windows, FreeBSD, Sun Solaris, NetWare and DOS. Its products include a series of Advanced Flexible Telecommunications (AFT) PCI cards.

Sangoma's communications solutions and routing products include support for software-based PBX and IVR voice systems, WANPIPE internal routing solutions, API communications toolkits for OEM users, POS (Point-of-Sale) interface cards, and WAN EduKitR . They span traditional legacy protocols through to the latest IP based voice and data technologies.

Sangoma's range of PCI based cards with T3/E3, T1/E1 TDM, Analog voice and data, ADSL and serial interfaces, when used as a TDM voice gateway, wanpipe router, or with Sangoma's APIs, can turn any server into a complete voice or data gateway.

Surf Communication Solutions
http://www.surf-com.com

SURF Communication Solutions (news - alert) develops a suite of hardware and software products that drives a wide variety of telephony applications designed to deliver high-capacity Voice and Video over IP other networks, including the development of IMS applications.

Surf's media processing engine is

offered in multiple levels of integration, from form factor boards such as AMC, PTMC and PCI, to DSP chips. Surf's boards are pre-integrated with leading ATCA, MicroTCA, and cPCI carrier boards and blades.

From a single Surf DSP chip, telecommunication companies can shorten their product development life-cycle as well as meet market demands for Triple Play services (including audio/voice (VoIP), video, and fax/modem) and deployment over any packet network environment, such as IP, mobile, wireline, and/or wireless.

Telchemy, Incorporated
http://www.telchemy.com

Telchemy (news - alert) is a provider of VoIP and IPTV performance management technology, supplying active test and passive monitoring products both as embedded software and turnkey applications. Telchemy's products enable service providers and enterprises to deliver reliable, high quality VoIP and IPTV services.

Telchemy's VQmon technology enables service providers and major enterprise to monitor and manage the performance of Voice over IP, IPTV, Videoconferencing, 3G / 4G mobile and other real time services. The company's products provide real-time visibility of service quality, accurate estimates of user perceived QoS and QoE (MOS scores and R factors), and detailed analysis of the root cause of quality degradation.

Its software technology has been integrated into a wide range of VoIP and IPTV products, ranging from consumer electronics devices to carrier class telecom systems.

VQmon is integrated into IP Phones, VoIP Gateways, Residential Gateways, SLA monitoring systems, routers, OSS, Probes and Analyzers — providing perceptual quality scores and problem diagnosis information for every call, reporting metrics using RTCP XR, SIP QoS Reports, and other key protocols from the VoIP performance management framework.

Texas Instruments
http://www.ti.com

With an expansive installed customer base and portfolio of field-hardened solutions, Texas Instruments (quote - news - alert) offers worldwide communications equipment manufacturers and designers the broadest range of robust and complete voice, fax, and video over IP solutions built around TI's digital signal processing (DSP) technology and Telogy Software for VoIP. TI began developing products for the enterprise market in the 1990s, when the proliferation of the Internet presented an opportunity for a universal transport mechanism.

Since then, TI has expanded its suite of VoIP products to include solutions for every segment of the market, including IP phones, residential and enterprise gateways, high-density infrastructure equipment and Voice over Cable and DSL equipment.

TI's DSP solutions help make access to the Internet faster via cable modems and digital subscriber lines (DSL); enable VoIP technology; make the sound on cellular phones clearer; enable video and Internet features 3G wireless devices; speed music downloads via the Internet; and make many other appliances quieter, "smarter," and more energy-efficient.

Thousands of available products from the 500-member TI third party network make it easy for end-equipment manufacturers to quickly customize TI DSPs and bring innovative, next-generation products to market quickly.

Touchstone Technologies, Inc.
http://www.touchstone-inc.com

Touchstone Technologies (news - alert) provides communications testing solutions, specializing in delivering value in state-of-the-art voice and video test and measurement products, Touchstone offers scalable call generation and monitoring tools designed for complete lifecycle testing of networks and network devices.

The WinSIP and Win323 real-time generators feature 100% software based voice and video over IP call emulation. WinSIP is a completely SIP-based real-time generator delivering the essential functions to test your SIP-based VoIP or Video over IP projects. Should you need support for other protocols, Touchstone has solutions that can seamlessly integrate those into your for environment for you as well. Win323 delivers similar functionality for you H.323-based networks.

Touchstone's WinEyeQ monitoring and analysis solution provides an intuitive VoIP-centric view of your network traffic. Many solutions specialize in either monitoring or analysis, WinEyeQ provides both seamlessly and intuitively, meeting all your complete lifecycle verification requirements. WinEyeQ is 100% software based, making it extremely portable and equally at home at any point from laboratory to the last mile.

Trinity Convergence
http://www.trinitycomvergence.com

Trinity Convergence (news - alert) is a provider of embedded software platforms for next-generation VoIP and video over IP products in the infrastructure, enterprise, and consumer electronics markets. The company designs, develops, and licenses comprehensive VoIP software solutions that

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help equipment manufacturers accelerate their time to market and streamline the product development process and enable reliable, robust, and innovative IP communications services.

The company's VeriCall family of software solutions provides OEMs and ODMs with fully integrated VoIP solutions that speed time to market and lower development costs. The platforms provide a comprehensive and tightly integrated framework that supports carrier-class VoIP functionality in telecommunications equipment, such as network switches and media gateways. That same framework serves as the foundation for enabling VoIP calling and high-resolution video conferencing functionality in consumer devices, such as office phones, wired and cordless home phones, and dual-mode handsets.

Ubiquity Software
http://www.ubiquitysoftware.com

Ubiquity Software (news - alert) provides solutions to the communications marketplace that enable service providers to quickly develop and/or deploy innovative revenue-generating services. Ubiquity offers deployment platforms, applications, development tools and integration technology for converged voice, video and data services.

Ubiquity's SIP Application Server is both a carrier-class deployment platform and a programmable, standards-based, application creation environment (ACE) that allows providers to develop and deploy next-generation converged communications services. Use of the Ubiquity SIP Application Server is extended through the open, standards-based SIP Servlet application programming interface (API). By offering a range of pre-built Application Building Blocks (ABBs) and their non-SIP based connectors (ABB-Cs), programmers can employ familiar tools to quickly develop real-time communications applications without detailed knowledge of SIP or underlying telecom network infrastructure.

Through the Ubiquity Developer Network (UDN), Ubiquity partners with leading network equipment vendors, system integrators, ISVs, and developers to bring new multimedia communications solutions to a rapidly changing global market.

Verisilicon, Inc.
http://www.verisilicon.com

Verisilicon (news - alert) is a global provider of SoC solutions and services worldwide with focus on embedded DSP for Voice, Multimedia and wireless Segments. VeriSilicon's SOC design platform includes system level architecture design and verification, hardware driver and application software development, experimental system development and debugging. The team has developed LCD controllers and driver circuits, MCU and Multimedia application platforms, which include various digital, analog, and mixed IP designs.

The ZSP platform for embedded DSP applications from Verisilicon includes the licensable ZSP cores and Application software for VoIP, audio, video, and wireless. VoIP solutions also include standard parts for VoWiFi, gateways, and IP Phone solutions. The Z.Voice VoIP software suite provides an integrated solution for VoIP end products.

VOCAL Technologies, Ltd.
http://www.vocal.com

VOCAL Technologies (news - alert) develops embedded solutions for voice, data, and fax. VOCAL's success is predicated on working with its customers to customize and quickly transfer technologies, speeding up the time to market. VOCAL's expertise ranges from wireless (802.11a/b/g, 802.16, 802.20, GSM, GPRS, EDGE) to telecommunications (analog and digital signaling), from to data communications (voice band modems, xDSL and Internet protocols) to fax technology (group 3 and fax over IP), and voice processing (speech compression, echo cancellation, noise reduction), as well as protocols for voice over network (VoIP, H.323, H.248/MEGACO, MGCP, VoDSL, VoATM and SIP).

VoiceAge Corporation
http://www.voiceage.com

VoiceAge Corporation (news - alert) development speech and audio compression technologies and solutions designed to meet the market needs of for the convergence of the Internet and wireless, 2.5G, 3G, and WiFi networks. VoiceAge solutions include G.711 (PCM), G.723.1, G.726, G.729, GSM-FR, QCELP13, EVRC, VMR-WB, AMR, AMR-WB (G.722.2) and AMR-WB+ standard codecs. VoiceAge also offers the CodecLib application programming interface development tool to ease the integration of diverse audio codecs on any Intel platform.

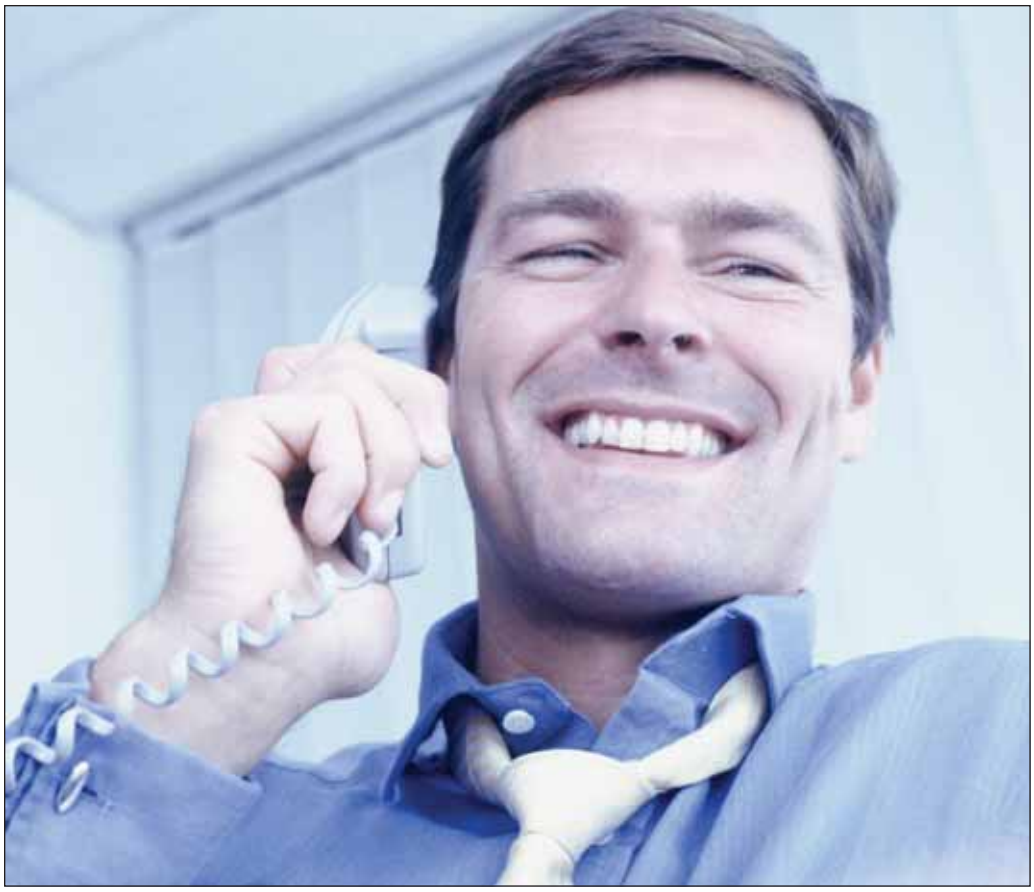
VoiceAge focus on three areas: Compression Technology R&D (research and development of narrowband and wideband low bit rate speech and audio coding technology for state-of-the-art standardized and proprietary codec solutions to meet specific market requirements); Codec Solutions (adapting existing codecs to custom environments, optimizing codecs for specific processors); and Licensing (creating and managing, with other patent holders, patent pools to facilitate access to licenses that are required for the use of standardized codecs).

COMPANY NAME	WEB SITE	HARDWARE	SOFTWARE	TESTING
3Com	http://www.3com.com		X	
Aastra Telecom	http://www.aastra.com	X		
Accurate Always	http://www.accuratealways.com	X		
Actelis Networks	http://www.actelis.com	X		
Adaptive Digital Technologies	http://www.adaptivedigital.com		X	
ADigit Technologies	http://www.adigit.com.tw	X		
Adomo	http://www.adomo.com		X	
Agilent Technologies	http://www.agilent.com			X
Ai-Logix	http://www.ai-logix.com	X		
Alliance Systems	http://www.alliancesystems.com			X
Altigen Communications	http://www.altigen.com	X		
Amcom Software	http://www.ancomsoft.com		X	
Ameritec oration	http://www.ameritec.com			X
APCON	http://www.apcon.com			X
arca technologies	http://www.arca-technologies.com			X
Artesyn Technologies	http://www.artesyncp.com	X		
BEA Systems	http://www.bea.com		X	
Brix Networks	http://www.brixnet.com			X
Catapult Communications	http://www.catapult.com			X
Centillium Communications	http://www.centillium.com	X		
ClearOne Communications	http://www.clearone.com		X	
Clipcomm	http://www.clippcomm.co.kr	X		
Cognitronics	http://www.cognitronics.com		X	
CoMatrix	http://www.comatrix.com	X		
CommuniGate Systems	http://www.communigate.com		X	
Compro Technologies	http://www.comprotech.com		X	
Continuous Computing	http://www.ccpu.com	X	X	
Converged Software	http://www.covergedsoftware.com		X	
Cordialtech	http://www.cordialtech.com		X	
Corinex Communications	http://www.corinex.com	X		
CoSystems	http://www.cosystems.com	X	X	
CPDI	http://www.cpdi.com		X	
Crystal Group	http://www.crystalpc.com	X		
CrystalVoice Communications	http://www.crystalvoice.com		X	
Cummins Power Generation	http://www.cumminspower.com	X		
Data Connection Limited	http://www.dataconnection.com		X	
Dialexia Communications	http://www.dialexia.com		X	
DiamondWare	http://www.dw.com		X	
Digium	http://www.digium.com	X		
Diversified Technology	http://www.dtims.com	X		
DPAC Technologies	http://www.airbornewireless.com	X		
DSP Group	http://www.dspg.com	X		
DSP Research	http://www.dspr.com	X	X	
dynamicsoft	http://www.dynamicsoft.com		X	
eDial	http://www.edial.com		X	
Elma Electronic	http://www.elmaelectronic.com	X		
Emergent Network Solutions	http://www.emergent-netsolutions.com		X	
Empirix	http://www.empirix.com		X	X
EyeBill	http://www.eyebill.net		X	
eyeP Media	http://www.eyepmedia.com		X	
Five9	http://www.five9.com		X	
General Bandwidth	http://www.genband.com		X	
GL Communications	http://www.gl.com			X
Global IP Sound	http://www.globalipsound.com		X	X
GN Netcom	http://www.gnnetcom.com	X		
Grandstream Networks	http://www.grandstream.com		X	
HEAD Acoustics	http://www.head-acoustics.de		X	
Headsets.com	http://www.headsets.com	X		
Hewlett-Packard Company	http://www.hp.com	X		
Hotsip	http://www.hotsip.com		X	
iKnowWare	http://www.iknowware.com		X	
IN-Call Company	http://www.in-call.com	X	X	
Ingate Systems	http://www.ingate.com		X	
Integrated Research	http://www.ir.com			X
IntelliNet Technologies	http://www.intellinet-teech.com		X	
Interactive Intelligence	http://www.inin.com		X	
International Systems Research	http://www.isrus.com		X	
Intertex Data	http://www.intertexdata.com	X		
Intervoice	http://www.intervoice.com		X	
Intoto	http://www.intoto.com		X	
Invores Systems	http://www.invores.com		X	
Iperia	http://www.iperia.com		X	
ipNetfusion	http://www.ipnetfusion.com			X

COMPANY NAME	WEB SITE	HARDWARE	SOFTWARE	TESTING
iQ NetSolutions	http://www.iqnetsolutions.com		X	
Ixia	http://www.ixiacom.com			X
JDSU	http://www.jdsu.com			X
Jeongmin Electronics	http://www.jeongmin.com	X		
Koncept International	http://www.konceptusa.com		X	
Mediatrix Telecom	http://www.mediatrix.com		X	
MGE UPS Systems	http://www.mgeups.com	X		
Millenigence	http://www.millenigence.com		X	
MINACOM	http://www.minacom.com			X
Motorola	http://www.motorola.com	X		
Multi-Tech Systems	http://www.multitech.com	X		
NACT Telecommunications	http://www.nact.com		X	
Natural Convergence	http://www.naturalconvergence.com		X	
Natural Data	http://www.naturaldata.com	X		
NEC Unified Solutions	http://www.necunifiedsolutions.com			X
Net2Phone	http://www.net2phone.com		X	
NetIQ	http://www.netiq.com			X
Network General	http://www.networkgeneral.com			X
Network Instruments	http://www.networkinstruments.com			X
Newport Networks	http://www.newport-networks.com		X	
NexTone Communications	http://www.nextone.com		X	
NextWest Phone Systems	http://www.nextwest.com	X		
Nortel Networks	http://www.nortelnetworks.com		X	
NUASIS	http://www.nuasis.com		X	
Octasic Inc.	http://www.octasic.com	X	X	
Packeteer	http://www.packeteer.com		X	
Performance Technologies	http://www.pt.com	X	X	
Phihong	http://www.phihong.com	X		
Plantronics	http://www.plantronics.com	X		
Polycom	http://www.polycom.com	X		
Precision Communication Services	http://www.precisioncommunications.com	X		
Qovia	http://www.qovia.com			X
RADCOM	http://www.radcom.com			X
RealEast Networks	http://www.realeastnetworks.com		X	
ReView Video	http://www.solutionsoverip.com	X	X	
SBE	http://www.sbei.com	X		
Sennheiser	http://www.sennheiserusa.com	X		
ShoreTel	http://www.shoretel.com		X	
Silver Telecom	http://www.silvertel.com	X		
snom technology	http://www.snom.com		X	
Softel Communications	http://www.softel.com		X	
SOYO Group	http://www.soyogroup.com		X	
Spanlink Communications	http://www.spanlink.com		X	
Spirent Communications	http://www.spirentcom.com			X
Sprint (OEM)	http://www.sprint.com/equipment	X		X
Spririt DSP	http://www.spiritdsp.com		X	
Stratus Technologies	http://www.stratus.com	X		
SyChip	http://www.sychip.com		X	
SyncVoice	http://www.syncvoice.com			X
System Engineering International	http://www.seipower.com	X		
TalkSwitch	http://www.talkswitch.com		X	
Technoland	http://www.technoland.com	X		
Tektronix	http://www.tektonix.com			X
tekVizion PVS	http://www.tekvision.com			X
Telicor Communications	http://www.telicor.net		X	
Tom Logic	http://www.sniffter.com			X
Tracespan Communications	http://www.tracespan.com			X
Trenton Technology	http://www.trentontechnology.com	X		
Ulticom, Inc.	http://www.ulticom.com		X	
Unicoi Systems	http://www.unicoi.com		X	
Unimax Systems	http://www.unimax.com		X	
Veraz Networks	http://www.veraznetworks.com		X	
Viola Networks	http://www.violanetworks.com			X
VoIP Inc.	http://www.voipsolutions.com	X	X	
VoIPVoice	http://www.voipvoice.com	X		
Vonexus	http://www.vonexus.com		X	
WildPackets	http://www.wildpackets.com			X
Wizzard Software	http://www.wizzardsoftware.com		X	
World on IP	http://www.worldonip.com	X		
WorldACCXX	http://www.thebox.com		X	
Xten Networks	http://www.xten.com		X	
Zarlink Semiconductor	http://www.zarlink.com	X	X	
Zultys Technologies	http://www.zultys.com		X	

Life on the Border

By Greg Galitzine



Although VoIP has certainly been in existence for a number of years, anyone who has actually tried deploying a VoIP service knows firsthand that it is not a simple exercise. Issues surrounding voice quality, video quality, security, regulatory requirements, and interconnecting networks present real obstacles for carriers deploying VoIP today. So although VoIP technology exists to enable communication amongst users regardless of location and network — we will never realize the true adoption of that technology if we cannot address all of the problems along the way that make service deployment possible.

In other words, there is a big difference between a technology that is deployable and a service that is usable.

We see a world now where carriers are trying to make the leap from simply offering customers a service to offering them an "Experience."

Challenges

Voice Quality: The voice quality 'bar' is being raised. Not only do you need high voice quality to get in the game, in the future, voice quality that surpasses today's circuit toll quality will be required to stay in the game. In other words, high-voice quality might just be the "killer app" of VoIP.

Security: The openness of the Web and the advantages of IP are useless if security threats prevent the widespread adoption of VoIP. Whether it's a hacker bringing down critical SIP servers, invalid users making fraudulent calls, or service debilitating viruses spreading across subscriber populations, VoIP will not be usable as long as these types of threats are not totally contained.

Interconnect: Using new technology to enable the delivery of value-added applications will ultimately help service providers retain their customers by offering them a new rich communications experience. However, offering an enhanced communications experience is not very compelling if it is only available in limited and isolated islands of usage. Therefore, VoIP carriers need to have global reach and seamlessly interconnect with each other to enable a new rich communications experience across networks.

Solutions

Although there are significant deployment challenges as we have already discussed, there is an approach to overcome them that not only addresses the specific challenges of VoIP deployment, but all problems that exist at the IP border.

Carriers must ask themselves two questions:
1) How do I fix these problems?
2) Where do I fix these problems?

