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Making Anything Available Anywhere

Yours Truly just got back from our ITEXPO West 2008, held in the Los Angeles Convention Center September 16-18. It was TMC's (News - Alert) best show yet, with attendees converging on the Exhibit hall, keynotes and conference sessions from literally all over the world.

With each passing ITEXPO (News - Alert), the ambitions of IP communications vendors increase. First there was unified messaging, pretty much confined to the desktop. Then came more mobile unified communications suites involving forwarded calls and call control features imported from the office. Later, dual-mode phones made their appearance, combining WiFi (News - Alert) and cellular in a way so that voice calls could be seamless handed over from the office network (WiFi) to the greater cellular network, and back again if necessary.

One would think that simply being able to reach anybody anywhere with voice or instant messaging would be sufficiently impressive, but today's developers are not resting on their laurels. Rather than just projecting the capabilities of an office PBX out to the mobile device of today's corporate road warrior, developers are attempting to project even sophisticated collaborative and back office applications to the fingertips of users roaming about the landscape. These services will become more and more capable as WiMAX and then LTE (News - Alert) create inexpensive personal wireless broadband pipes of up to 100 megabits per second. Everyone and their devices will be a node on a network, and at any one time most of the nodes will be in motion.

You could see this long evolutionary process start to happen with those first intrepid programmers who formulated the first "mashups" and are now beginning to simplify matters by pouring the old developer-reseller-customer paradigm down the drain and projecting services and applications from the network side, bringing us instead various potent brews of SOA, SaaS and Web Services, all of this much to the detriment of the old-fashioned Independent Software Developers (ISVs). Of course, some corporate cultures will never adopt the idea of allowing their data stores to be held as guests away from their corporate borders, even though the corporate "border" must now be drawn around every mobile device in the field anyway.

Service provider models themselves are evolving into more flexible forms (e.g. vertical partnering with content providers, inter- and intra-provider services), and this along with upcoming advanced services and applications will in turn help streamline and generally transform business processes, making tomorrow's business world a very different place from the one in which we work today. It'll even impact on the world of entertainment and other communications-related aspects of our lives.

Recently, for example, I talked with Martin Creaner, President of the TM Forum (News - Alert) (TMF) and Lee Himbeault, Senior Strategy Manager, TELUS Partner Solutions, and Business Committee Chair of the IPsphere program. The TM Forum is an industry association focused on transforming business processes, operations and systems for managing and monetizing on-line information, communications and entertainment services.

The TMF had just announced that they had joined forces with the IPsphere Forum (IPSF) so that TMF could broaden the scope of its work and initiatives.

"IPsphere's work on advanced service delivery impacts on a range of TM Forum work, including the TM Forum program on Service Delivery Networks," says Creaner.

IPSF's work will soon be integrated with the TMF's ongoing Service Delivery Framework. "Together, we will provide a more encompassing set of best practices, standards and guidelines to drive the development and roll-out of IP-based information, communications and entertainment services," says Himbeault.

The TMF and its partners realize that Fixed-Mobile Convergence (News - Alert) (FMC) means more than "any service, on any network, to any device". Personalized information and entertainment will require all-encompassing, truly standardized approaches for managing end-user devices (e.g. mobile handsets, TV, PC, games consoles, etc.).

Back at ITEXPO West, even today's turbulent world economy failed to stop the world's executives from visiting and transacting business at our most impressive show to date. Perhaps that's because organizations of all sizes and types realize that advanced communications is the way to save money, boost productivity and satisfy customers. It's the best way to remain competitive as we move toward an uncertain future.

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My Views on Communications and the Economy

Many people asked me recently at ITEXPO West 2008 Los Angeles, what I see happening in the communications market from an economic perspective. Let's just say that on the way to the show, I was watching TV as the stock market plunged and there was talk of another Great Depression. When I got to the show I must say I was unclear how the financial markets would affect the communications space.

After speaking with many people in our markets, the end result is that most people believe the space is very strong and in fact some companies are seeing increased sales of their solutions as a result of travel cutbacks and high fuel costs. It seems if you sell products which increase productivity when corporations are belt-tightening, you are in good shape.

In fact, the attendance at the show was very strong. I feel we would have had even more traffic if there wasn't as much fear in the financial markets. What really made it an interesting week was when I turned on CNN; I thought I was on CNBC. The coverage was 100 percent financial, all the time. In such an environment, people probably have trouble leaving the TV. Even the news anchors on CNBC who typically leave in the late morning were at their desks until after midnight.

Certainly TV stations feed on this viewership and seem to ensure they position the news in such a way to ensure it is self-perpetuating – but this is a topic for another day. The tremendous focus on negative financial news from the general media led to the stories I heard of hedge fund redemptions leading to lower industry stock prices. In addition, a general theme in our markets and beyond is companies pausing more before signing contracts. There is more indecision than at any time I remember. Companies want to reinvest in their businesses but they seem to just be waiting more than they used to.