How do I fix these problems?

Most of the deployment challenges that carriers face contain aspects of both the signaling layer and the media itself. For example, high voice quality not only includes managing signaling intelligence for a call, but also processing the media itself to remove echoes, background noise, and other voice call impairments. There are a number of specific examples of how to fight security attacks, increase voice quality, and offer compelling services such as:

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- Encrypting the signaling/encrypting the voice.
- Prioritizing trusted users while fending off DOS attacks.
- Removing echo (acoustic and hybrid).
- Restoring lost packets.
- Maximizing usage of wideband codecs.
- Correcting noise level discrepancies.
- Hiding topology of core infrastructure systems.

Where do I fix these problems?

The obvious choice is to address VoIP deployment issues at the IP border. Carriers can start looking at their IP border as a strategic point in the network to measure voice quality and implement corrective actions. By implementing proper security policies at their border, carriers can keep threats outside of their network. At the end of the day, service providers and carriers want to offer differentiated application services to their customers. As applications become more available, as networks start to converge the most logical place to deliver applications, as well as enforce and manage policies, is clearly at the IP border.

For example, if a carrier's network is under a Denial of Service (DoS) attack, the situation must be addressed as soon as possible and as far away as possible from core, mission-critical infrastructure. In the case of monitoring and taking action on voice quality — carriers need the ability to determine and take action at the very first point in the network so that they can actually see the true condition of a call at the first possible point of visibility.

Carriers need to look to the IP border to address potential issues with scalability as well. Understanding that there are subscribers across different networks, with different devices all running different applications, it's easy to see how enforcing policies in an efficient manner can pose a significant challenge. Addressing each customer and their policy at the point where they enter the network provides efficient and scalable service delivery.

There are still many challenges that must be overcome in order to move from a deployable service to usable service. Increasingly however carriers are being given the right tools and technology and are learning the best practices to increase quality while mitigating security threats. Ultimately, this will enable carriers to increase value and retain customers by offering a more rich communications experience. IT

Greg Galitzine is Group Editorial Director for TMC's IP Communications group of publications, including Internet Telephony, IMS, and SIP magazines.

Ditech Networks: Enabling Carriers

Ditech Networks (news - alert) is focused on helping carriers address critical deployment with a comprehensive border services solution. With a combination of sophisticated signaling and session management, combined with powerful media processing capabilities, Ditech's border services solutions enable carriers to effectively address the issues of voice quality, security and interconnect requirements.

The Packet Voice Processor is a carrier-grade media processing platform that not only allows very specific applications like codec transcoding, but also offers broad functionality, such as the ability to monitor the exact call quality of every call and take appropriate corrective actions to increase quality. Based on Ditech's industry experience in voice quality with billions of minutes processed worldwide since 1985, the approach to solving voice quality is unique and addresses what Ditech considers to be the most important factor: how the call actually sounds. The Packet Voice Processor does not address voice quality by simply relying on network and packet statistics but actually inspects, listens and analyzes each call for a true real world view of call quality.

In addition the Packet Voice Processor, Ditech's session border controller — the PeerPoint C100 — provides all the critical security and session management functions carriers need to address VoIP deployment problems. The C100, which has been deployed in live networks since 2002, is the perfect complement to the media processing capabilities of the Packet Voice Processor. Both solutions are deployed at the carrier's IP border — and significantly enhance a carrier's ability to deploy successful VoIP (define - news - alert) services.

Toshiba VoIP Delivers a Wave of Communications

When he's not "hanging ten" or soaring 30,000 feet above the earth, Manhattan Beachwear CEO Scott Soura can be found roaming the globe, visiting his offices, showrooms, and manufacturing plants in Indonesia, Vietnam, Mexico, New York and the company's Cypress, California headquarters. A leading manufacturer of women's swimwear, including name brands Kenneth Cole, Hobie, and Hot Kiss, Manhattan Beachwear also makes millions of private label swimsuits for top department and discount stores.

In the world of swimsuit fashion, staying current is the key to success, and that's the case with business communications as well. So, when it was time to move the California headquarters to a new building, company executives decided to buy a new business communications solution, for which they turned to Authorized Toshiba Dealer Transcom Telecommunications Inc. of Paramount, Calif. (news - alert)

Mission: Use VoIP to Connect Offices Around the World

After more than 12 years with a dependable — but outdated — Toshiba DK96 business telephone system, Manhattan Beachwear VP of Finance Rick D'Amato decided, "It was time to dive into the 21st century and go VoIP." His goal was to streamline the communications between the company's various global locations.

Solution: Toshiba Delivers IP Connectivity Around the World

Authorized Toshiba Dealer Transcom, Manhattan Beachwear's Authorized Toshiba Dealer for more than a dozen years, had the perfect solution — Toshiba's Strata CIX IP business communication system. Joel Nelson of Transcom recommended Strata CIX because it delivers a converged platform, allowing both IP and digital telephones to be on the same system, whether they are on network, remote, or mobile, even in another country.

Because the company has so many remote locations, including home and mobile users, the Toshiba VoIP (define- news - alert) solutions allowed all these locations and users to be connected to the new Strata CIX at the California headquarters and, therefore, to each other. In fact, using Toshiba IP desk telephones and SoftIPT softphones, which work on laptops or PDAs, Manhattan Beachwear could set up all remote office locations to have them connected over IP to the main system in California.

D'Amato said, "With communications a critical part of our business, it is important for us to be able to be on the same system with shared voice mail, direct exchange dialing, and more. Using Toshiba's Strata CIX with VoIP made this a smart and affordable choice for us."

Result #1: Connecting the Road Warrior CEO

Keeping women in bikinis has CEO Soura on the road nine months out of

Transcom's Joel Nelson introduces the Toshiba's desktop handset to Rick D'Amato.

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every year. He uses Toshiba's SoftIPT VoIP softphone on his laptop to keep him connected from all his locations — hotel rooms, remote offices, airports, and virtually anywhere else there is a broadband Internet connection, including WiFi.

D'Amato said, "Being able to communicate with our CEO via voice mail, conference calls, transfers, and so forth is absolutely invaluable to us. It, literally, is just as if he is sitting in his office."

Result #2: Connected Offices, Showrooms, and Plants Around the World

With a showroom in New York City and manufacturing plants in Indonesia, Vietnam, and Mexico, the long distance bills were racking up quickly. Plus, not being on the same system made it impossible to have efficient centralized communications.

After placing Toshiba IP telephones in its remote offices, Manhattan Beachwear has everyone on the same business communications system with all the calling features of being in the same office. They now can do direct extension calling, can transfer calls, forward voice messages, forward calls to other numbers (i.e., cell phones or home phones), they have direct fax capability, and they can set up conference calls on the fly. In fact, the new system has virtually eliminated the need for using outside conferencing services, adding another layer of cost savings.

D'Amato said they were so pleased with the functionality that they also installed IP phones in the offices of key external manufacturing vendors. "By connecting our partners into our system, we're heroes with them because they are better connected, and it also saves them thousands in long distance charges."

Result #3: Thousands Saved in Long Distance Costs

Manhattan Beachwear is saving thousands of dollars in long distance charges, including about $1,000 per month on international calls at the California headquarters alone, according to D'Amato. In addition, he expects to save at least that much on calls from the firm's Asian locations, as calls from Indonesia and Vietnam are still very expensive, up to $3.00 per minute, and frequent hour-long conference calls add up quickly. For the Mexican locations, he says cost savings are about $400 per month, plus another $300-400 per month in calls from the New York City showroom.

Altogether, Manhattan Beachwear saves nearly $3,000 per month in long distance costs. Said D'Amato, "IP is a great solution for eliminating long distance costs; it truly pays for itself in less than a month."

Result #4: The Flexibility of VoIP Plus the Reliability of Digital

Manhattan Beachwear has a converged system that includes both digital and IP telephones. D'Amato said, "Having both digital and IP telephones gives us the best of both worlds: the reliability of digital and the flexibility and cost-effectiveness of VoIP. Having both digital and IP ensures that our telephones are always operational."

Using digital where IP telephones were not a necessity also helped the company manage network traffic. "We are using IP where it makes sense, but employees who don't need it use digital telephones. Being able to add VoIP endpoints as we need them — telephones or softphones — allows us to roll out VoIP gradually and adapt our network as appropriate, without any downtime," D'Amato explained.

The Bottom Line

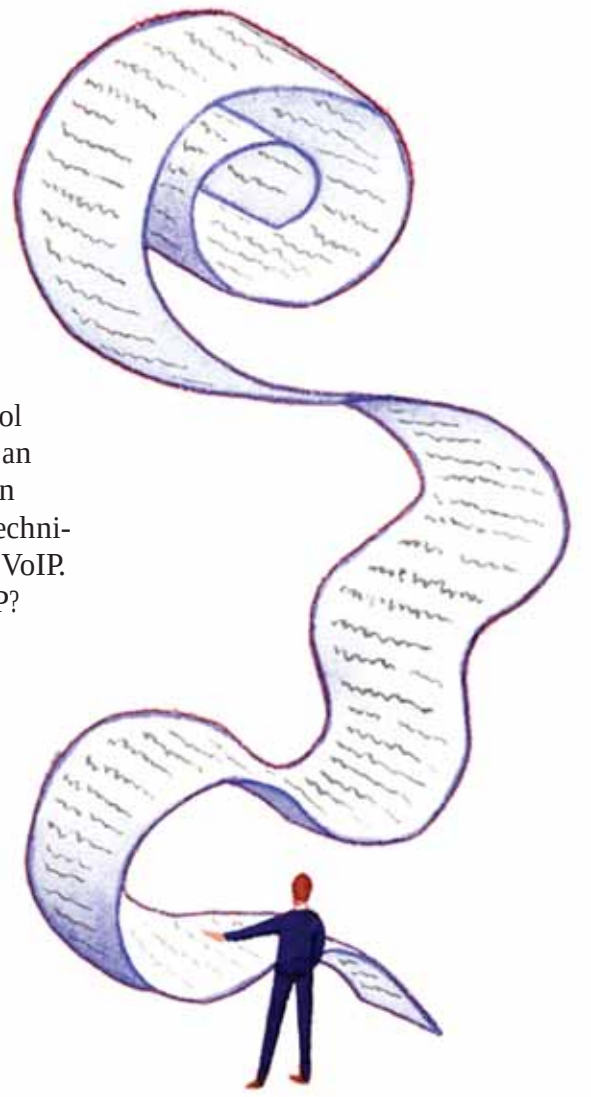
Toshiba's Strata CIX with IP telephony gives Manhattan Beachwear a centralized business communications solution that connects its locations throughout the world, including Asia, Mexico, and the United States. VoIP has delivered a new level of efficiency to the company's worldwide communications and helped keep its road warrior CEO in close contact with all locations. In moving to VoIP, Manhattan Beachwear saves nearly $3,000 per month in long distance costs. It also has become a hero to valued partners by installing IP telephones as "hot lines" and also saving them thousands in long distance costs.

D'Amato said, "Toshiba and Trancom deliver a superior product at a competitive price with great service and creative solutions. In the Olympics of swimwear manufacturing, they win the gold!" IT

L-R: Rick D'Amato of Manhattan Beachwear with Joel Nelson of Transcom with the Toshiba Strata CIX VoIP system.

VoIP — Top 10 Tips for Resellers

By Walter Kenrich



The telecommunications industry has always been fiercely competitive and grows more so with each new technological breakthrough. While most agree that Voice over Internet Protocol (VoIP) is the future, implementing a pure VoIP solution can be an expensive undertaking for companies with legacy PBX systems in place. In addition to legacy systems, bandwidth, firewalls, and technical knowledge all play a role in making that move from PBX to VoIP. So what do resellers need to know to be successful reselling VoIP?

1. Understand your customer's environment. Because VoIP has very specific technical requirements, resellers must approach each potential opportunity trained to determine if VoIP is even technically feasible. For example, is their LAN and/or WAN capable of handling the additional audio traffic in the customer's network? How will remote or branch office workers using VoIP (define - news - alert) traverse firewalls? Is there adequate bandwidth in the customer's network? Will the network support QoS? One way to ensure that all of these technical questions are satisfied prior to the start is to encourage a site survey before beginning to build and deploy any VoIP solution.

2. Understand your customer's requirements. It is essential for resellers to make sure that from the earliest planning phases through implementation and deployment that they know exactly what the customer wants and whether those needs map to VoIP's strengths. For example, does the customer frequently need applications that will be more effectively delivered in a VoIP solution? Does the customer have mobile or remote or home-based workers that could benefit from VoIP and related applications? Will systems need to be networked together to provide a seamless environment and scalability? The most successful VoIP deployments involve a partnership between the reseller and the customer where each understands the other's requirements at each phase of the project.

3. Make sure your team is properly trained. Adequate VoIP training for all team members is crucial to winning business and ensuring successful implementations. Not only should the team have a background in LAN/WAN networks, but they should also understand the different VoIP protocols (SIP, H323, MGCP) and Voice Codecs (G.711, G.723, G.729, etc.) to ensure both a proper configuration and a satisfied customer. With each successful deployment, the reseller can build up important references and case studies.

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4. Focus on the applications that VoIP can offer your customers that a traditional PBX cannot. Understanding that the migration to VoIP can be costly and worrisome for customers, it is important to make the business case justifiable. Emphasize the high-value solutions and applications that the customer will be able to leverage for a competitive advantage. For example, all-in-one solutions that offer unified messaging, IP-based contact centers, remote/mobile workers, presence, and collaboration applications in a single server environment can simplify processes and offer a significant cost savings. In addition, self-service and instant messaging applications can allow agents to be more accessible and have better access to messaging and other data sources. Also, VoIP offers a more streamlined approach in adding and building new applications, which can be upgraded more easily, and is again more cost effective for the customer's bottom line. By offering solid business reasons for VoIP, resellers can provide the crucial information customers need to make their decisions.

5. Focus on predefined deployment models that will be less expensive and faster to implement. Customers want the solution up and running as quickly, cost effectively and seamlessly as possible. To achieve that goal, resellers should consult with their vendors to determine which deployment models map best to the customer's requirements and network and which ones the vendor most highly recommends. It is important that resellers use their time wisely, and the more often they can tap existing knowledge, the more they can bring the projects in with a profit margin.

6. Make sure the VoIP components have been tested and certified by the vendor. Hand in hand with consulting from the vendor, this is also key for the reseller because successful deployments rely on all solution components working. The more the reseller can interface with the vendor and other providers, the more they can ensure a smooth deployment. By knowing if there is a SIP provider for incoming trunks, if voice gateways will be used and what phones are to be used, the reseller needs to make the overall solution as plug and play as possible and maximizing the success rate.

7. Choose the right solution vendors. Make sure to align with the vendors that have data application and networking expertise. Successful VoIP solutions will be created by vendors that understand applications and truly understand that voice is an application in the network. By doing business with the leading vendors, resellers can feel confident in the products and solutions that they are deploying for their customers.

8. Leverage past experience to build up Best Practices. This takes case studies a step further and offers customers specific "what if" and "don't do" scenarios that can keep them from making costly mistakes that could cause system downtime and thus saving the reseller from having to make emergency on-site visits or erode customer satisfaction.

9. Be able to offer a solution that is capable of a hybrid offering (both TDM and IP). Don't risk losing the sale by expecting customers to take on the expense of embracing VoIP, forsaking all their infrastructure investments by pushing a pure VoIP platform. Many shrewd businesses will choose to migrate to VoIP in a phased manner. By leveraging existing technology in a hybrid approach, customers can migrate to VoIP at a pace appropriate for their corporate strategy, growth projections, and their current and future needs. In fact, this more conservative, practical approach can allow resellers to maintain the sale and help customers transform voice communications from an expense item to a business asset. A blended offering can provide a steady decrease in telecommunication charges over time while leveraging existing applications and business intelligence to enhance customer service, deliver new capabilities and maximize revenues.

10. Be clear on pricing. Understand the cost difference in offering a TDM-based solution versus an IP solution. It is the savvy reseller who can take all the knowledge they gained about the customer's network, system, and overall business plan to make the recommendation that make the most fiscal sense.

As VoIP and IP PBXs continues to increase in popularity and effectiveness, resellers need to differentiate their services from the competition. The tips outlined above offer resellers the foundation for generating more business and creating a satisfied, loyal customer base. IT

Walter Kenrich is vice president of product management and head of SMB for Vertical Communications. (news - alert) For more information, please visit the company online at http://www.vertical.com.

IT EXPO West 2006

The Ultimate Preview for the Industry's Greatest Gathering

Mark your calendars. Bring lots of business cards. Sharpen those pencils. Internet Telephony Conference & EXPO (news - alert) West 2006 is coming up soon, and there's simply no better place to turn for education, networking, and an Exhibit Hall filled with the vendors you want to see before making an educated IP Communications purchasing decision.

This year's event takes place in the San Diego Convention Center from October 10–13, and it's setting up to be the largest gathering of IP Communications professionals anywhere, at any time, with over 10,000 people expected to make their way to the event.

Not only does Internet Telephony Conference & EXPO West 2006 feature the most up-to-date educational program, there are a number of colocated conference offerings that will create the widest array of educational choices for attendees. Those interested in learning about the latest developments in IMS, Contact Centers, IPTV, Voice Peering and more, will have ample opportunity to sit in on sessions and question the presentors. For this year's event in San Diego, TMC has partnered with the likes of the Voice Peering Forum (VPF), The Telework Coalition (TelCoa), The Enterprise Communications Association (ECA), iHollywood Forum, and Fierce Markets to present the absolute best conference experience for delegates.

UNRIVALED CONFERENCE CONTENT

This year's conference continues the tradition of the industry's most knowledgeable speakers with a conference program par excellence. For those attendees looking for a purely unbiased education, this is the conference to attend. Presenters are forbidden from delivering company pitches in sessions. Any who do are not invited back to future events.

Sessions will span the entirety of the IP Communications space, with targeted content for Service Providers, Enterprise users, Developers, Resellers... in short anyone charged with making purchasing decisions in the IP Communications industry.

Sessions will be available in the following tracks:

- Large Enterprise
- Open Source
- Service Provider
- Conferencing & Collaboration
- Enterprise/Government
- IP Communications Development
- Regulation
- SIP Workshop
- WiFi Telephony
- VoIP Security
- VoIP for SMB

In addition to the main tracks at Internet Telephony Conference & EXPO West 2006, colocations and content partnerships will provide content across a number of diverse areas.

IPTV Evolution Workshop

Presented by Fierce Markets, IPTV Evolution is a Full-Day Workshop covering the following topics on the hot subject of IPTV:

- Marketing IPTV 101: Will Subscribers Choose Based on Features?
- The Politics of Content Acquisition
- Shaping a Fiber Strategy: Managing Costs of the Network
- Increasingly on Demand: The New TV Business Model
- Ensuring QoS and Scalability
- IPTV Billing Options Explained
- The Future of the Set-Top Box
- DRM Solutions that Will Not Limit IPTV's Potential

The full-day workshop will be capped with a round table discussion entitled "The Future of IPTV in the Connected

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Home," where attendees can hear what the connected home will look like and how IPTV service providers can leverage other features of the IP network to add value to their video services. In this round table discussion, learn the future landscape of the connected home and where IPTV fits in.

IMS Expo

TMC is proud to present the inaugural IMS EXPO, The Premier Global Event on IP Multimedia Subsystem. This collocated conference will feature the following sessions for those interested in learning more about this subject:

- SIP's Role in IMS
- SIP/IMS: The Need to Standardize
- Security Issues in IMS
- Making Money With IMS
- The A-B-C's of IMS – Creating a Test Plan for IMS Readiness
- Real World Tales: IMS Case Studies
- Billing in an IMS World
- The role of UMA & IMS in Converged Networks
- Facing the Challenges of Network Convergence & IMS
- Increasing the Network IQ – Application of Artificial Intelligence
- The Promise of IMS: Will it Deliver?
- The Basics of IMS
- Introduction to Fixed/Mobile Convergence
- Challenges of OSS/BSS Integration
- IMS — The Catalyst for Fixed / Mobile Convergence

Call Center 2.0

Also making its debut at the show is Call Center 2.0, The Premier Technology Event for Call Center Decision Makers. This first-time event will feature content designed to educate attendees on the various technologies, challenges, and strategies that come into play when deploying today's VoIP/IP Call Centers including Deploying Global IP Solutions; IP-based Home Agent Solutions; Speech Technologies; and CRM.

Call Center 2.0 Sessions include:

- How to Calculate Your Brand Ambassador's Bottom-Line Value
- Ethical Implications
- Designing the Next-Generation Distributed Call Center
- Managing Virtual Teams: Obstacles & Opportunities
- Trends in the Next-Generation Contact Center
- Gaining the Competitive Edge Through Intelligent Communications
- VoIP in the Contact Center — A Case Study
- Today's Advanced Workforce Optimization Solutions

Telework Coalition Workshop sessions will include:

- Ask the Chiefs of Well Established Work@Home Programs
- Why Home Based Agents: There's No Place Like Home
- Outsourcing to Call Centers with Work@Home Agents
- Enabling Technologies and Telecommunications
- Business Continuity with Work@Home Agents
- How to Make Work@Home Agents Happen
- Staffing, Training, and Supervising for Work@Home Agents
- Security: Policies, Procedures, and Processes

There is just so much content that there is certainly something of interest for everyone who attends.