In my opinion, in order to counter this delay in contract signing, we have to work harder and/or smarter, making more sales calls and doing more marketing. Sales after all is a numbers game when all else is equal. Now is when companies who are good marketers will take share from those who are good engineers. It happens every time the economy slows and this time will be no exception. In fact, companies who used to rely heavily on existing companies to fuel their growth by supplying solutions to a growing workforce are going to have to shift to customer acquisition. Companies are not adding as many employees as they used to which means growth has to come through competing for new customers.

If you work internally, you need to spend time selling the productivity benefits of the solutions you propose purchasing. In some cases, vendors will work with you on financing (assuming there are banks left when you read this) who can ensure a positive ROI from day one of the investment.

So my final response to the financial question in our markets is that if I had a choice of industries, I would want to work in one where our products help companies save money. Moreover, I would want to work in an industry which has little excess and has already seen its bubble burst years back. I do believe communications is a great place to be and new technologies like UC, mobility and telepresence make companies stronger and more productive and in a slower market, these are the things companies desperately need.

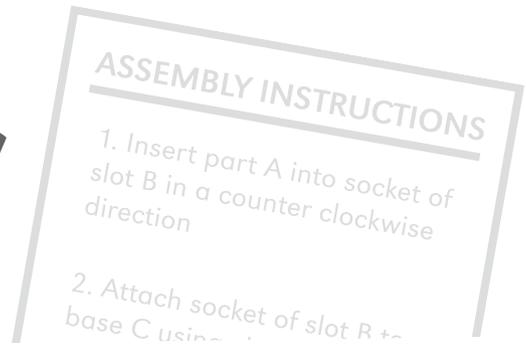
Google T-Mobile G1 Released

The much anticipated Google T-Mobile G1 Phone based on Android ([News - Alert](#))/ OHA was finally released to an eager market. I must say, it remains to be seen how Google competes with Apple in the UI game. While Apple ([News - Alert](#)) has a simple but elegant design to its solutions, Google's solutions are simple and plain.

Google could of course differentiate its phone with free services but Apple can do the same and while Google is great at search, few of the company's other applications and services can't be easily duplicated by others. It will be fascinating to watch who wins the mobile wars between these computer companies but in cases like this, my money is always on the consumer.

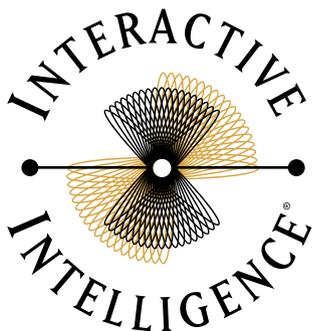
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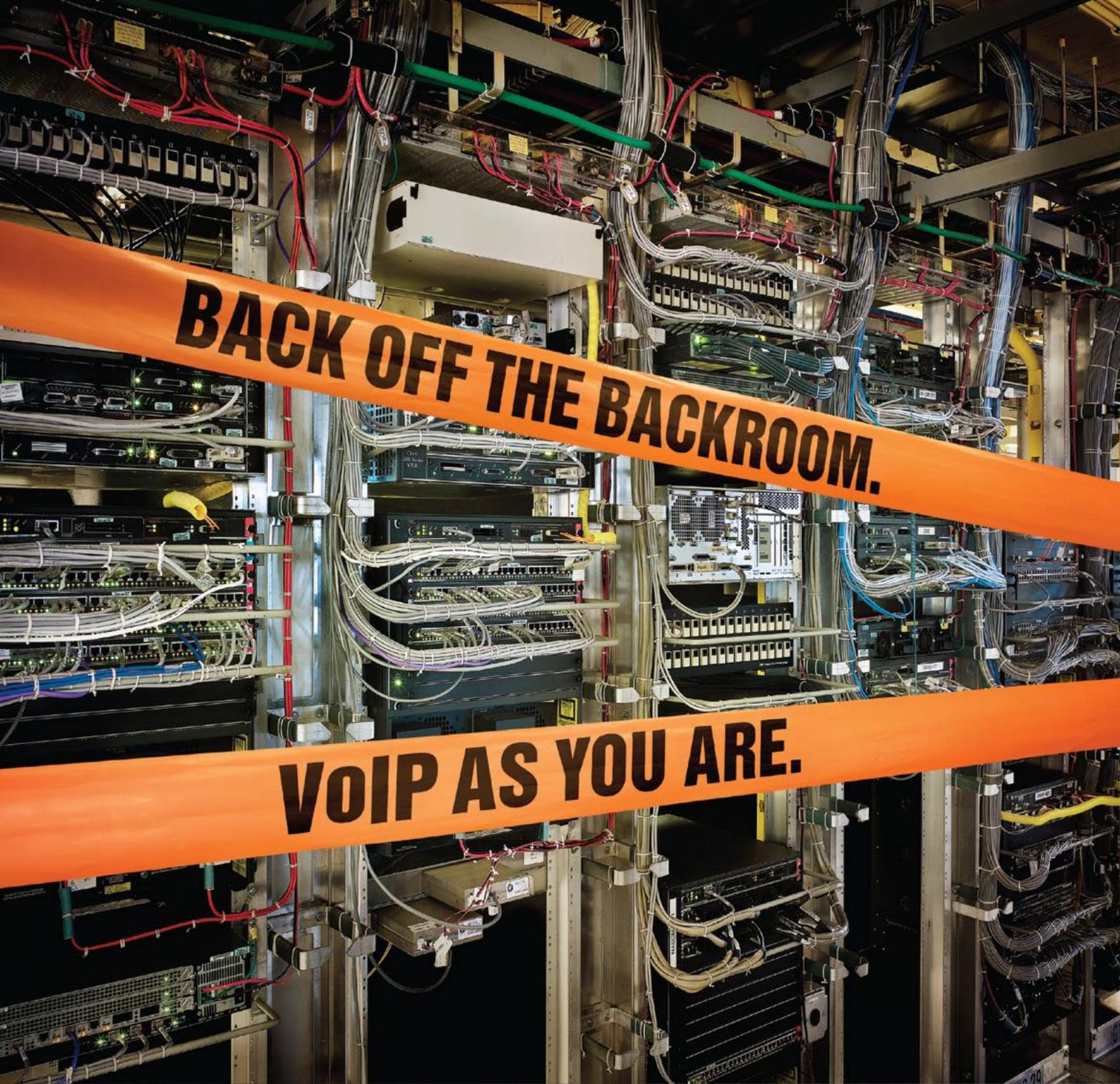