Training & Certification

The program at INTERNET TELEPHONY Conference & EXPO West 2006 will also feature several opportunities to attend TMC University's IP PBX Certification courses. TMC University is the only independent certification program of its kind validating your competency in IP PBX selection, deployment, implementation, and management.

TMC University will span two days and two separate courses: a TMC

University 101 as well as an advanced 201-level course.

101-level sessions will include:

- Reaping the Benefits of the IP PBX
- Cost Justifying the Upgrade
- Selecting the Right IP PBX
- Effective Deployment and Migration Strategies
- Making the Case for the Hosted IP PBX

201 courses will include:

- Preparing Your Network for an IP PBX
- Right Sizing Your IP PBX
- Integrating Your IP PBX with an ITSP
- Staging, Implementing, and Cutting Over Your IP PBX
- Dealing with E911 and Your IP PBX

Special Attractions

TMC Events are known not only for the content available in the conference sessions, but also for the high-quality general sessions that take place throughout the event. Here are just some of the special attractions that will be available at INTERNET TELEPHONY Conference & EXPO West 2006:

Reseller Solutions Day

Reseller Solutions Day is a free tutorial seminar teaching resellers how to make money selling VoIP equipment and services. TMC president Rich Tehrani, ABP president Robert Messer, and other industry experts will draw on over 25 years of experience in the telecom market to help you take advantage of the VoIP market explosion. Learn how to "talk-the-talk," how to bundle services to create more attractive offerings, and how to sell VoIP as an add-on to existing infrastructure.

Reseller Live

The Enterprise Communications Association is presenting its very successful panel format, Reseller Live. This session is structured to maximize reseller participation. Topics include E911, VoIP security, FoIP, Top 5 Reasons to Implement VoIP, and other key industry issues.

Voice Peering Forum

The Voice Peering Forum continues to bring members of our community together with industry experts who are C-level executives and business directors to share their insights on the latest business and technology implementations while keeping you up to date on current issues and trends.

Battle for the Enterprise/SMB

Choosing the correct IP PBX for your enterprise is no small challenge. With myriad solutions available, some from new players, others from legacy providers, whose solution is best for your particular installation? One size does not fit all. In some instances, strong legacy support will be critical. In others, standards compliance will be crucial. In other situations, branch office support at a low cost or centralized management features will be important to consider. Will the new IP PBX work well with your current infrastructure? Do you need to rip it out and rebuild? What about support, security, and service? This panel will strive to answer important questions from the audience and give you a unique perspective on what items to consider before selecting a solution that is right for your enterprise.

Service Provider Shootout

Hear the industry's leading experts in a moderated panel discussion aimed at exploring the market and finding out exactly where we stand today. Get perspectives from the leading service providers exploring next generation solutions, including the latest developments, a glimpse into the future, and some real-life implementation tales that you won't want to miss. Topics will range to include net neutrality, the latest government regulations, competitive pressures, the advent of fixed/mobile

convergence and IMS (IP Multimedia Subsystem), wireless considerations such as WiFi and WiMAX, IPTV, and Triple Play strategies, and so much more. It's an exciting time — and a challenging time — to be a service provider in today's climate. Come to this keynote-level session to hear more about this market from the service providers who are living it every day. Attendees are encouraged to bring their questions and we'll bring the industry leaders who are best positioned to provide the answers

NETWORKING

INTERNET TELEPHONY Conference & EXPO West 2006 is the perfect opportunity for you to meet and talk with other enterprises/government, service providers, developers, and resellers to share ideas, exchange business cards, and discuss the virtues of one solution over another. In fact you can expect to find people from all ends of the IP Communications spectrum at the event. The badges of all the attendees are a cross section of the industry, and they come from all over the world. service providers, enterprise/government/contact center end users, developers, resellers, corporate management, CTOs, CIOs, IT/telecom management, network managers and administrators, systems engineers, security and policy managers, wireless systems engineers and administrators, media, analysts, and others will gather from over the world to share their ideas and their thoughts regarding the importance of IP Communications.

EXHIBIT HALL

In between sessions, meet vendors and partners you need to successfully deploy VoIP solutions. The agenda leaves ample time to stop by each booth to discuss how each exhibitor's offerings can help you. The Exhibit Hall at INTERNET TELEPHONY Conference & EXPO West 2006 will feature over 250 exhibiting companies, including the likes of VoIP Supply, Inter-Tel, Nortel, Aculab, Vonexus, AudioCodes, Ditech Networks, and scores of other leading industry vendors ready to show you their wares, and answer any questions you may have before making a purchasing decision. You'll have a chance to see their products in action, and you can actually test drive some of the solutions right on the show floor.

KEYNOTES

This year's unprecedented lineup of keynotes includes top executives from equipment manufacturers and service providers. Each has extensive experience in telecom. Learn from them why the IP Communications opportunity is far bigger than any in the telecom industry's history.

Here is a list of the keynoters scheduled to present:

- Bryan Martin, Chairman & CEO, 8x8, Inc.
- Chalan Aras, Vice President of Marketing, Ditech Networks
- Brian Metherell, VP & General Manager, Toshiba America Information Systems, Telecommunication Systems Division
- Chris Gravett, Sales and Marketing Director, Aculab
- Ruchi A. Prasad, Leader, Global Marketing Enterprise Solutions and Packet Networks, Nortel
- Mark Spencer, President, Digium, Inc
- Norman Stout, Chief Executive Officer, Inter-Tel, Incorporated
- Eric Shepcaro, Vice President Business Strategy and Development, AT&T
- Stan Holcomb, Vice President — Services, Lucent Technologies
- Anoop Gupta, Corporate Vice President Unified Communications Group, Microsoft
- Charles Dougherty, Corporate Vice President and General Manager Connected Home Solutions, Motorola, Inc.
- Gregory Giagnocavo, CEO, Dash911
- Alan Percy, Director of Business Development, AudioCodes
- Gordon Payne, Vice President of Marketing, Citrix Systems

CONCLUSION

INTERNET TELEPHONY Conference & EXPO West 2006 will take place in San Diego, CA from October 10–13, 2006. It promises to be the largest-ever gathering of IP Communications professionals and it will feature more compelling content than any other conference in the space. If you are charged with making purchasing decisions regarding your company's IP communications infrastructure, you need to attend this event to learn about the technology, to network with your peers and the experts who make a daily living in this market, and see the actual products and solutions on the exhibit hall floor. It truly is a can't-miss event.

For more information, please visit the online home of INTERNET TELEPHONY Conference & EXPO West 2006 at http://www.itexpo.com. IT

IPTV: Can Telcos Capitalize on Success?

The telecommunications and media sectors are on a crash course to form a new, consolidated market called "ICE"—information, communications, and entertainment. The current "darling" of the ICE market is IPTV. Touted as the "killer app" of triple-play, IPTV is a *must have* for traditional telcos to compete effectively in the ICE market and avoid becoming commodity dealers.

Analysts predict that the global IPTV market will grow from $10 billion to $40 billion by 2009, encompassing 53.7 million subscribers. Capital expenditures for IPTV are expected to increase 1,377 perecent over the next four years (Infonetics). Given that five of the ten largest IPTV deployments currently have less than 50k subscribers, these projections seem astounding.

IPTV stands to completely alter the way that information, communications, and media services are consumed at home — transforming the TV experience from a passive to an active, two-way communications model in which every subscriber experience can be unique. Subscribers may choose to receive only the channels and programs they desire, and only pay for the content they consume. Subscribers can also consume other services via their TV, such as instant messaging or video conferencing. This unique, interactive experience definitely qualifies as disruptive technology — but is it enough by itself to fuel massive subscriber adoption?

Telcos think the answer is a definitive "Yes." A superior, interactive customer experience certainly stands to differentiate IPTV and drive consumers to adopt triple play from the traditional telco providers. But IPTV offerings will not just need to equal the quality of service provided by established television providers; they must exceed subscriber expectations by offering much richer content, highly-targeted advertising, and personalized interactive services such as messaging, home security, and e-commerce. However, this requires some radical re-thinking by telcos as to how they run their business.

How can telcos manage IPTV?

Giving consumers control over what, and when, content is broadcast into their homes makes IPTV a more transactional service. Current pay TV is essentially subscription-based with a small number of VOD or PPV transactions per month. With IPTV, a customer requests the items they want to watch, a channel opens up, and the program is "delivered." Multiply that by the number of TVs and the amount of available content and suddenly TV is an event-based business with millions of transactions occurring each day that must be tracked so that usage can be understood, properly charged for, and royalties distributed to the content owners or delivery partners.

While telcos are well versed in event-based services, they have limited experience delivering entertainment or TV, and even less experience dealing with media companies and content aggregators that own the distribution rights. Telcos are realizing that most of these relationships will require prepaid guarantees and minimum user levels, and that the revenue share is typically 60 percent to the content rights holder. Unlike traditional telecom and broadband services — where once the network build out is complete, additional service and subscriber costs are close to nothing — IPTV has the ongoing cost of procuring premium content and revenue sharing. Consequently, margins on IPTV will be much lower than traditional telecom and broadband services.

So for telcos to generate meaningful revenue from IPTV, a subscription-only

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By Jennifer Kyriakakis

model will not work long term. Telcos will need to offer a hybrid of subscription and charging models while still making the tracking, charging, and billing of IPTV services simple to the end subscriber. Finding the right way to bundle programs and content as well as charge for live events versus static content will be a major differentiator for those who successfully launch IPTV.

To be successful, telcos must also provide a real-time integrated and interactive IPTV customer experience in which user activity is continually monitored — from offerings through to service usage and network transactions—in order to:

- Offer targeted content and advertising based on viewing and service usage patterns;
- Automatically provision more bandwidth when the viewer chooses to view multiple movies or run video calling on multiple set-top boxes;
- Allow customers to choose how they pay for video services: a la carte, on demand, pay-per–view;
- Generate automatic credits in the case of failed delivery or poor quality of service;
- Deliver up-to-the-minute information about a customer' balance, tariff plan, and other account information directly to the set top box;
- Have the ability to track large volumes of events as subscriber num-

bers grow, so that telcos can assure revenue and margins and settle properly with media and content owners.

Success will be especially challenging given the need to provide more localized content and the unique, discrete subscriber experience that this enables.

An IPTV-friendly Back Office

In the current reality of IPTV, the focus remains on network build out and capacity upgrades. But once the delivery mechanism is in place, the ability to quickly roll out new services, add content and content partners, and segment and target customers with bundling and promotions in a flexible manner will be key to IPTV service penetration. The telco back office system for billing and customer management must be able to support this.

As with any new service, if the back office is not constructed to handle new types of network usage easily, major development work will be needed to enable processing, charging, and guiding IPTV usage to the proper customer account. Spending time and resources developing IPTV-specific back office functionality — or even worse, ripping out and replacing entire billing and customer care systems so that IPTV can be properly marketed, bundled, and charged for — will only delay potential IPTV revenues and add additional CAPEX onto the already staggering network investments required.

Any IPTV-specific billing and subscriber management functionality must be correlated to broadband, VoIP, and value-added service usage to create a meaningful and accurate picture of the consumer and broadband consumption. Once telcos have their networks in place, telcos that have already updated their back office to be NGN-friendly will have a key advantage in service experimentation, business model development, and managing the new consumer experience of IPTV. These service providers will have the ability to quickly roll out IPTV services, bundling and promoting them on a single application together with VoIP and broadband; and to manage a single set of back office business processes for all IP services and revenues.

Already Up and Running

Several first-to-market IPTV service providers in North America and Europe have achieved these core competencies. When originally moving from dial-up to broadband, these service providers were able to put a back office in place that would support the "unknown" service. By building business processes based on converged IP service delivery to the consumer, they were able to launch IPTV services quickly once the networks were in place — one in North America as early as 2003.

A European service provider deployed an IP-based back office solution in 2001, which has enabled them to layer broadband, WiFi, IP content, and now IPTV onto their subscriber offerings. They manage subscribers and revenues centrally, allowing them to be first-to-market and providing the ability to continue to innovate.

Another leading IPTV provider in Europe delivers converged services, including voice, Internet, and television, over a single broadband connection to the home — utilizing a fully IP-based architecture, including both DSL and fiber optics. Since 2000, they have grown from a local ISP into a full service triple play provider utilizing a single billing application to manage all services and revenues. As a pioneer in the IPTV market, they have been very successful not only in subscriber growth, but also in achieving the highest ARPU in double and triple play in their market.

Because these companies were already using next-generation business systems to manage multiple services, they could more easily develop and offer unique service bundles of different IPTV offerings, including channel bundles, PPV, and VOD, and the ability to view billing information directly on the consumers' televisions. The flexibility of the back office has enabled IPTV pioneers to keep existing customers, attract new customers, and maintain competitive advantage.

Finding the right way to bundle programs and content as well as charge for live events versus static content will be a major differentiator for those who successfully launch IPTV.

Capitalizing on IPTV

While the focus has been on IPTV CAPEX, with equipment vendors and network upgrades — in the end it will be business models, content offerings, and a unique, interactive customer experience that will prevail and determine whether or not IPTV will live up to subscriber and market expectations. Network infrastructure makes IPTV a possibility, but to deploy IPTV successfully and profitably, it must be an integrated part of the telco's service portfolio and one that is tailored to — and charges for — the services that the customer wants and perceives as valuable. In the end, networks don't generate revenues — consumers do. To fully capitalize on the IPTV opportunity, a convergent billing and back office business systems infrastructure will enable telcos to achieve maximum flexibility in determining how they bundle, promote, track, and charge for IPTV services. Proper back office planning will ultimately determine how quickly telcos can adjust business models and service offerings to meet consumer needs and demands. IT

Jennifer Kyriakakis is responsible for IPTV and IP-based billing and Revenue Management strategy for Portal Software, (news - alert) a wholly-owned subsidiary of Oracle. For more information, please visit the company online at http://www.portal.com.

FierceMarkets Presents

iptv evolution

Television Under Your Control

IPTV is an emerging technology that goes beyond television, beyond video-on-demand. IPTV is customized television with both downstream content and upstream feedback that puts the subscriber in control like never before and opens up new realms of information customization for the service provider.

OCTOBER 11, 2006 • SAN DIEGO, CA

Attend the IPTV Evolution at Internet Telephony to get a first hand look at how the telecom industry is revolutionizing the way we will view television and how Service Providers will reap the benefits from this brand-new technology.

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Managed Business Assurance: Survival of the Fittest

The rush is on to deliver next-generation triple-play services to the consumer market and the competitive landscape among companies delivering these broadband services, including voice, video, and mobile wireless, is fierce. For good reason. The U.S. market for bundled convergent services is forecasted to double in less than four years. The payoff could be huge for those communications providers successful in teaming together to add to their core service offerings. However, these partnerships formed with great expectation of speed to market and revenue growth in the boardrooms may eventually be doomed by poor execution in the OSS and billing back offices. In this contest, advantages may come to the fastest, and the most innovative, but survival will be to the fittest. However, the service provider partners who are the best at managing and assuring the performance of their inter-dependant delivery, provisioning, and billing operations will win the day. This is best accomplished through the use of an independent, accurate, Managed Business Assurance solution.

Managed Business Assurance (MBA) is a new model, but one rooted and proceeded in the telecom industry by programs addressing cost management and Revenue Assurance. These disciplines grew up inside large and small telecommunication carriers during the volatile 90's. These companies learned — often after years of unnecessary revenue loss and unchecked operating costs — the importance of ensuring monthly bills sent to their customers, and paid to their vendors were accurate. Similarly, MBA is about creating and maintaining effective controls over operational fundamentals in the drive to deliver next-generation triple-play services.

Why is a Management Business Assurance Program Necessary?

Perhaps your company has joined with other service providers to package and deliver new broadband-based bundle offerings. The partnering agreements are short and sweet — you're in business to serve, rapidly meeting consumer demands for the latest voice, high-speed data, and video services. What is there to consider? Hardware and software have been tested; delivery platforms have been trialed to verify interoperability. Promotions and marketing are there, and so is the predicted customer demand. Your subscriber base immediately begins growing at double digit percentages every month.

As with most new service offerings, the first billing and collection cycles bring on a whole host of operational issues to resolve. In this scenario, however, you have more than one company involved, and commission payments and fees to consider. What does that partner agreement say about how many billing arrangements that are based on the services a customer has on his or her bill? How many different discount programs do you jointly offer? Is it tiered pricing, a straight flat fee, or usage-based pricing? Do your partners issue bills to subscribers? What are the details of those Service Level Agreements you signed up for in this arrangement?

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By Tom Nolting

When two, three, or more companies combine to provide pieces of convergent service offerings, a significant number of invoicing and settlement can be expected. Additionally, as you push forward with your market roll-out plans, and order volumes grow, increasingly, you will probably be faced with a range of unexpected order management, service activation, and end-customer billing discrepancies between you and your partners. These OSS issues will often negatively affect customer service, operating costs, or revenue performance. For example, you and your partners may each allow for a variety of definitions for inactive versus active accounts within your respective interdependent OSS and billing systems.

Well, similar but not quite the same could mean mounting dispute accruals and uncollectibles for partnering companies over time. What were the dispute provisions in the contract again?

The terms — or the omission of needed terms — in your teaming agreements will sooner or later affect all aspects of the partnership relationship. If the expectations are not clearly defined here, they certainly will not be understood in and among the operations and IT groups. Do the interfacing OSSs all have a common view and identifier for your subscriber? Maybe an unexpected message from your partner's upstream process is causing ordering fallout on your side — not a big deal for you perhaps, but what about the fact that because your partner never gets a status message back? They think the subscriber never started the service and they never bill them. Don't wait for the year-end audit to find out you have to restate your subscriber base — do you want to explain that on the earnings call?

Don't wait for the year-end audit to find out you have to restate your subscriber base — do you want to explain that on the earnings call?

How to Initiate and Build an MBA Program

So you see the need and benefits of an MBA program, but are unsure how to get started. The following are high-level steps and considerations:

1. *Choosing Candidate Products and Partner Relationships* — There is no formula to use in identifying new product offering or company teaming contracts for MBA. However, during the rollout of new bundled convergent services, there maybe leading indicators of improvements that can achieved in the partnering companies operational functioning. Are you inexplicably missing revenue collections forecasts? Are you experiencing unpredictable installation intervals? Are there inter-company invoicing disputes that are beginning to pop up? These conditions in complicated operating environments won't often just work themselves out without sacrificing a disproportionate amount of time, market share, or money. The better course of action is to start building the business case for an MBA program.

2. *Building Stake Holder Buy-In* — Too often, ambitious business plans get funding, executive approval, and start deployment, without first securing the support from those who ultimately will make the initiative work. These programs can be justified and well thought out, but lack the support from organizations and individuals important to even get initial momentum going. Implementation of an MBA program is no different. Without key work group and stakeholder buy-in, the program will stall and fail.

For MBA of a new convergent service offering, the core stakeholders are typically in Product Management, Finance, and Strategic Alliances, or those in charge of business partnerships. Another important stakeholder group, although sometimes overlooked, is IT. For an MBA program to effectively operate, access to enterprise data is paramount, and bringing IT on board early on in the project planning stages will only help accelerate and smooth out the implementation.

3. *Organizing the Data, Business Rules, and Analysis Reporting* — The data sets that will need to be collected by IT should correspond to critical control points and functional exchanges through the inter-company operational processes. Provisioning field values, billing transactions, invoice element charges, and inventory assignments, are a few examples of data used in measuring the integrity of the end-to-end process. Pulling together and rationalizing these sometimes diverse sources is where business rules come into play. Business rules attach the logic needed to translate, relate, validate and analyze these often disparate data sources. When these rules are properly configured, and associated analysis routines are effectively designed, tested, and built, the result can be a valuable portal into the back office operations It's here where many of the anomalies, transparencies, and errors producing downstream performance issues can be uncovered.

Acquiring the source data, applying rules, and conducting complex auditing are the core components of a data assurance process, yet a properly designed, high-functioning MBA program for a bundled service offering will also enable partner participant groups to monitor, benchmark, and improve operational performance and bill quality. A robust discrepancy reporting and analysis component of an MBA should drive action on specific issues and gaps of the partnership that need attention. Additionally, MBA reporting will save considerable partner time and money by providing regular, accurate, and objective measurements for partner invoicing and settlements, and to administer contract compliance.

4. *Program for Partner Collaboration and Continuous Improvement* — Invoice Disputes and executive escalations to address open issues don't typically facilitate constructive ongoing teamwork between companies. Alternatively, an MBA program with a shared platform, objective tracking, and performance reporting helps partners' better work together and grasp their responsibilities important to the team's success. . Also, the OSS and billing discrepancies captured, reported, and reconciled within MBA provide a source of knowledge for future partnership arrangements.

Conclusion

As telecom, Internet, cable, and technology companies join forces to deliver broadband services to consumers, mutual standards for operational execution and OSS/Billing quality control cannot be after-thoughts, or challenges left to be worked out over time. There are too many obstacles associated with inter-dependant processes and systems to be identified and managed. It is also not worth risking lost revenues, less than best in class service levels, and mounting invoice disputes. A managed business assurance program is essential to building a strong partnership that performs in both the back office and the marketplace. An MBA program will give you insight and a common platform for you and your partners to improve operational efficiency and financials. It will help you build in better controls and requirements into future partnerships by helping build best practices that can be built into those future contractual commitments. An MBA program developed and implemented correctly, will drive the success of the partnership that was expected when it was formed in the boardroom. IT

Tom Nolting is senior director, Financial Assurance at Vertek Corporation. (news - alert) For more information, please visit the company online at http://www.vertek.com.

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FREE Webinar

Keeping a Lid on Broadband Customer Service Costs

September 20, 2006
2:00 pm EST

SupportSoft

Customer support costs can balloon quickly when rolling out new broadband services. And with the growing adoption of triple play offerings, problems are even more acute. The single largest operational expense for service providers -- apart from building their network -- is the cost of customer service.

You're cordially invited to an online seminar that looks at ways to intelligently automate the broadband customer service experience, including the installation of triple play services, remote configuration and firmware updates of home CPE, and options for enhanced customer self-service and assisted service that can remotely diagnose problems and automatically resolve them.

You'll learn how to:

- Reduce customer service costs
- Automate triple play installation and ongoing customer support
- Remotely manage and update home gateway devices

Presenter

Thomas MacEachern
Senior Product Manager Digital Service Provider, SupportSoft

Moderator

Greg Galitzine, Editorial Director, Internet Telephony magazine

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Next Generation IP Networks Demand a Service Layer

Migration to an IP-based NGN (next generation network) by the world's telecommunications network operators is now well under way — the only issues concern timing and migration strategy as Communications Service Providers (CSPs) invest heavily in NGN infrastructure. The prize is clear too. By converging their voice, data, and video services onto a single IP infrastructure; by getting rid of network-embedded service logic; and by orchestrating services through software, CSPs can offer a plethora of new services at lower cost to replace the diminishing revenue streams associated with traditional wireline voice services.

That's the theory.

But there's a catch. The problem is that, while CSPs are investing heavily in network technology, many have yet to properly invest in the all-important 'back office' systems that can actually turn all that raw network capability into bankable services.

In business terms, while there's been much talk of 'transformation', it hasn't happened where it's been needed most: in the strategic but often overlooked service layer. This is the 'above network' software layer where services are created, delivered, managed, and assured, and where customers are touched by sales or technical support staff.

Until recently, telcos often introduced new technologies and services first and then, at a later stage, only if those services grew, did they work out how to manage them via operational and business support systems (OSS/BSS). In today's market, such an approach will no longer work.

In fact, the complexity of converged next generation services and the intense competition they will engender means these OSSs must be designed in from the beginning. In other words, the old 'back' office has to be moved to the front line if telcos are to succeed with next generation converged services.

That's partly because converged services are highly complex. They involve 'content' as well as voice, text, and video, and will often 'blend' wired and wireless capabilities. They will be sold as both one-off, single services and as complex packages of services — say voice, broadband, TV, and mobile. Many will be sold direct through network operators' own retail arms, but an increasing proportion of services may be resold by affinity partners, MVNOs, and via other wholesale/retail relationships.

In addition, competition in this market will be fierce — not just from other 'conventional' rivals, but from powerful players outside the communications sector, such as supermarket chains and online retailers. The rate of service change, too, will remain high into the future. New services or service features will be constantly introduced and packages and offers will require constant adaptation.

And expectations are high. Customers will expect reliability from inherently complex services, such as IPTV, and will want to be able to customize all their services online.

Until now, CSPs simply haven't had to deal with this level of dynamism in their markets. Traditionally, service introductions were relatively rare and were designed over months or even years, with careful testing before launch. Services also tended to be very separate entities, often being developed on their

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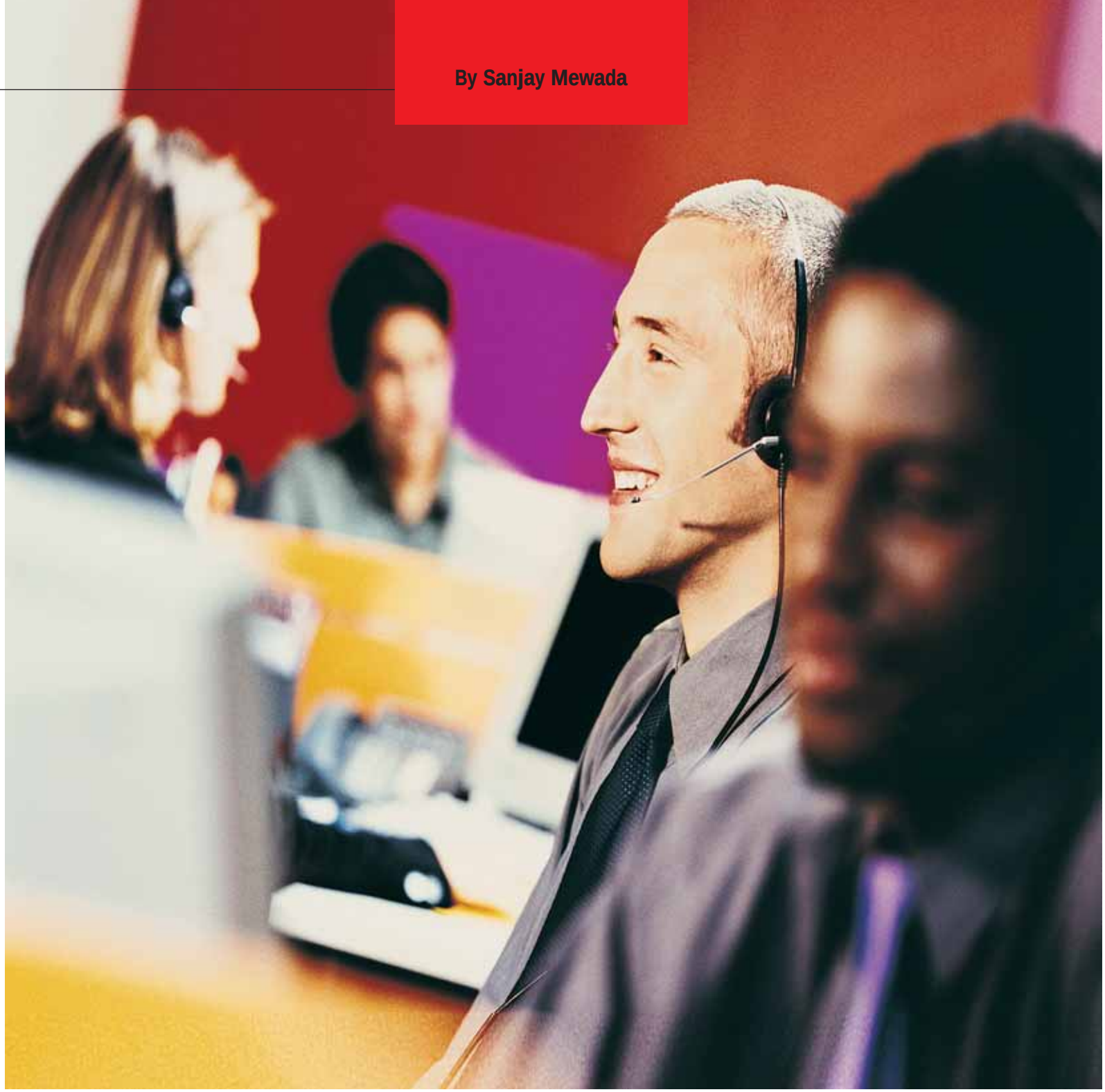
By Sanjay Mewada



own overlay networks and having completely separate top-to-bottom management and support systems.

That has left CSPs with a back office stuffed with dozens of incompatible legacy OSSs. Obviously, these difficult-to-integrate back office systems to support the all-important service layer are a nightmare in a converged world, where agility and the ability to get complex packages of services to market quickly is paramount.

So, while it's one thing to develop technology and design new services, it's another to market and deploy them economically. That's why CSPs must develop a service layer to match their network technology. They must have an ability to create new services fast, provision them accurately, and manage the service experience. That means building service layer capabilities such as service-centric inventory systems, flow-through provisioning across all layers, and service centric optimization of resources. And it means building them in as a centerpiece BEFORE services are rolled out, not retrofitting them later, once the fulfillment and assurance problems are already apparent.

Today, much is being made in the telecom sector of the 'customer experience'. This can be defined as the aggregate view a customer might form of a provider as he or she is 'touched' (or not) by its processes. These 'touches'

might include waiting for a 'help' call to be answered or querying a bill — such critical encounters will always heavily influence the overall 'customer experience' for better or for worse.

The 'Service Experience' — the customer's day-to-day experience of service quality and reliability — can be thought of as a subset of the Customer Experience and will be highly influenced by the operator's 'Service Assurance' systems and processes.

To compete effectively, a service provider must understand how well it is delivering specific services to customers against the service commitments it's made to them, and it must try to understand — and maximize — the customer's experience of that service.

It is important to understand that network quality and service quality are very often not the same thing. A highly efficient and reliable network (at least from its performance measurements) may be delivering an unacceptable service experience to customers.

This is a significant shift for many CSPs, which, until recently had only one real service: voice delivered over a voice-only network. It was, therefore, possible to think of network performance and service performance as pretty-much the same thing. The network WAS the service.

The introduction of a non-deterministic IP infrastructure has turned this on its head. Now, understanding and correlating the network's performance to the many services overlaying it is crucial, and network performance has to be viewed in the context of the services it supports and the customers it impacts. So the Service Layer and the assurance measures applied to it must be transformed to reflect this new reality.

Transforming the services layer is therefore, as important as transforming the network. Today the network alone will not provide the basis of a sustained competitive advantage. While achieving acceptable network performance will be critical given the non-deterministic nature of IP, a high-quality network will only be the foundation for differentiation, not a differentiating quality in its own right.

Real differentiation based on unique services and service bundles can only be engineered at the service layer, so it's vital that CSPs move on from developing the 'best network' to embracing instead the concept of developing the 'best services'.

Service providers have always been good at gathering and analyzing network data — it's an essential skill if you run a sprawling and highly complex network. But the time has come to change this predominantly southbound (network) facing focus to a service and customer facing functionality.

One option is to migrate the focus of the conventional Network Operations Center (NOC) so that it becomes a Service Operations Center. This expands the role of the NOC so that, in addition to its traditional network management role, it takes network performance data and correlates that information to the service infrastructure. This way the operator can understand the impact of network configuration or performance on the services that are layered on top of it.

More transformation at the service layer will be needed as operators develop their service fulfillment and assurance efforts to support services such as IPTV. With this service, CSPs will have to extend their reach and their domain of expertise right into the home and onto the set-top or desktop to deliver the service experience customers expect.

A new generation of service management systems is evolving that can help service providers meet these new 'customer experience' imperatives. These systems can identify how network problems (including planned outages) are likely to hit specific services by synthesizing information from the systems responsible for fault management and trouble ticketing and then correlating this data with the data held on specific customer services.

It's vital that CSPs move on from developing the 'best network' to embracing instead the concept of developing the 'best services'.

Now it becomes possible to review an affected customer's SLA, see whether it's been breached, and attempt to fix it proactively. In circumstances where maintenance or upgrades are planned in advance, such systems can predict and identify any problems that might arise in order to give customers a quick and accurate estimate of when a problem is likely to be resolved.

CSPs must recognize that real competitive differentiation in telecom must involve an agile, transparent and optimized service layer that creates, delivers and manages services, and that maximizes network investments and delivers on customer needs.

Integrating this new generation of back office platforms to manage the service layer is going to be vital for all CSPs' success. The old 'Network Layer Telecom', where new services were designed, tested, and rolled out over months or even years is in the past. In the new Service Layer Telecom of today, not only must complex new services be managed so that they work right first time and every time for increasingly demanding customers, but the systems that orchestrate and manage them must be flexible and highly configurable in their own right. This is real Service Layer Transformation and it will prove to be the key to success for next generation service providers. IT

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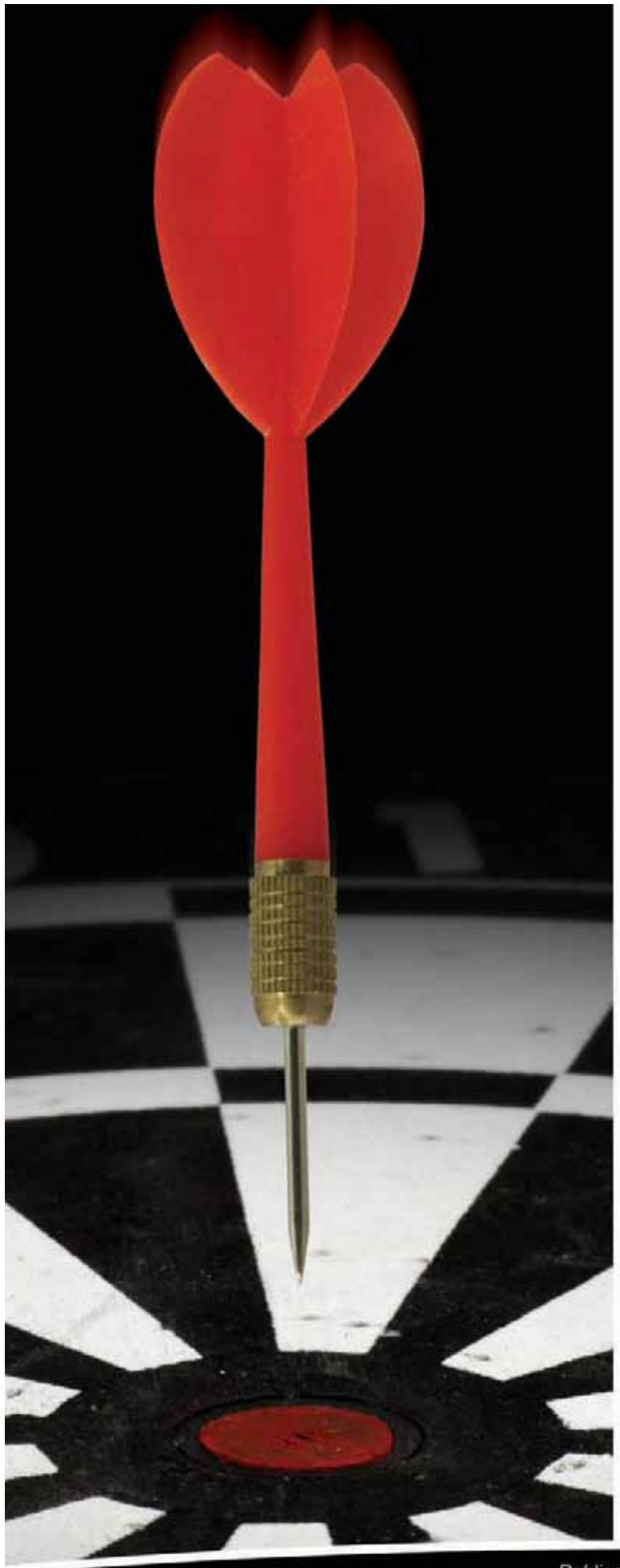

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What IP Contact Center Means to Disaster Recovery and Business Continuity

Disaster Recovery is the process an organization follows to identify and rectify the cause and symptoms of a major service-affecting event. Business Continuity (BC) is the process an organization follows to ensure it can keep transacting or serving its customers while a Disaster Recovery (DR) plan is being executed.

Today, many organizations have established some kind of DR plan or have at least thought about one and understand its value. Despite the growing popularity of DR plans, a much smaller proportion of companies have created a BC plan. For the contact center, the most important question is: What is the cost to the business for every minute that the contact center is offline in terms of lost direct revenue or, even worse, lost customers which would equate to lost long-term revenue? When you look at the contact center in terms of lost revenue, the case for a sound business continuity and disaster recovery plan makes sense regardless of how small your contact center is or whether or not you outsource it.

How Do You Address Business Continuity in the Contact Center?

Business Continuity needs to be addressed in all facets of the contact center dynamic: people, process, and technology. How will different disaster scenarios impact contact center staff? If they can't get to their usual place of work, what are the alternatives? Are there other resources in the organization that can absorb the additional workload of an empty contact center? How long might staff be required to work in an alternative location? What are the essential tools and applications a contact center needs to be effective? What are the different ways they can be provided? Will an event that, for example, stops contact center agents coming to work likely affect the availability of the technology components of the contact center?

Disasters are not limited to natural phenomenon such as floods, blizzards, and hurricanes —— all examples of things that might stop people in a region from coming to work —— but failures in technology and telecommunications, as well as malicious activity (an attack on the company Web site or worse) also constitute a disaster. A good DR plan will address all the 'what if' questions and offer a solution to each.

Ways Voice over IP (VoIP) supports DR and BC plans

With a distributed workforce, contact center agents are not bound by the reach of a wired PBX extension. A single IP ACD (Automatic Call Distributor) can support agents across the country or the world. Today, agents can be located anywhere IP voice can be delivered including the home or even mobile telephone extensions. The fact that the call traverses a VoIP infrastructure allows for full support of important contact center operational functions such as quality monitoring, supervisor monitoring, real time reporting, and agent state visibility and control. Because a VoIP infrastructure easily includes a distributed workforce, it also enables the distributed workforce to be used to mitigate localized disasters.

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By Grant Sainsbury

With a distributed workforce that is linked via VoIP, the core contact center technology can be located in purpose-built, geographically diverse sites, rather than in the same buildings or cities as the contact centers themselves. An IP-based contact center infrastructure is often best architected around the data network with an appreciation for the call flows that need to be supported. Purpose-built data centers are designed to withstand a greater array of disasters, while many contact center locations are not designed with that thought in mind.

As IP contact centers are software-based and often run on industry standard platforms, the time to recover from a disaster is often shortened. This fact makes it important to integrate the contact center into an enterprise's data protection plan (backup and recovery).

Important Steps You Can Take

First, IP contact centers should be designed with no single point of failure — from the links to the telecommunications network to the phones and desktops of the contact center agents. In an IP contact center, there are typically more nodes (servers, gateways, routers, switches, etc.) than in a TDM environment, and those nodes are deployed ideally in a distributed manner. This means the net effect of a single component failure will have a diminished, hopefully negligible, effect on the overall capacity and effectiveness of the contact center.

Second, companies should consider the increased use of self-service technologies to support business continuity plans. The Web site will be unaffected by many disasters that will affect the contact center, but the challenge is how to handle the voice calls. Enterprises may opt to have additional capacity in their IP-based IVR (Interactive Voice Response) designs to allow for such an

incident. In the VoIP world, IP functionality becomes a software application and node capacity is generally driven by the processing power of the server it runs on, not on the traditional limitation of voice trunk termination cards. This makes investment in IP-based IVR capacity generally less expensive than the TDM equivalent. Investments in speech self-service applications, which are capable of relatively high completion rates of increasingly complex call types, may be a viable temporary solution to business continuity even if it is not considered a mainstream channel for day-to-day operations.

If circumstances call for the contact center, or specifically its operations, to be relocated, then VoIP makes that task significantly easier than with a TDM switch. Traditionally, contact centers might have looked to other local, non-competitive contact centers and sought to make a partnership to use one another's spare capacity in a range of circumstances. The ability to swing data circuits and re-route traffic means new temporary contact center premises can be established with remarkable speed, especially if contingency plans already exist.

Third, employees' personal situations should be considered as part of any planning process. If your contact center experiences a physical outage due to a hurricane, it is most probable that your contact center employees will also be affected. Part of any plan should include that possibility, so another region of your operation can cover for the affected area.

Summary

Good proactive planning in the face of disaster is critically important. You must think about the ways in which your people, your technology, and your business will be affected by a disaster and carefully develop a plan that takes every possible situation into consideration. Through careful planning and regular audits — as well as revisions to the plan based on new business situations, technology and objectives — a business continuity plan will stand up to the rigors of an evolving business. IT

The Web site will be unaffected by many disasters that will affect the contact center, but the challenge is how to handle the voice calls.

Grant Sainsbury is Practice Director for Customer Interactive Solutions at Dimension Data North America. (news - alert) For more information, please visit http://www.dimensiondata.com.

Premises- or Network-Based: Which VoIP is Right for You?

What little doubt existed should now be removed: VoIP is the next new thing in telephony solutions. As misconceptions erode and the underpinning technologies improve, the demand for IP-based telephony services increases. According to Forrester, three times as many enterprises are evaluating or trying VoIP this year compared with 2005. This is a sure sign that VoIP is progressing beyond "early adopter" to the mainstream.

However, with the decision to go VoIP (define - news - alert) at the premises comes change. New technology presents new hardware and infrastructure options, and VoIP is no different. Companies have to give themselves an objective once-over to decide exactly when and how they will implement VoIP.

One consideration is in the area of advanced contact handling services. These services include such features as intelligent call routing (skills-based, priority routing, or longest idle routing, for example), IVR, local or remote monitoring and recording of calls, robust real-time reports, automated surveys, and integration with an existing CRM or data management system. These are all services that can be supplied as onsite or hosted software applications.

The question is: does VoIP remain in the network or does VoIP come onsite. A company's choice will depend on many things, such as price, available local area network (LAN) bandwidth at each location, the voice "quality of service" the company expects, and the available IP-voice technical skills existing within the company.

In the case of an onsite VoIP implementation, new equipment is required, such as an IP PBX and new desktop phones. That investment brings the usual facility impacts, such as HVAC, insurance and space requirements. Additionally, the company is on the hook for annual maintenance fees, onsite technical support, and periodic technology upgrades in order to keep the operation humming. In other words, a lot of capital expenses.

For smaller companies or budget-limited departments, a hosted solution that keeps VoIP in the network, not at the premises, is more acceptable. These companies gain access to many of the quality- and productivity-enhancing customer contact features without the challenges of replacing their current hardware or impacting their LAN.

Business Benefits of Downgrading, Not Upgrading

Case in point is SCO, a Utah-based technology company that had grown through acquisitions and was consoli-

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By Tom Milligan

dating operations. They had a "big" PBX and an "aging" automatic call distribution (ACD) system. Instead of moving or upgrading their equipment, they decided to go "virtual," choosing a hosted partner to supplement a much "downsized" PBX. Now all the PBX had to do was handle onsite voice mail and voice transport for direct dial phones within the office. For the advanced, intelligent call distribution services, they went with a hosted services provider.

According to Mark Colley, SCO Director of Information Technology, the company went from a four-person telecom department, to "half a person" dedicated to that function. In terms of service fees, Colley was able to shed $4,000 per month in maintenance for the ACD and larger PBX system. Today, SCO is handling all customer support calls with fewer than 25 tech support and customer reps and 12 toll free numbers.

While a new IP PBX box can require weeks or months of training and testing, a hosted solution with advanced telephony services typically has a very fast implementation cycle measured in days. Because the applications are hosted, there is no hardware required on site and very little software, which is mostly on personal computers for accessing the remote applications. It's a "low impact on the existing infrastructure" approach.

One of the greatest misconceptions of hosted telephony services is the idea that somehow administrators will lose control over their operations.

Gain *More* Control with Hosted

One of the greatest misconceptions of hosted telephony services is the idea that somehow administrators will lose control over their operations. While this may happen with some of the less technologically advanced providers, it is definitely not true for the industry leaders. In fact, depending on your vendor choice, administrators have more control than ever because they now have "quick-to-learn" interfaces for basic changes. More sophisticated changes, such as linking a toll free number to a specific routing rule, are simple to make with administrator-defined Web-based interfaces.

More advanced products give you access to a very sophisticated set of pre-integrated building blocks that an SQL database or Visual Basic programmer can learn to use in three days. These building blocks can be used to construct applications that range from the simple to the complex.

Starting Up with Top-of-the-Line Technology

Sonos is a Santa Barbara, Calif.-based developer of digital music systems. They initially needed only five agent seats, yet wanted access to sophisticated features and functions that would enable them to deliver a customer contact experience that would support their premium brand product.

Specifically, Sonos wanted a very low capital expenditure solution able to support a geographically dispersed sales and support staff. They needed intelligent call routing rules, such as being able to route based on who was calling, aligning a skill group with a priority customer group, or the ability to send a caller to the appropriate agent with longest idle time. Further, they wanted these high-end features without having to hire a full-time, in-house telephony expert.

They reviewed a carrier product, an IP PBX product and a hosted option. What they experienced proves that companies don't have to employ 100+ agents or spend hundreds of thousands of dollars to gain access to leading edge telephony services.

During the review, Sonos learned the IP PBX box was not "smart" enough to make intelligent routing decisions to support skill levels and idle agent requirements. The IP PBX also would have required a hefty upfront capital commitment and the hiring of a $5,000/month technical manager to maintain the system onsite.

Another key feature available from some, but not all hosted providers is the ability to pay only for what you need, as you need it. Onsite equipment owners find themselves paying for excess, idle capacity during slow seasons. Such resource waste is eliminated with a highly flexible hosted solution provider that allows its clients to simply add or reduce capacity as requirements fluctuate.

The most glaring difference between in-network and onsite solutions is cost. InfoTech estimated last year that operating an onsite IP PBX can cost as much as four times what it takes to implement the same feature set with a hosted solution. These estimates include the actual purchase of the box, maintenance, and frequently required upgrades.

Where to VoIP

The question of where to locate the VoIP technology must be answered by each company based on specific needs. For small or medium-sized businesses, going with a hosted solution that keeps the VoIP technology in the network is the simplest and most affordable solution for gaining access to productivity-enhancing customer contact features and functions.

When every dollar counts, accessing network-based, VoIP applications means you'll only pay for what you use, plus you'll get the latest technology and functionality without having to make periodic capital outlays on upgrades.

The same benefits apply to large enterprises, perhaps even more so because of the need for multi-site connectivity and complex call routing to increase productivity and customer satisfaction. Departments within larger corporations that have had projects held up due to "misalignments" between business unit schedules and IT availability, can now present low-impact options to their decision committees, along with rapid development tools that enable IT groups to significant improve development time.

While VoIP is the next big thing in telephony, companies need to be aware of how they will deploy this technology. There are three options: VoIP-based onsite telephony equipment, hosted telephony solutions that require IP to the customer site, and hosted solutions that supplement existing, traditional phone equipment while keeping the VoIP technology in the network. Aligning your needs with the right technology option could put you in the position of saving your company a bundle. IT

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Surviving the Transition to an IP Contact Center

Organizations large and small are making the smart decision to transition their customer service infrastructures to IP-based contact centers that enable them to gain important business benefits that conventional time division multiplexed (TDM)-based infrastructures can't match. Chief among these benefits are lower networking and maintenance costs, increased flexibility through cost-effective deployment of distributed agents, and overall service quality improvements.

VoIP (define - news - alert) technologies also provide an easy path to multichannel communications through Session Initiated Protocol (SIP)-enabled multimedia devices capable of handling voice, chat, and even video from a single source. With an eye to the future, we'll likely see retail agents interacting with customers using photos of substitute or higher value merchandise to speed the decision-making process. Callers having difficulty describing a product problem could quickly shoot and send a video clip to gain support assistance. New self-service applications could leverage graphics to answer complex questions. SIP-enabled communications allow the interaction to switch between different communications methods as necessary to dynamically create the best interaction possible in the way that best suits each party.

Though the benefits of VoIP are well documented, and most organizations are already thinking about an IP-based contact center, the challenge with which they are struggling is how to get there.

Instant conversion to an all IP infrastructure with fully integrated contact center components is ideal; however, it is simply out of reach for most organizations. They have too much invested in their existing infrastructure to replace it wholesale, so must instead leverage what they have while migrating to a new VoIP-based system. Any migration plan must carefully consider the impact on the customer. Customer loyalty is a capricious item, hard to earn and easy to lose. A few dropped transactions, an extended wait on-hold, extensive transfers to ill-prepared agents, or being led down a blind alley can send customers to the competition faster than you can say "operator." With any new project, disruptions are possible, but they can be minimized with careful planning and a reliance on best-in-class solutions from industry leaders.

In practice, a staged approach to IP, which leads to a temporary hybrid network infrastructure, is the most common method of deployment and one that is likely to be in place longer than people anticipate. Hybrid infrastructures enable organizations to prepare for a switchover to IP and reduce the risks, enabling them to leverage their existing contact center investments and ensure that they don't alienate their customers.

Key hybrid network technologies include various PSTN-IP gateways and call processing middleware that can shield the application from the complexity of the network infrastructure. These technologies can unify TDM and IP applications into a reliable and centrally-managed infrastructure. Gateways provide the glue between the old and the new networks. Call processing software joins existing TDM equipment — PBXs, circuit switches, etc. — with new IP applications and contact center products, which is the key to a phased TDM to IP migration. There are several choices for gateways and call processing products. Some are proprietary and designed to support a single vendor's infrastructure, while others are based on stan-

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By John Joseph

dards, such as SIP and CSTA, and are able to support both IP and TDM infrastructures from multiple vendors.

Migrating a contact center to IP is inherently more difficult than transitioning basic business communications systems. Moving the phone service to VoIP is a relatively simple process. Network managers intrinsically understand the deployment process, as it mirrors the process of deploying workstations on a WAN/LAN. In this case, there are only a few, standard applications that need to be deployed to match the user's current functionality — voice mail, auto attendant, and perhaps a follow-me solution. The contact center scenario is significantly more complex. There are many more elements to integrate — PBX functionality to answer calls, call queuing and routing solutions, automated self-service options, and agent desktop solutions that enhance productivity and call resolution rates. Another aspect is complete integration with call monitoring and workforce management solutions that enable organizations to accurately assess staff productivity. A great deal of custom application development and integration work is needed to create a coherent contact center solution that best fits both an organization's business processes and their customer requirements. Recreating this functionality in a new environment can be a daunting task.

Any migration plan must carefully consider the impact on the customer. Customer loyalty is a capricious item, hard to earn and easy to lose.

And, contact center managers need to feel confident that replacing their PBX with an IP-PBX will not generate six months of integration work to get their agent screen pop applications up and running.

Selecting standards-based components provides the most flexibility in hybrid contact center environments. To improve the overall interoperability between all contact center products and to minimize migration issues, consider employing call processing software to pass data between all contact center products. Organizations with standards-based call processing software, for example, can upgrade their TDM PBX to an IP PBX with little or no change to their IVR, agent desktop, and workforce management applications. This approach also allows companies to choose best-in-class solutions for speech-enabled self service, call routing, automated response, call monitoring etc., which can make it easier to deploy an IP solution with the capabilities they require.

While most call processing and IP contact center vendors claim support for industry standards, savvy buyers must dig deeper to determine exactly how much integration, custom coding, and post-implementation hand-holding it takes their products to work as promise.

Taking the hybrid network stage into account, most organizations have found value in allowing breathing room in their deployment schedule. In many organizations, the path to IP telephony leads them to implement a trial network at a standalone site. This allows the organization to test the technology (and vendors) to make sure that it works, and that it can satisfy all of the current business and technical requirements. These trials often last for an extended period of time; an expected six-month trial can easily run 12–18 months due to integration issues that arise resulting from the pace of change in the technology and the complexity involved in using multiple vendors.

Phasing in an IP infrastructure one site at a time enables organizations to work through any rough spots with minimal customer impact. Should one contact center encounter difficulties implementing a middleware platform or an IP-based application, the organization is able to bypass that contact center and route customer traffic to other locations. In this way, the customer remains unaware of the difficulties and the organization is not subjected to a negative backlash before they are able to gain the benefits of an IP contact center infrastructure. This approach, enabled by PSTN-IP gateways and call processing software, in particular those based on standards such as SIP and CSTA, enables an organization to manage their hybrid network and smoothly transition to a pure IP network at their own pace.

Integrating standards-based call processing software into the hybrid deployment model will ease the migration to a pure IP environment. It will protect applications from extensive integration issues as you move from one environment to the next and enhance interoperability between all your contact center products. It will allow you to easily take advantage of new multimedia device capabilities as they are introduced. Your contact center will be more agile and more responsive to changing customer needs. Your organization will be in the enviable position of being able to quickly and easily take advantage of new products and services that boost service levels, enhance agent productivity and lower costs.

The transition to VoIP is not an overnight process. Organizations that enter the process with a plan and their eyes wide open to a hybrid network that leverages their existing investments will triumph. The resulting IP contact center will yield organizational efficiency, drive down cost, and boost customer loyalty. IT

John Joseph is vice president of corporate marketing at Envox Worldwide. (news - alert) For more information, please visit the company online at http://www.envox.com.

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Fixed/mobile convergence (FMC) networks represent a new paradigm in virtually every aspect of service provider networks: number of registered users, connected devices, applications/services, and active sessions. Equipped with a new generation of dual mode cellular-WiFi handsets, FMC service users will get better reception in the home and office, where it was once spotty, plus a new range of multimedia services delivered to their mobile devices.

The new paradigm not only represents larger scale networks, it also opens carriers' once-closed networks to the Internet and the full range of security risks (Figure 1). Further distancing itself from previous network architectures — in which security was an afterthought — FMC networking standards have security built into their specifications.

As carriers plan to build their Third Generation Partnership Program (3GPP) standards-compliant IP Multimedia Subsystem (IMS) and Unlicensed Mobile Access (UMA) next-gen networks, they must look for an appropriate next-gen solution that not just meets but exceeds the standards-specified level of security.

New Security Paradigm: Beyond VoIP Networks

VoIP landline networks — hailed within recent memory as next-generation — will be eclipsed by FMC networks' order of magnitude higher dimensions and broader range of security threats.

This defines a set of new parameters for network security:

- While VoIP fixed networks are all about Session Initiation Protocol (SIP) and SIP services, FMC networks (e.g., IMS) offer VoIP plus multimedia services. Therefore, FMC services extend beyond SIP-based services to include the full range of IP protocol (HTTP, RTSP, etc.) based services — all of which must be protected.
- Multiple layers of protection (i.e., security functions) are necessary. Beyond protecting the SIP control plane and its underlying protocols (TCP, IP, Ethernet), the payload (i.e., media plane) must be guarded from the full range of security risks: denial of service attacks, malformed

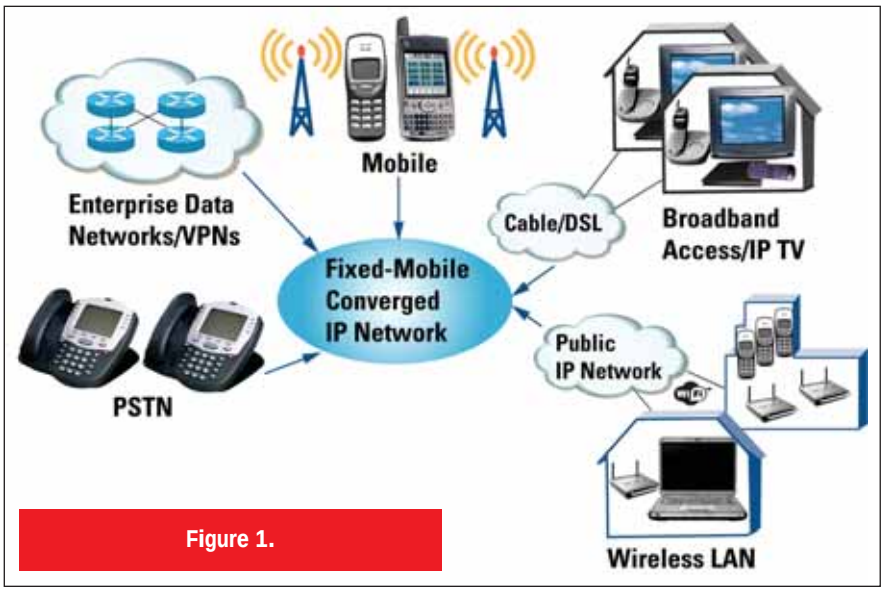

Figure 1.

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By Cam Cullen

packets, viruses, SIP session hijacking, RTP attacks, etc.

- End-to-end security is essential. Beyond protecting the user device and FMC WiFi access (the "new last mile"), the rest of the network infrastructure (IP core network and application servers) is now laid bare to the Internet and must be guarded.
- The full range of security functions (denial of service, intrusion protection, bandwidth theft prevention, etc.) must be processed on every packet that traverses the network without impacting the performance and quality of service. This requires higher performance and more scalable security systems than ever before.

These FMC requirements challenge the previous generation of security devices: session border controllers (SBCs), which were originally designed as SIP proxy devices. Their security functions are focused on SIP control plane security, and include add-on features such as network address translation/traversal for separate, attached firewalls.

SBCs were also designed for handling lower volumes of users and sessions that FMC networks require. The most dramatic illustration of this is how SBCs address fixed-line VoIP network scaling:

- SBCs employ a 20 users to 1 active session oversubscription model (i.e., 100 users, five active VoIP sessions).
- FMC requires a one user to X active subscription model (i.e., 100 users, an average minimum of 500 active IMS sessions).

FMC network users will have multiple devices (laptop, mobile phone, desk phone, etc.) simultaneously registered and multiple active application sessions (VoIP, instant messaging, presence, IPTV or video messaging, and/or gaming).

Tiered Security is Required Across the FMC Network Domains

Access control lists, stateful firewalls, SIP firewalls, network address translation, denial of service attack prevention, secure authentication, encryption, and lawful intercept are all part of the FMC security architecture and must be fully supported by an FMC security platform.

SBC architecture isn't robust enough to meet the multifunction security services and scalability realities of 3GPP FMC networks.

The 3GPP IMS standard specifies a security platform for isolating the Call Session Control Function from malicious attacks, allowing the CSCF to focus on its core functions: call termination and control. The standard also specifies IPsec data encryption and integrity for user device access.

However, to thoroughly protect the entire FMC infrastructure, a broader portfolio of tiered security functions must be applied on each packet in the traffic flow:

- First: the connection between the end-users and the network service needs a rich IPsec implementation (including IKEv1/IKEv2, transport/tunnel mode, DES/3DES/AES and SHA-1/MD-5) to authenticate users, giving them access into the service network, and to encrypt/decrypt the traffic for privacy across the access medium.
- Second: each packet must be evaluated for global security threats (including IP denial of service and malicious URL filtering), and a stateful firewall must be used to block known attacks and enforce policies that limit the applications that can access the carrier network from the Internet.
- Third: each packet is evaluated based upon the mobile station or endpoint requesting the services to determine if the user is authenticated, has access to media services, has exceeded his bandwidth, is sending malicious code, etc.
- Fourth: each packet must also be evaluated again using the same security operations performed for the mobile stations, this time based on policies specific to the application server being accessed (e.g., allow only a certain number of concurrent sessions to prevent a denial of service attack).
- Fifth: each packet is subjected to a wiretap at each security evaluation point and may be mirrored to a law enforcement agency.

Security Device Architectures

The fundamental challenge for FMC security devices is the ability to apply packet processing to the full range of multimedia services concurrently — without introducing performance-impacting latency or jitter and without sacrificing security feature scalability for the sake of simultaneous services.

Next-generation devices (i.e., security gateways) are designed with a processing pipeline that utilizes a combination of high-speed ASICs and programmable network processors to yield maximum packet processing performance while applying the full range of security features to each packet.

This security gateway (SeGW) architecture is based upon specific ASICs for delivering scalable IPsec tunnel performance, deep packet inspection, subscriber/application identification, quality of service and detailed statistics — all functions that limit the performance and scale of legacy security systems (i.e., SBCs with add-on features as well as routers with conventional add-on blades). SeGW network processors are reserved for packet forwarding and header manipulation with a performance budget to concurrently support all of the security services offered by the platform. This ensures predictable performance even when multiple security services are activated on the platform. Finally, the SeGW processing pipeline contains a dedicated high-performance processor for assisting and offloading the stateful analysis of SIP control traffic.

Conversely, SBCs have been built with general-purpose processors or a combination of network processors and a security coprocessor. This legacy architecture lacks a coherent, secure packet-forwarding pipeline and cannot sustain peak performance at scale when multiple functions are enabled. In other words, as more security functions are turned on, SBC packet processing performance degrades.

In addition, none of the SBCs on the market today were originally designed as comprehensive, multisecurity feature devices, instead they have focused on call processing and proxy services for solving the Firewall/NAT complications introduced by SIP for VoIP. The SBC's proxy-based architecture is fundamentally different from the SeGW's transparent security architecture. Consequently, SBC architecture isn't robust enough to meet the multifunction security services and scalability realities of 3GPP FMC networks (e.g., IMS and UMA).

Security Architecture Scalability and Economics

FMC security devices must scale to support millions of subscribers and devices (e.g., mobile handhelds, wireless laptops, corporate or personal computers and enterprise-based IP PBXs). In an FMC (e.g., IMS) voice application, a single user may have multiple devices attached to the network simultaneously (e.g., mobile, home and office phones, and possibly, a PC "soft phone").

All these devices must be concurrently registered as "connected" to the network and have secure connections; so when an incoming call rings for the user, the IMS network can use its intelligence to ring one or all of these devices. This requires continuous security device as well as network core resources. Other FMC applications, such as instant messaging (which is always-on) and dual mode (cellular-to-WiFi) on-off/on-again registration also significantly add to the security device's scalability requirements.

Unlike the SeGW's transparent architecture that can scale through the use of a customized security pipeline and custom ASICs, an SBC's proxy architecture was never designed to accommodate the scale required in FMC architectures. Although SBCs are adept at call process-

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ing, the fact that they were designed for massively oversubscribed deployments makes meeting the challenge of scale a difficult proposition. In contrast, the SeGW's highly scalable, transparent architecture is designed for FMC networks — in which all users will have several concurrent active sessions.

Proxy architecture deployments include early proxy firewalls and the current generation of SSL VPN solutions — all limited in scale to several thousand users per system. Proxy architectures suffer from their need to terminate the original user session, then regenerate the session with the necessary security inspection and modifications. Since a proxy device must first terminate traffic, this translates into a minimum of two sessions for every user. In the case of SIP IMS deployments, an average of five or more media sessions per subscriber is expected.

The challenge of scale represents a significant problem for the proxy architecture, as it taxes hardware and quickly reduces scalability by at least a factor of two, requiring many more SBCs than SeGWs to handle FMC. To scale, SBCs must add blades and/or load-balance multiple chassis. This architectural model introduces significant reliability, CAPEX and OPEX, power consumption and space issues contrary to service provider economics and IMS business (e.g., ROI) models.

After Looking Under the Hood

Session border controllers were designed to function as SIP proxy devices and not as transparent, high-performance, highly scalable multisecurity feature solutions for FMC networks. Now a new generation of devices has emerged for FMC networks: security gateways, with a comprehensive security feature portfolio and a transparent architecture for processing them without trading off security, performance, quality of service or cost efficiencies. IT

Cam Cullen is vice president of product management at Reef Point Systems. (news - alert) For more information, please visit the company online at http://www.reefpoint.com.

Session Management:

Building a Foundation for VoIP and Beyond

Personal communication has changed significantly from ten years ago, when people relied on the phone system to talk to one another, access the Internet, and send faxes. Today, people use a combination of text, voice, and multimedia communications to best meet their needs based on what they are doing and where they are. Service providers and other IP network operators are rapidly moving to harness the flexibility and efficiencies of the converged IP network to cost effectively offer the mix of services consumers now demand; however, the use of one network to deliver multiple services creates new complexities and challenges in managing service connectivity and resources. Session management technology provides network operators with a technology strategy to manage the complexities of this new networking environment by giving IP network operators a foundation for VoIP and beyond. Session management is providing the underpinnings for a new network economy where sessions traversing the IP network — not bandwidth or usage minutes — are the currency.

The importance of IP network interconnects is growing since many of the complexities of converged IP environments manifest themselves at the edge of the network. Service providers have long been concerned with security at the network edge but are now finding that to scale their next generation services, they must also enforce a wider set of policies at the session layer that include security, session management, and the business performance of their network and its associated services. Service providers today can use network-to-network IP interconnects and corresponding user-to-network IP interconnects to adapt session traffic as it enters and leaves their network. These interconnects also provide a natural place for service providers to monitor traffic for both quality and accounting purposes.

Session management technologies provide network operators with a comprehensive facility to monitor and manage a VoIP (define - news - alert) network end-to-end for maximum quality of service and availability. Furthermore, session management enables interconnection across a variety of disparate VoIP networks and legacy systems while providing centralized voice and data management, thus enabling carriers to scale their VoIP services and expand their services revenues. More important, session management technology provides carriers with a strategy to diversify and grow revenues by facilitating the seamless introduction of new, revenue-generating services with little or no effect on underlying networks. The technology also enables service providers to leverage their investment in next generation technology as a stepping-stone to IMS.

Session management addresses not only the technology issues that exist at the network edge but also the commercial issues because it enables service providers to manage, monitor, and bill for VoIP, multimedia, and other real-time sessions that flow through their IP network. This advanced session-layer technology uses a continual process of policy optimization, thus enabling network operators to implement dynamic policies that can be enforced at the edge of their network, simplifying network operation and service rollout; more important, it gives them visibility into network behavior. By gathering and processing information such as session detail records and alarms in real time, session management technology allows network operators to use network feedback to dynamically adjust policies to changes in interconnect capacity, quality, and availability. The ability to adjust is essential for scale and reliability because it allows service providers to proactively and dynamically change

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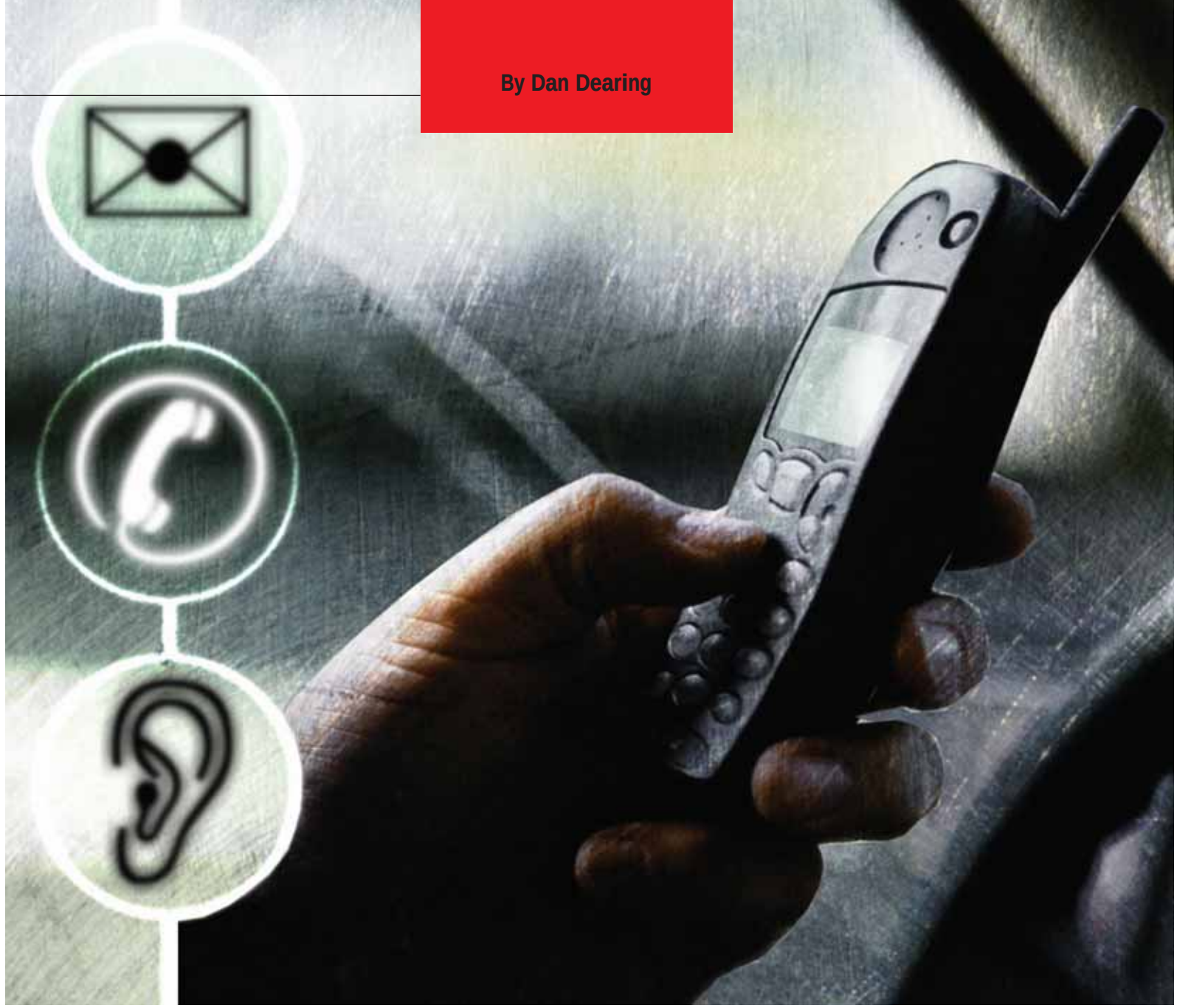
By Dan Dearing



policies to address time-critical revenue issues that relate to quality and reliability. Dynamic session management information empowers service providers to more effectively manage their service business by proactively addressing issues that affect customer satisfaction and loyalty (Figure 1).

In next generation networks, service providers use session border controllers (SBCs) to address many of the technical aspects of interconnecting networks and their real-time services; however, the SBC has a limited view of the session at a single network point and little visibility of the session end-to-end. For example, the SBC cannot tell a service provider the best route to connect two session end-

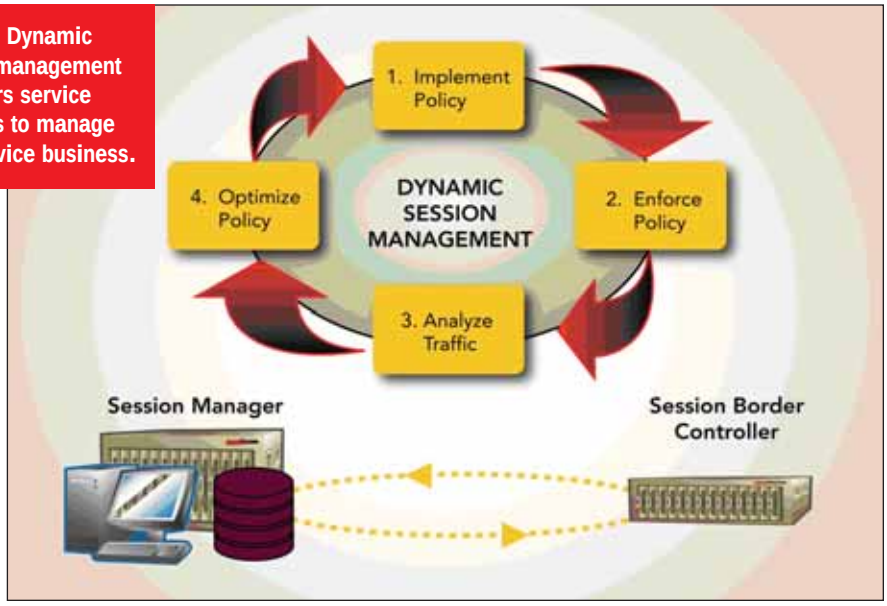


Figure 1: Dynamic session management empowers service providers to manage their service business.

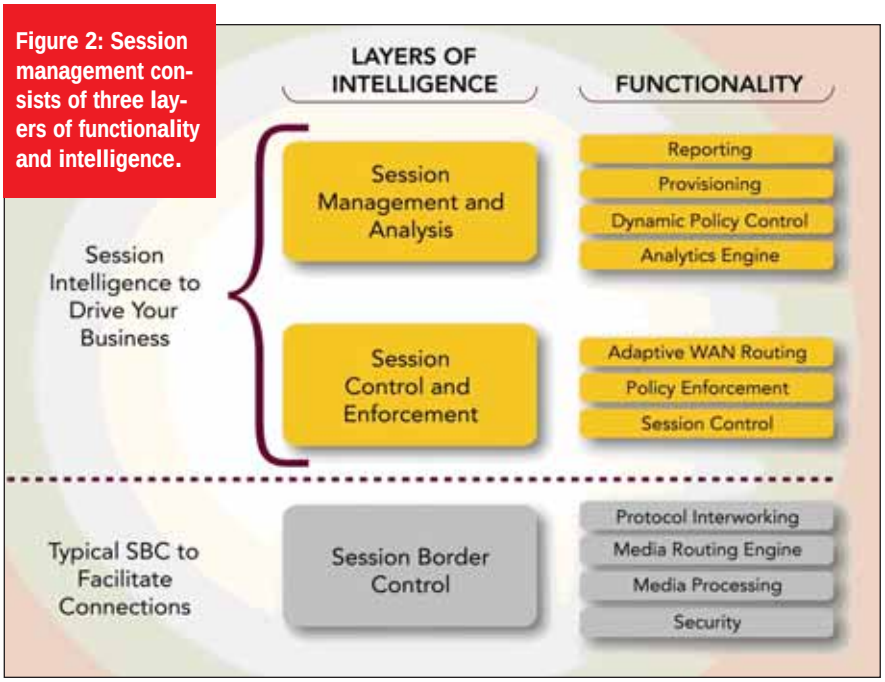
points, nor can it tell if there are problems within the network that may impact service quality. Session managers address these network- and session-wide issues with added intelligence to monitor sessions end-to-end and dynamically change the policies that control them based on current network and session status.

Session management consists of three layers of functionality and intelligence (Figure 2). The SBC layer provides session transport and performs the mechanics of interconnecting networks, including capabilities such as security, QoS assurance, and signaling interworking. The SBC also collects basic layer-three data such as packet delay, jitter, and lost packets. This information is not really relevant by itself at the SBC layer, but provides valuable network feedback for the higher layers.

The session control and enforcement layer treats sessions as unique connections between user and application endpoints. Tasks performed here include the setting up of a connection between two endpoints, enforcing policy about which endpoints can use the network, and determining which services sessions are allowed to access. This layer also collects feedback information that describes the duration and quality of the session, including call hold time, post-dial delay time, and mean opinion score.

The session management and analysis layer collects and analyzes information from the lower layers and then dynamically updates policies established by operator business and engineering teams to control network interconnects. These policies regard issues such as how calls are routed and service level agreements are maintained. To provide comprehensive visibility into service and network quality, this session management intelligence provides a detailed view of session activity across network interconnects. Information gathered from session detail records, log files, and alarms is summarized here for further analysis and action by operators. This layer also provides a facility to provision and manually update policies and to arrange for automatic notification of any dynamic changes to network policies.

Figure 2: Session management consists of three layers of functionality and intelligence.



As service providers scale and diversify their offerings, they need added operational visibility, interconnect flexibility at the OSI session layer for greater networking efficiencies, and maximum return on their investment in next-generation technology and applications. The added intelligence of the session manager, deployed in conjunction with an SBC, gives service providers a complete system that provides the underpinnings for exciting new IP services. This advanced capability empowers service providers to connect sessions more easily, securely, and scalably, giving the dynamic control needed to scale and adapt sessions to current network conditions.

Service providers today are using intelligent interconnects, powered by dynamic session management, to address practical issues such as recovering from a catastrophic service outage or adding additional connectivity between VoIP networks. More importantly, service providers are using intelligent interconnects as a stepping stone to the IMS architecture, enabling them to quickly expand their service offerings and deliver the mix of services and mobility users want most. With the migration to VoIP well underway, service providers are using intelligent interconnects to address a wider set of customers, linking fixed and mobile devices into a single network. This intelligent network edge enables service providers to offer traditional voice services along with new multimedia services such as mobile interactive gaming and video sharing. Service providers can fast-track these offerings by flexibly and securely interconnecting with application service providers (ASPs) at VoIP and IMS peering points and leveraging the outsourcing capabilities of the ASP.

Intelligent IP interconnects are creating a new networking economy where service providers, each having a specialty, are interconnecting their offerings to provide their customers a wider variety of IP-based services. We are witnessing tremendous service provider investments in IP, IMS, and wireless networks; however, many organizations do not have the economic backing to execute a "go it alone" approach. Intelligent interconnects enable different types of providers to interact and cooperate for expanded service offerings, greater service reach, and more flexible service delivery. The use of intelligent interconnections enables service providers to extract value from the promise of IMS and the converged IP network. This new networking model creates a new and innovative environment that is a win/win for both users and service providers. IT

Dan Dearing is vice president of marketing for NexTone Communications. (news - alert) For more information, please visit the company online at http://www.nextone.com.

WEB SUMMITS

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www.tmcnet.com/web-summit

VoIP Peering - July 27 *Archived

IP Multimedia Subsystem solutions are taking the service provider world by storm. But how will IMS work in the real world and what is the best way to deploy , test and generate revenue from this exciting new technology? This Web Summit will discuss the ins and outs of IMS so you can quickly and intelligently deploy IP Multimedia Subsystem solutions in your network.

Deploying IPTV - August 29 *Archived

Service providers are looking to IPTV to retain their subscribers, generate new revenues, and strengthen their bundle. For IPTV to become a competitive differentiator for carriers, a number pieces need to be in place, not only to provide the service, but to seamlessly integrate it with voice and data offerings. TMC's IPTV Web Summit presents a critical look at the ecosystem that supports IPTV and how these vendors provide the tools that enable carriers to re-think what television is all about.

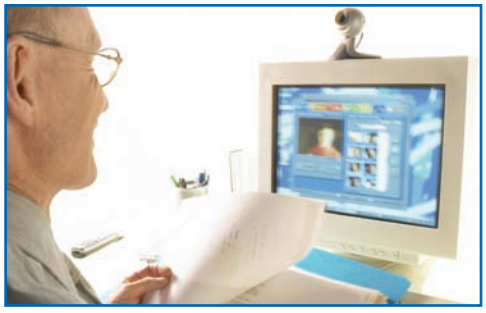
Mobile VoIP, The Road to FMC – September

TMC's Mobility VoIP Web Summit will provide a comprehensive overview of this space, and what it takes for operators to transfer, support and bill voice traffic as it traverses various types of mobile networks. As the mobile market continues to grow and evolve beyond voice-only communications, the infrastructure must be in place to support all these scenarios. This Web Summit will be the ideal destination to learn about who is leading the way and how mobile operators will get there.

Open Source - October

The Open Source software movement has unleashed exciting innovation that is helping enterprises operate more efficiently and cost-effectively. This space is evolving rapidly, and TMC's Open Source Web Summit will be an invaluable opportunity to learn about the most successful applications as well as the emerging projects coming from this community.

Build a Database of Qualified Leads



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Consumer VoIP: the Future is Features

When evaluating VoIP's (define - news - alert) competitive landscape, VoIP providers would do well to consider Blockbuster Video.

Today, Blockbuster's most serious competition comes not from rival video chains, but from challengers using an entirely different model. Wal-Mart, to name one, sells, at a reasonable price and with no return obligation or associated late fees, the same videos that Blockbuster rents. Online video rental clubs, such as NetFlix, likewise eliminate the late fee threat, and also add the convenience of home delivery. And more convenient still than the online video club is pay-per-view, which places the entire video rental experience in your remote control.

So, too, for VoIP does the most serious competition come not from a direct competitor (i.e., the traditional landline) but from an entirely different model for delivering the same service: the mobile phone. The tech-savvy consumers who would be VoIP adopters have, as they say, "cut the cord." They've abandoned phones tied to the home, and instead rely only on their mobile phones.

How can VoIP compete against the mobile phone? How can VoIP providers offer something of value to those who find home phones quaint?

FEATURES

The untouched potential (marketing and otherwise) for VoIP is features. Most providers don't take advantage of the "IP" in "VoIP." Marketing VoIP purely as a cost savings against traditional landlines will not sustain the service in perpetuity — especially as VoIP's most intense competition comes from mobile phones.

VoIP can offer features of convenience, safety, organization, as well as features, like mobile phones, that bring more dazzle than practical value. Consider the features leading VoIP providers bring their customers today.

One Call, Tell All

For wrangling large numbers of people, e-mail is ideal. You send one message to all relevant parties for efficient communication.

Imagine your phone working like your e-mail — instead of making 25 phone calls to reach 25 people, you make one call and reach everyone. VoIP can do just that.

A service, such as one called "One Call, Tell All," offers incredible time savings. Families can use it to pass along the 'what' and 'when' of dinner or someone's status in the hospital. Social networks, like book clubs or soccer teams, can keep the crew organized and informed. And at the work place, applications like One Call, Tell All add another tool to keep the account team in sync.

Content Delivery

E-mail news alerts. RSS feeds. And VoIP.

Receiving and managing information is a key part of modern life. VoIP can add another avenue for keeping track of the data that matters most to you. Receive stock quotes or a weather update as a wake-up call. Better still, wake up with a call delivering your horoscope — it's just as reliable as any weather report.

Reminder Calls

You can tie a piece of string around your finger. Or you can set your oven timer. Or you can even set the alarm on your mobile phone. And while these things may remind you on queue that you're supposed to remember something, none will tell you what you're

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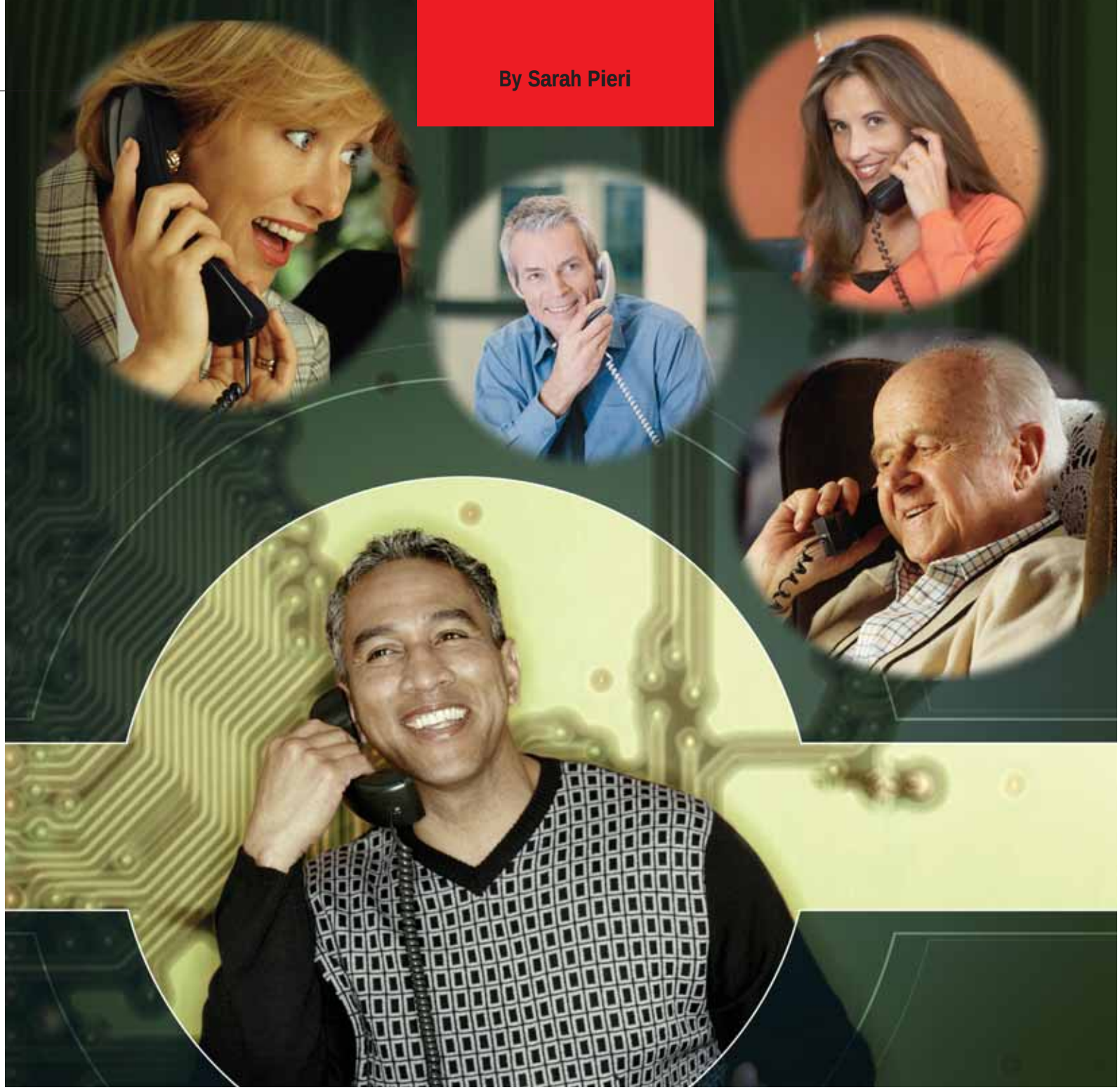
By Sarah Pieri



supposed to remember.

Not so with a VoIP reminder call.

A VoIP phone can be programmed to deliver a reminder call with a pre-recorded message. So when your call comes in at 4:30 p.m., you won't ask yourself, "What did I need to remember?" Your VoIP line will tell you.

Next Generation Call Forwarding

Even a traditional landline allows for call forwarding — the ability to send your calls to another number when you're away from the house.

VoIP takes it to the next level.

A VoIP line can forward calls to multiple numbers. Expecting an important call but you can't be at the house? Engage your VoIP line, and it will send all incoming calls to a sequence of numbers you program. So even if you're not at home and not at your office desk and your mobile phone is out of batteries, the call will find its way to your wife's mobile phone.

Emergency Link

Imagine your child trying to reach you during an emergency. She tries you at home, gets the answering machine, and then hangs up. Next she tries your mobile phone. No luck. She dials you at work. Or maybe not, because she hasn't yet memorized all of those numbers.

VoIP can streamline this process and bring an extra bit of security to the household.

A VoIP emergency link system, using VoIP's advanced call forwarding function-

The untouched potential for VoIP is features. Most providers don't take advantage of the "IP" in "VoIP."

ality, allows a caller to activate an emergency routing sequence — separate from your standard call forwarding numbers. If an urgent call reaches your voicemail, the caller can enter a command to start forwarding their call to your list of emergency contacts. With VoIP, your child need remember only one number, and the phone system will track you down.

Call Log

VoIP lines can keep records of all your incoming and outgoing calls for months and make those records available to the user online.

This has more practical applications than you might think.

Obviously, if you forget or lose a phone number, the call log provides easy access to all the numbers calling your VoIP line.

But imagine a lawyer or freelance writer trying to keep accurate billing records. If you're trying to keep excellent billable hours, a log of who's called can be quite helpful.

Also, less importantly, remember that argument in which your spouse claimed that you never called or that you called after the fact? With a VoIP call log, such critical questions of fact become easily verifiable.

Online Address Book

Today's home computers allow for an electronic address book. Still, even if your numbers are stored in your PC or Mac, usually those numbers aren't available online. And there are still a great many among us using paper planners.

If a VoIP user programs numbers into the speed dial, the numbers in that database are always available to the user online. As such, so long as you've access to the Internet, you're never far from your contacts.

Advanced Voicemail

First there was the answering machine. Then came voicemail to the workplace. Then voicemail became a consumer product. And now VoIP voicemail.

VoIP allows users to access voicemail online. This enables users to see, on one screen, who called and when they called and whether the caller left a message. Users click on a message icon to hear the voicemail.

This works much more efficiently than listening, one at a time, to every message, whether it comes from a salesman or your mother.

Speak to Dial

When people think of the command, "Call home," it's generally associated with Bluetooth-enabled automobiles. VoIP brings this feature to the home phone. Pick-up the receiver and say "Call mom" or "Call granddad," and your VoIP line will do the rest. Paired with a speakerphone, this makes, for example, making a call during dinner prep so much easier.

Remote Long Distance

VoIP rates are among the most competitive in the world for international calling.

But better still, leading VoIP providers allow their customers to access those rates at home and around town. VoIP users can dial into their home using their mobile phones and make international calls at their VoIP rates.

So the next time a loved one is abroad, a low international rate is as close as your mobile phone.

WHAT'S NEXT?

VoIP is not your old phone run through your cable line. It's like Blackberry. It's like instant messenger. It's like a plasma TV. It's a must-have technology for staying ahead of the curve. And features are the key to attaining and maintaining that status. IT

Sarah Pieri is director of communications for my people. (news - alert) For more information, please visit the company online at http://www.mypeople.com.

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Implementing Robust Quality of Service for Business Subscribers

In the past, Service Providers employed circuit-switched networks to guarantee bandwidth, provide resiliency, and isolate their enterprise customers' networks. However, the significant cost advantages of packet-switched networks, coupled with the ability to provide higher bandwidth services, led to a growing number of Ethernet-based Virtual Private Network (VPN) deployments.

With the recent convergence of voice and data traffic in the LAN, connecting enterprise networks has become much more complicated, given the variety of applications running with different real-time data needs. Additionally, business subscribers often want to connect multiple remote sites and have traffic pass between them with the same priority as if they were physically colocated.

The challenge with implementing this much functionality on a packet-switched network is that it is not enough to simply supply a wide pipe. A new Multidimensional Ethernet is required for operators to provide robust, reliable service across increasingly large geographies while maintaining the correct prioritization of the real time, latency sensitive traffic.

The Virtual Private Network Foundation

The foundation for meeting the demanding needs of business subscribers is the Virtual Private Network. VPNs have revolutionized Metro networks by separating physical network infrastructure from the logical deployment desired by network administrators. In this way, networks that are geographically dispersed can be treated as a single corporate LAN. VPNs accomplish this by mapping logical groupings of separate networks through tunnels that can securely traverse intermediate networks.

Additionally, the VPN structure can be expanded to provide security within a LAN based on class, type, or function of traffic. For example, Quality of Service (QoS) for voice traffic can be maintained in the presence of data traffic by grouping voice traffic separately from data traffic. Control and user data can be separated as well, giving control data first priority through the network. Traffic can even be distinguished based on function (i.e., sales, finance, engineering) to restrict access to data to only those individuals with authorization. With the introduction of new hierarchical Quality of Service capabilities, Service Providers are now able to support the unique QoS requirements of each of their diverse business subscribers.

VPN technology has evolved through several stages to serve the needs of business networks. First, isolated groups of traffic were made possible by the IEEE 802.1Q VLAN standard which enabled devices to communicate as if they were on the same physical LAN, even when they were not. 802.1Q, however, has a scalability limit of 4,096 VLANs (based on a 12-bit ID field) which is quickly exhausted in Metro applications.

The IEEE 802.1ad Provider Bridges standard (also known as Q-in-Q) builds on 802.1Q by tunneling of VLANs through an Ethernet infrastructure by applying a service provider 802.1Q VLAN tag. Because these tunnels are completely isolated from other tunnels, they keep traffic separate, providing a mechanism for treating customer traffic with different priorities and QoS as it passes through the Service Provider network.

While the Provider Bridges standard improves scalability and functionality, it still fails to adequately address the needs of large Carrier Ethernet networks. The

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By Peter Lunk

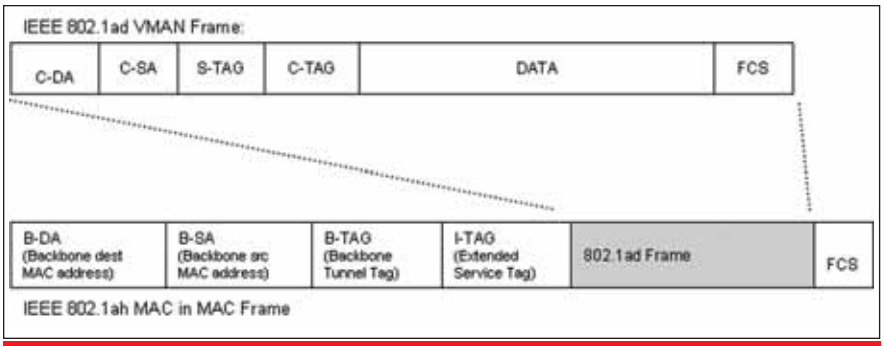

Figure 1: Encapsulating a customer's Ethernet frame with a Service Provider MAC header allows packets to be switched across the Service Provider network (with the MAC-in-MAC header removed on the egress switch) economically providing millions of service instances.

VLAN ID field limitations of VLANs still apply, limiting deployments to 4,096 Provider Bridges. Additionally, because the VPN is implemented as a large Layer 2 domain, the increasing size of the network can cause scalability challenges, as the number of MAC addresses that must be learned requires equipment with larger forwarding tables, which are typically expensive to implement.

Attempts to overcome these limitations using MPLS Layer 3 VPNs have likewise fallen short. When implemented at Layer 3, MPLS requires that private routes associated with each customer are shared with the provider, requiring customers to partially give up control and security of their networks. Additionally, these shared routes must be stored in a Virtual Route Forwarding (VRF) table and a separate VRF table kept for every active VPN, placing a tremendous strain on core router resources.

MAC-in-MAC Technology

The proposed IEEE 802.1ah Provider Backbone Bridges standard, also known as MAC-in-MAC, provides an important piece necessary to cost-effectively scale Ethernet networks. Coupled with recent developments in hierarchical QoS, the MAC-in-MAC standard brings the necessary scalability, granularity, and resiliency to enable next generation Carrier Ethernet networks.

The name MAC-in-MAC comes from the way a customer's Ethernet frame is encapsulated with a Service Provider MAC header as it enters the Provider Backbone Bridge (see Figure 1). The Ethernet packet is then switched across the Service Provider network and the MAC-in-MAC header removed on the egress switch. In a MAC-in-MAC network, the customer is no longer tied to a 12-bit VLAN ID. MAC-in-MAC provides millions of service instances, removing scalability as an implementation barrier.

MAC-in-MAC also supports hybrid networks which employ Q-in-Q VPN technology. An example of this is a network operator connecting several Q-in-Q based metro networks with a large regional or national MAC-in-MAC Provider Backbone. This eases the migration to larger networks while placing less strain on carrier resources and reducing the complexity and cost of the new infrastructure. As a result, a network can utilize the various VPN technologies together to create the optimal use of network resources based on the network architecture, location, and density of enterprise customers.

During the Webcast of a company training video, Voice over IP traffic that normally has plenty of bandwidth could be interrupted if priorities are not mapped correctly.

Multidimensional Ethernet

Multidimensional Ethernet enables carrier networks to meet these new performance and scalability requirements while maintaining the superior economics that drove the widespread adoption of Ethernet technology. In addition to MAC-in-MAC, Multidimensional Ethernet includes Hierarchical QoS and a SONET/SDH-like resiliency to provide the necessary complementary technology.

Hierarchical QoS utilizes hardware-based controllers to manage bandwidth and priority on a per applica-

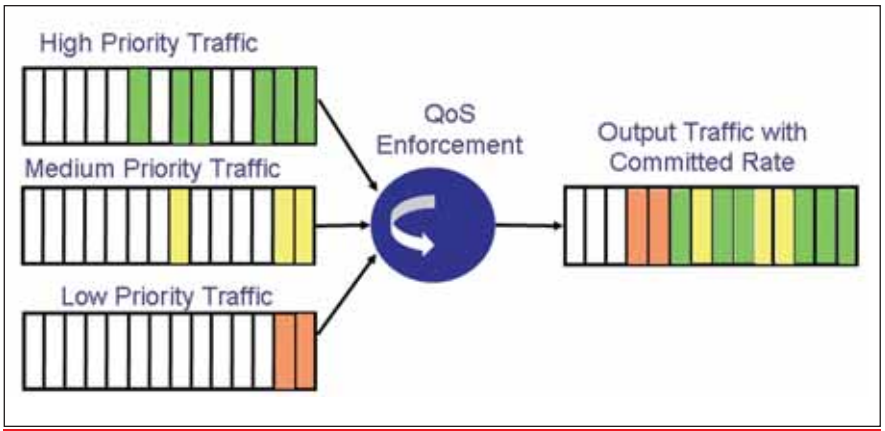

Figure 2: Hierarchical QoS utilizes hardware-based controllers to manage bandwidth and priority on a per subscriber basis. This model is ideally suited to business customers with more complex network topologies.

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tion basis while supporting multiple QoS levels for thousands of business subscribers without impacting the performance of the network. Providing optimum Quality of Service for business subscribers requires a different approach from the models often seen in residential network deployments. It is fairly straightforward to assign a bandwidth profile to residential subscribers that may choose from some small number of subscription offerings. Business subscribers, on the other hand, typically negotiate contracts on an individual basis, and have much more dynamic requirements around QOS for their varying applications. During the Webcast of a company training video, for example, voice over IP traffic that normally has plenty of bandwidth could be interrupted if priorities are not mapped correctly.

With the advent of Multidimensional Ethernet, new algorithms now exist to handle the different requirements of business subscribers. These new priority-based algorithms allow the subscriber IT manager to set the priority of the various enterprise applications and the service provider can simply honor those settings within a fixed bandwidth profile across the VPN. The user no longer needs to decide the exact bandwidth requirements of each application. Within the bounds of the overall bandwidth profile, the service provider simply delivers the highest priority traffic first. When the highest priority applications are idle, the lower priority applications are allowed to send their data (see Figure 2). This greatly simplifies the planning process for the subscriber, and also makes it easier for the network operator to market and sell business VPN services.

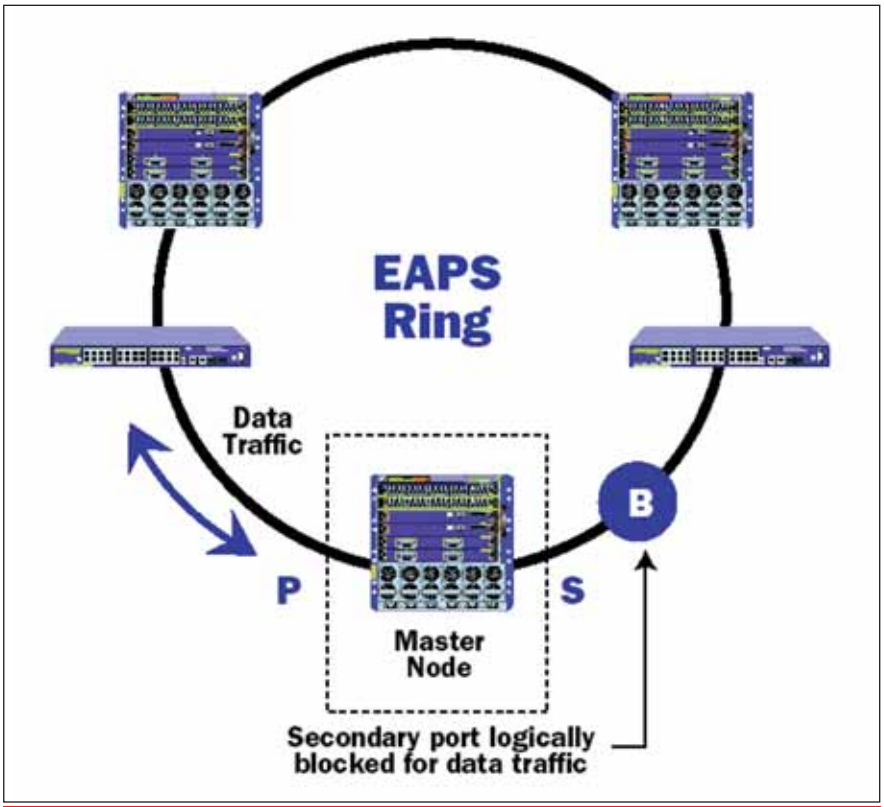

Figure 3: Ethernet Automatic Protection Switching (EAPS, also known as IEEE RFC 3619) utilizes a standard Ethernet MAC and a ring topology to provide carrier-class failover response within 50 ms.

Scalability and Quality of Service, however, must be matched with five nines carrier-class reliability if Carrier Ethernet is to succeed. Additionally, failure avoidance and recovery mechanisms must extend beyond merely restoring broken connections to address the applications and services supported by the network in order to guarantee that services are not interrupted in the event of equipment failure.

Ethernet Automatic Protection Switching (EAPS) — also known as IETF RFC 3619 — is a widely installed service-aware protection protocol that utilizes a standard Ethernet MAC and a ring topology to provide carrier-class failover response within 50 ms (see Figure 3). EAPS enables service providers to select primary/backup designations on a per VLAN basis, promoting route diversity and provisioning of service flows across multiple switches and rings. When working in conjunction with technologies such as IEEE 802.1ag CFM (Connectivity Fault Management), protection mechanisms such as EAPS harden Multidimensional Ethernet networks, providing high reliability and availability.

MAC-in-MAC and Hierarchical QoS are critical enabling technologies behind Multidimensional Ethernet for bringing scalability and real-time services to the Carrier Ethernet network. By overcoming the privacy, scalability, and performance limitations of earlier VPN implementations, Multidimensional Ethernet simplifies network architecture and reduces deployment costs while enabling Network operators to deliver robust business networks with unsurpassed Quality of Service. IT

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Instant Video on Demand:

Pushing the DVR into the Network

The evolution from costly home-based Digital Video Recorders (DVRs) to more efficient network-based DVR (nDVR) systems has gained significant momentum, with major cable Multi-Service Operators (MSOs) declaring they will deploy nDVR systems on a wide scale. Leading the pack is Cablevision, and Time Warner and Comcast have stated they intend to follow suit, once digital rights issues are resolved with the networks. In a rapidly changing environment that promises wildly better TV-watching experiences and interactivity, network providers see the network-based model as a clear winner in terms of cost and ease of deployment. However, while the entrance of cable giants into the fray means network-based services may come soon to a TV near you, uncertainty looms large, with the major Hollywood content developers crying foul.

What Is nDVR and How Does It Work? The User Perspective

The concept of the nDVR is easy to grasp; the network provider stores content in the network, and the viewer uses a simple set-top box to watch previously aired shows at any time, without having to pre-program a Tivo-like digital recorder to record a show when it is aired. Just like a home-based DVR, an nDVR will have a suite of VCR-like controls that will allow viewers to rewind, pause, and forward content. But how will users navigate an nDVR, and how will service providers implement the technology across existing networks?

Current Electronic Programming Guide (EPG) navigation scrolls in two directions; a viewer can scroll into the future (to the right) to view scheduling for a later time on a specific channel or scroll up or down through show options for a specific time slot. In addition, many telcos and MSOs currently offer a Video on Demand (VOD) library that typically allows for searches by alphabetic and category listings.

An integrated EPG for an nDVR would likely add a third direction (left) for viewing programs originally broadcast at an earlier time. The system would also allow for some EPG advances first developed by TiVo, including key word searches of metadata, which would encourage MSOs to offer expanded program synopses.

What Is nDVR and How Does It Work? The Telco Perspective

There are several strategies for deploying an nDVR-capable IPTV platform, but they all must employ some combination of media servers and media asset management. Media servers in the network store all the content and handle distribution according to telco specifications and user demand. Video aired for the first time is simultaneously streamed through the system and stored on network-based hard drives, where it is immediately available to users as a VOD service. The network must have sufficient storage for all the content that service providers will make available for time shifting. For example, the service provider may elect to make all channels available or only select portions of the more popular channels available.

Media asset management maintains the variable rights for each piece of content, tracking each in accordance with the framework agreed upon by the content owners. Service providers can thus take into account life-cycle limitations for each piece of content and enforce the timetables for content residence and availability required by

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By Daniel Marcus

the content owners. Asset management requires the storage of programming information (metadata) to associate digital rights with the content as well as to provide an overview of the content. Asset management also allows the carrier to offer reconciliation to the content owners based upon the type of content stored, duration of storage, and frequency of viewing. In addition, metadata enables user searches by topic, keyword, and title.

Why Telcos Are Implementing nDVR — And Why This Is Interesting

nDVR promises users a viewing experience beyond any previous offering in terms of access to content at optimal viewing times. The popularity of DVRs demonstrates that consumers truly want to be freed from traditional broadcast schedules. nDVR not only enables this freedom but also eliminates the need to purchase and pre-program a DVR. Consumers no longer risk missing their favorite show because they forgot to set the DVR to record. nDVR has the added benefit of not limiting a consumer to recording only two or three shows at a time. All programming is instantly available for viewing after it has aired, so all shows that are on at a given time will be available.

Eliminating the need for expensive DVRs benefits both consumers and telcos. Every home that wants DVR has to

nDVR promises users a viewing experience beyond any previous offering in terms of access to content at optimal viewing times.

have an 80+ Gigabyte hard drive-based set top box. Content is replicated hundreds of thousands of times as it is stored in each home's machine. With nDVR, only one copy of each piece of content is stored, so overall network storage requirements are far lower. This translates to a lower total cost to service providers and, ultimately, to consumers.

nDVR also insulates telcos and subscriber from absorbing the costs of DVRs that will be made obsolete by High Definition (HD) programming and expanded interactive services. Plus, nDVR affords greater flexibility and ease of upgrade as multimedia offerings evolve.

If This Is So Great, What's Stopping It?

While nDVR appears to be a win-win solution for telcos, MSOs, and subscribers, major content interests in Hollywood have doubts about the model and its potential impact on their current businesses. In 2004, Time Warner Cable shelved its plans to deploy its Maestro nDVR service in response to legal challenges by the major studios, which were concerned users would pirate programming from the cable company's servers.

Nevertheless, service providers press forward with nDVR offerings. In November 2005, Time Warner began to test a "Start Over" service that enables viewers to restart any program from the beginning, so long as they initiate this feature during the program's normal broadcast time. Cablevision recently announced it will pursue an nDVR service that would operate much like a DVR; the viewer will still need to instruct the system to record programs ahead of time. Essentially, this Remote Storage DVR system provides a personal virtual drive within the network that viewers can access remotely from home.

The only thing slowing providers down is the complex legal framework involved in obtaining the rights for deploying nDVR from the major studios. In general, the courts have ruled that use of home-based DVRs falls under the concept of "Fair Use." The argument is that time shifting in the home is a fair use of the content given to viewers. This is not the case for nDVRs, which store a single copy of the content and provide it to multiple users.

While digital rights management, encryption, and media asset management have come a long way in the last few years, content owners remain skeptical. Most likely, they are waiting for a satisfactory monetization scheme for repeat viewing. Though hardware and software platforms are currently available that can implement any pay scheme, technology and user demand are moving forward faster than agreements satisfactory to both sides can be drafted, contracted, and implemented.

But nDVR Is Already Happening!

nDVR technology is already widely deployed outside the U.S.; vendors are supporting massive networks in Asia that provide subscribers with nDVR functionality. A network in China gives subscribers freedom to access content on all channels for up to two days after broadcast. Any subscriber can watch any program from any channel at any time during those two days, without a costly DVR.

In spite of the ongoing digital rights debate, telcos and MSOs can deploy nDVR today for content they own and control. For example, they can make local newscasts, sporting events, and public-access programming available right out of the gate. Any content a telco or MSO has the owner's permission to store, or for which they already own the rights, is fair game.

Consumers' wide-scale adoption of downloadable video clips over the Internet is accelerating public and studio comfort for storing content in the network and will lead to greater acceptance of and demand for nDVR. NBC recently announced it will make promotional video clips of some shows available on YouTube, a leader in video and social networking. Apple has demonstrated that users of its popular iPod are definitely willing to pay for on-demand video clips. As studios learn how to make more money by making their content available as instant VOD through nDVRs, rights management issues will be solved.

The mainstream Hollywood studios and the major MSOs and telcos will eventually come up with a mutually agreeable plan for reconcilition based on the nDVR content-distribution system. On the way to realizing the vision of making all content available at any time, from anywhere, with full VCR-like controls, some content players are early adopters, while others will resist. Early commercial offerings will thus include a combination of active nDVR channels alongside normal broadcast channels. Local content and non-syndicated programming will form the earliest available options. In the meantime, it is heartening to realize that this technology is available today and currently deployed in commercial networks. Major Hollywood studios are not likely to turn a blind eye to the preferences of significant numbers of paying subscribers, particularly with the added pressure of Tier-1 MSOs such as Cablevision aggressively challenging the traditional model in the courts. IT

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Dual Mode, Multi-Function Handsets:

Fighting Back Against Unpredictable Costs

One of the greatest mysteries in the world has got to be the typical businesses cellular communications invoice. Often, the CFO has no idea what the cost will be from month to month and it often does not follow a set pattern. Unfortunately, it is an essential part of doing business today to provide some form of wireless communications for key employees.

The recent growth in telecommuting and the resurgence of business travel after the post 9/11 downturn are definitely causing businesses to evaluate how they can cost-effectively provide for the communications needs of their geographically diverse staff. Organizations are looking for ways to better manage both personnel and technical resources in the face of this changing world. With the introduction of technologies, including Wireless Access Points, PDAs and PDA/cell phone combinations (multi-use handsets), it is easier for employees to be mobile, yet remain productive, regardless of physical location. As mentioned earlier, the cost associated with providing this technology to employees is often difficult to calculate and even harder to predict. Usage-based billing can be a nightmare for finance departments, who are tasked with controlling and predicting costs.

In order to address these unpredictable costs, it is important to learn a lesson from another area of communications, the office phone line. A great number of businesses are switching from the traditional PSTN phone system to VoIP. They have found that as the cost of high-speed Internet connections goes down, the ability to "share" this bandwidth with voice traffic is a reality. VoIP (define - news - alert) offers these businesses a predictable monthly cost as well as greater flexibility and total cost of ownership. The time has come to move this flexibility and predictable cost out of the office and into the field.

This new way of communicating is made possible by the introduction of the Dual Mode Handset. This technology combines the low cost of VoIP with the ease of a cell phone to offer an unparalleled solution for mobile communications. The Dual Mode phone is a multi-function handset that works with VoIP service providers and infrastructure equipment vendors worldwide making it a true solution for today's international mobile worker. There is no doubt that this technology is new and exciting; however, what is the true need

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By Ilkka Pouttu

for it, and does the underlying infrastructure exist to allow it to work seamlessly?

Mobile Workers

Businesses are also putting employees on the road in increased numbers once again. This is a rapidly increasing trend which is only expected to continue to rise. Due to the events of 9/11, there was a downturn in the amount of travel in general, and that included business travel. However, in the past two years, that trend appears to be reversing. According to FAA statistics (Figure 1), the number of airline passengers is approaching pre-9/11 levels.

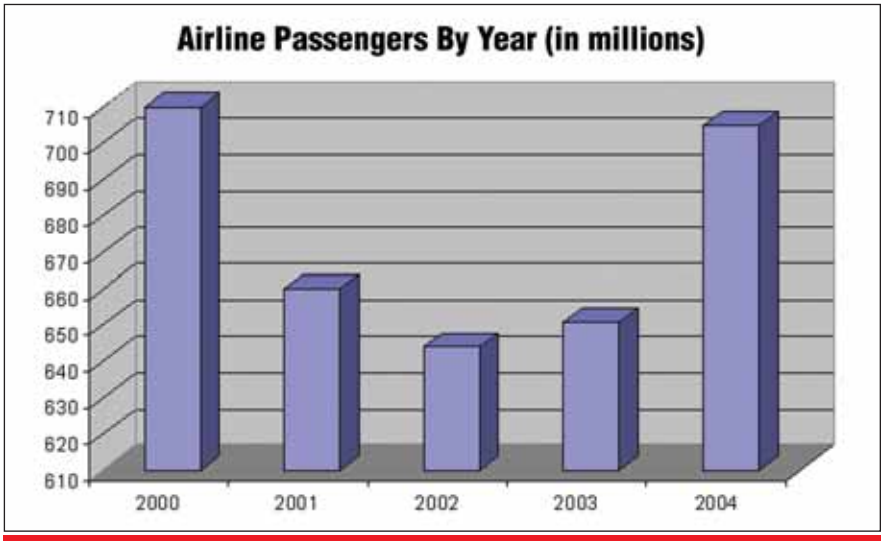

Figure 1: Source: www.faa.gov/data/statistics.

Preliminary data for 2005, which has not yet been officially released at the time of this writing, is expected to show that the number of airline passengers boarding flights this year exceeded the 2000 figures. This data succinctly demonstrates a return to "business as usual" as more and more organizations put their employees back on the road. The technology available allowing these mobile workers to stay in touch with the home office has not changed substantially since 2000. However, the amount of workers using it has grown exponentially. While specific data on the business usage of cellular technology was not readily available, overall growth in cellular subscribers in the U.S. has nearly doubled since 2000 (Figure 2).

The tremendous growth in the number of subscribers has been accompanied by another growth in the type of technology being employed by these subscribers. From 2001 through 2003, the sale of Personal Digital Assistants (PDA's) was growing at an astonishing rate. It appears as if each independent mobile worker felt the need for the PDA. In late 2003, a steady decline in PDA sales was noticed. What caused this sudden downturn? The most probable cause is the introduction, and really the perfection, of, the SmartPhone — a PDA-based cell phone combination unit. Since its introduction, sales of straight PDAs have seen a steady decline, while sales of the smartphone have skyrocketed. This logical innovation has caused the mobile worker to be significantly more productive, from more diverse locations, thereby freeing them up to travel, while remaining in touch with the home office more easily. This type of approach makes predicting the cost of communications difficult at best. One anecdotal example is of a mobile worker who spends approximately 50% of his time on the road. The company purchased a cell plan that allowed for 2,500 minutes for $89.99 per month. Due to the fact that only certain calls "qualify" for inclusion in the minutes, and additional "roaming charges" are now subject to the monthly fee, the monthly bills for this employee were running in the vicinity of $195 to $325. This kind of cost overrun, when multiplied by a large number of employees, has a negative impact on the company's bottom line.

The variability in the current billing schemes of cellular providers has many organizations and their employees wondering just what it is they should be paying as compared to what they see in their monthly bill. In an April 2006 survey performed by the Pew Research Center, it was found that 36 percent of cell phone users admitted to being shocked by their monthly cell phone bill. While this may be difficult for personal users, it can be devastating for small businesses.

So how can the savvy business control these costs while offering adequate communications to its mobile employees? The answer is by deploying Dual Mode Multi-function handsets to those workers who must travel on company business. These devices use a combination of standard GSM cellular technology coupled with VoIP via high-speed wireless LAN connections. This combination allows the user to "switch" between access methods and save money by using the fixed fee VoIP connection whenever a wireless access point is available, but offers standard GSM cellular connections when necessary.

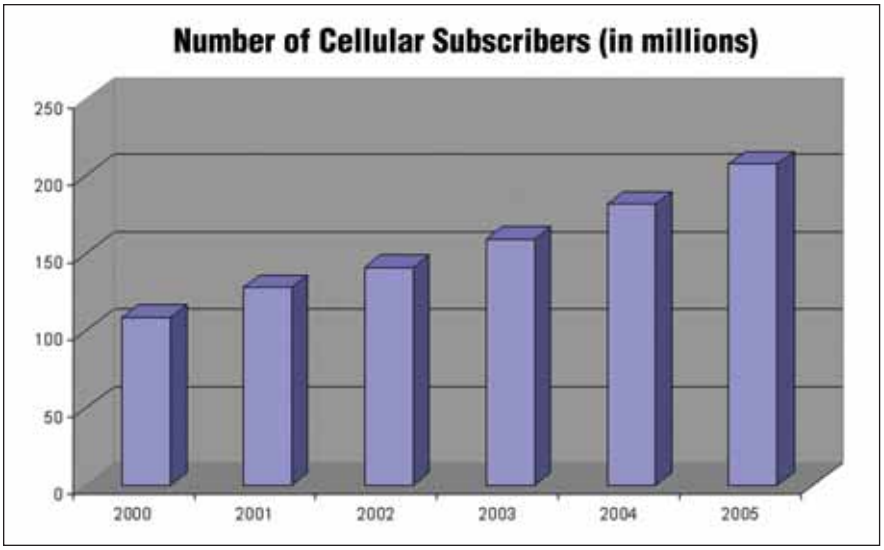

Figure 2: Source: CTIA — The Wireless Association.

Growth of WiFi

One phenomenon that makes the usage of Dual Mode handsets viable is the explosive growth of WiFi throughout the world. Current estimates (and estimates are all that can be made due to the ease of WiFi deployment) put the growth of wireless access point deployment at nearly 145 percent annually. In reality, unless a project were undertaken to drive around and identify all of the access points in every city, no one can really know how many WiFi access points are in use today. In New York City, a non-profit organization did just that. The PublicInternetProject.org actually drove the streets of Manhattan using Global Positioning Satellite (GPS) technology as a means of mapping the location of every WiFi access point on the island. The data revealed some interesting things about the current state of WiFi deployments.

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For example:

- There are 13,707 unique nodes within Manhattan
- Of that total, 4,038 (29.46%) are WEP enabled
- There are 12,533 (91.44%) nodes below 96th street
- There are 8,251 (60.20%) nodes below 59th street
- There are 3,758 (27.42%) nodes below14th street
- The surveyors collected approximately 1,000,000 data points.

The data, gathered in the summer of 2002, reveals a great deal about the growth of WiFi up to that point. Admittedly, Manhattan is a much more sophisticated environment than many smaller municipalities and, therefore, the data may not hold true for all areas. Interestingly enough, it reveals a large number of publicly available WiFi hotspots that should only grow over time. As more and more jurisdictions come to terms with providing publicly available WiFi services to their constituents and the commercial vendors such as T-Mobile and Verizon continue to expand their offerings, the ability of a Dual Mode Handset to connect to a publicly available access point will dramatically increase. As a matter of fact as of June, 2006 T-Mobile alone had 22,799 WiFi hotspots deployed worldwide, including some concourses in 135 airports and all the concourses in 88 of those airports.

In short, as the growth of publicly available WiFi continues, there will be less of a reason for a Dual Mode handset to switch to cellular mode, thereby saving the company from incurring minute charges.

Is Security a Concern?

One of the issues brought up by those who wish to limit the growth of both WiFi and VoIP technologies is that of security. They are concerned that sensitive information will be revealed during a VoIP conversation as hackers sit in a darkened room listening in on all the calls. While this may make for a good movie plot, reality is quite a bit different. First of all VoIP has access to the same security methods available to any data flowing across the Internet. As just another "payload" on the Internet the handset has the ability to be deployed using the WLAN's existing Wireless Encryption Protocol (WEP) 64 or 128 bit encryption or is WPA 802.tx compatible as well. Once the call reaches the "home" VoIP system, all of the existing security measures are in place as well. These include Virtual Private Network tunnels and network firewalls. In the final analysis, it is essential to note that all available security measures can be employed to protect the conversations of the mobile handset users.

One last word on security…while there are a number of individuals who like to dwell on what is possible, those of us responsible for the practical implementation of technology look at what is probable and base our risk assessment off of that information. Many things are possible, but the majority of them are simply not probable in today's world.

Where will this all lead?

When we look at the overall capabilities of the Dual Mode SmartPhone a larger picture begins to emerge. The handset has, as we have said, the ability to connect to either GSM or WiFi networks, but it has the features of a standard Personal Digital Assistant (PDA) as well. This provides features such as calendar and schedule management, alarm clock, voice recorder, currency converter and others, which are tremendous assets to today's mobile worker. Additionally, it has the ability to seamlessly switch between VoIP and GSM, without dropping the call, and includes all of the phone features, such as call waiting, call forwarding, three-way conferencing, and others, that we have become accustomed to on most phones today. Where will this all lead? Really it is possible that only the engineers truly know, as they design the next generation of devices.

As the growth of publicly available WiFi continues, there will be less of a reason for a Dual Mode handset to switch to cellular mode.

Conclusion

In business today, surprises should only be welcome at birthday parties, and certainly the CFO wants no surprises in the accounts payable department. In the past, the cost of providing cellular services has often been difficult to predict or control, but with a mobile workforce, corporate decision makers, mobile workers, and managers have had little choice in the matter. Having reviewed all the data, and analyzed all the technology, it is clear that VoIP generally, and Dual Mode handsets in particular, offer organizations a significant opportunity to predict and control the cost of their mobile communications for their employees. The continuing growth of WiFi will only improve the overall situation as the VoIP mode will be more available, and a day may even come where the Dual Mode handset is only required to switch to GSM in more remote locations. The advantages of the Dual Mode handset are obvious, the challenges are shrinking, and all in all the future of this technology is abundantly clear. IT

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VoIP MARKETPLACE

CEO Spotlight

David Montanaro
CEO
USA Datanet

In the CEO Spotlight section in *Internet Telephony*®, we recognize the outstanding work performed by exemplary companies. Each month we bring you the opinions of the heads of companies leading the Internet telephony industry now and helping to shape the future of the industry. This month, we spoke with David Montanaro, CEO of USA Datanet. (news - alert)

GG: What is USA Datanet's mission?

DM: USA Datanet is a leading provider of IP-enabled voice, Internet access, and enhanced communications services for consumer, carrier, and commercial customers. As a pioneer in VoIP (define - news - alert) technology, our mission is to combine the benefits of cutting edge IP technology with proven excellence in customer service, to create compelling value propositions for our customers. We will continue to maintain this model as we look forward to leveraging our expertise during the growth phase of VoIP product and service opportunities that are presenting themselves in today's communications market.

GG: What is your vision for USA Datanet, and how is the company positioned in the next-generation telecom market?

DM: From its inception, USA Datanet's long-term strategy has been based on developing an innovative SIP software-based VoIP network, which we believed would alter the playing field in telecommunications and create a significant revenue opportunity for emerging IP-enabled service providers. Clearly, this early adopter status of SIP-based technology has positioned our network to provide a variety of communications services to all market segments. It is in the carrier and commercial markets, however, that we see the greatest opportunity for growth, as companies are now realizing the unique advantages VoIP can provide. As this trend toward carrier and commercial IP-enabled services continues, it allows us to fully utilize our existing network and our SIP expertise to provide the solutions that our customers need. Industry research and our experience both point toward increasing adoption of VoIP solutions in the SMB market, and we believe the SMB market for VoIP will soon be entering a mass market growth phase. USA Datanet is uniquely positioned to take advantage of this growth phase. It's exciting to be in the right place at the right time; it is what USA Datanet has planned for, and where we find ourselves today.

GG: Now that it appears that growth and opportunity are the trends in the VoIP industry, what possible hurdles do you see that might upset this momentum?

DM: Obtaining affordable, quality last-mile access in Tier 1 cities is fairly commonplace today, but this is not always the case in Tier 2 or rural communities, and could be an inhibitor to the pace of growth of IP-enable services in these areas. Also, the experience of the end customer could vary significantly depending on the capabilities and experience of the VoIP provider. Obtaining a softswitch and providing service can be accomplished by many start-ups, but having all the elements in place to provide the customer with the required reliability, security, and customer support takes time, experience, and resources. Each poor customer experience serves as a hurdle to the industry momentum that is being created. Finally, the regulatory environment surrounding VoIP can always affect momentum, both positively and negatively.

GG: What are the latest product developments at USA Datanet and what new developments can customers hope to see over the coming months?

DM: Our current promotion to the carrier market, which offers 500,000 free terminating minutes, has been so well received that we have extended the offer beyond initial plans. Promotions like this are possible because USA Datanet was one of the first to aggregate DIDs from multiple locations and then provide them to a single location. This enables carriers to reduce their network complexity, increase flexibility, and reduce costs, which is what all of them

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are ultimately trying to achieve. We are constantly increasing our network footprint across the U.S. to allow carriers access to additional DIDs and more markets.

We are also very excited about our Hosted IP Communication Service, which was launched in May 2006. Today, this service delivers a hosted telephony solution targeting small and medium-sized business. Our product roadmap for this hosted business service will quickly add email/collaboration service and, a little further down the road, hosted security, and hosted storage solutions for these customers. Through hosting of services, our goal is to continue to expand our product development to provide a menu of solutions for all business needs. The initial response from the business market has been impressive, and is easy to understand. Hosted solutions provide access to communications solutions previously unavailable to these businesses, require little or no capital expenditure, and place state-of-the-art technology on the users' desks. We continue to believe that the era of hosted solutions is not only here today, but will transform the way businesses approach their communications purchasing decisions.

GG: What makes USA Datanet's product offerings unique and how do companies benefit from using them?

DM: Being a pioneer in this industry has allowed USA Datanet to design and develop an advanced, next generation VoIP network that we believe has the capacity, scalability, and flexibility required to meet the rigorous demands of the rapidly evolving telecommunications market. The benefits of this longevity are the development of processes critical to the end customer, such as 24/7/365 NOC, complete back office capabilities, billing integration, proven customer service organization, high quality carrier partners, and required certifications. Our customers can count on these end-to-end capabilities that have been refined over the years. When you add to this products and services that are fairly priced, simple, and meet a customer's needs, you have a formula that has proven to exceed customer expectation time and time again.

GG: Describe your view of the future of the IP Communications industry.

DM: Opportunities abound for IP Communications companies that focus on leveraging their technology without forgetting the basics that have been a proven component of business success time and time again. Technology alone will not win the day. Staying ahead of the technological curve while still finding practical ways of bringing solutions to market in ways that will benefit our customers is what we strive for. We have created communication solutions, making sure they are backed up with superior reliability, affordability, and customer support, and that is, in the end, what we will hang our hat on. The pace at which the IP Communications industry will advance will depend to a large degree on how well we all adhere to these basic fundamentals. IT

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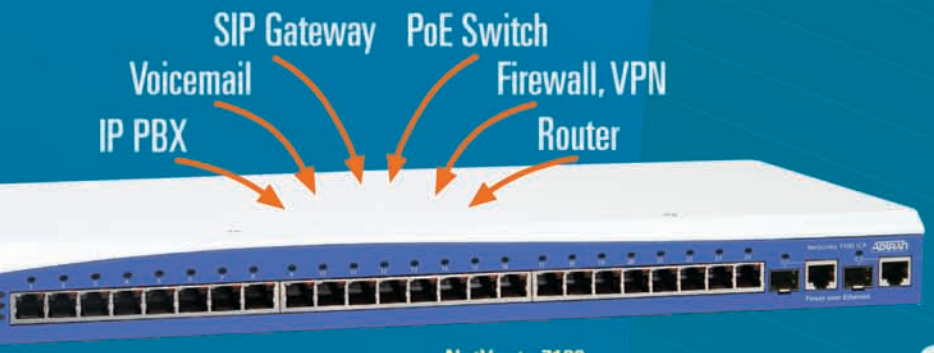

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