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Here's a list of several articles currently on our site.

Global Telecom Revenue Up 7.6 Percent This Year

The worldwide telecommunications market is on pace to reach \$2 trillion in 2008, a 7.6 percent increase from 2007 revenue of \$1.8 trillion, according to Gartner. That growth will come despite contraction or sluggish growth in the fixed voice segment of the market.

"Revenue from telecom services has traditionally dominated the market, accounting for four out of every five dollars earned in the sector," said Will Hahn, Gartner principal research analyst. "We forecast that this historic proportion will now shrink."

Gartner predicts that by 2012, the ratio of mobile to fixed connections will exceed four-to-one.

www.tmcnet.com/2438.1

200 Million Ultra-Mobile Devices to Ship in 2013

From a start of just 10 million units in 2008, shipments of ultra-mobile devices are expected to exceed 200 million in 2013, according to new research. The umbrella term Ultra-Mobile Device (UMD) refers to ultra-mobile personal computers, netbooks and Mobile Internet Devices (MID).

A new study from ABI, "Mobile Internet Devices and UMPCs," analyzes the drivers and barriers for UMDs across the ecosystem. It examines the issues that will shape this market, such as the contest between x86-based processors and ARM-based processors, distribution and subsidization, device definitions and the effect of cellular voice-enabled MIDS. It includes a detailed market forecast through 2013.

www.tmcnet.com/2439.1

European VoIP – the Revolution is Underway

New Research from TeleGeography indicates that consumer VoIP subscribership in Europe is skyrocketing and should continue to do so. At the end of last year, 25.3 million consumer VoIP lines were in service in Western Europe, up from 15 million in 2006, and nearly four times the 6.5 million VoIP subscribers in 2005.

Aggressively priced bundles of voice, broadband and video service seem to be the key driver of growth, according to the research. While prices vary widely across Europe, many operators charge as little as US\$43 for all three services, including unlimited calling. This strategy has been successful and TeleGeography projects that Western European VoIP subscribers will top 37 million and account for 29 percent of Western European fixed lines by the year's end.

www.tmcnet.com/2440.1

Taking a Closer Look at iLinc 10

In a world of fabulously expensive telepresence and high-end teleconferencing systems, iLinc has mastered the other end of the market, providing remarkably cost effective Web and audio conferencing solutions for "the rest of us" that are secure, reliable, and surprisingly easy to use. Professionals in many types of industries employ iLinc for Web meetings, virtual classroom technology, Webinars, remote technical support, and more. iLinc facilitates online collaboration while avoiding the expense, environmental damage, and productivity losses associated with travel. The latest incarnation of iLinc software, iLinc 10, was released on May 31, 2008.

www.tmcnet.com/2441.1

TMC's Whitepapers of the Month

Visit TMCnet's Whitepaper Library (www.tmcnet.com/tmc/whitepapers), which provides a selection of in-depth information on relevant topics affecting the IP Communications industry. The library offers white papers, case studies, and other documents that are free to registered users.

So You Want To Build An Online Community

Building feedback-oriented, online customer communities provides organizations a better, more effective method of collecting feedback by engaging customers and listening to their natural dialogue. This white paper will walk you through the steps of defining objectives, recruiting and engaging members, responding to member feedback, and other guidelines for building and maintaining a healthy customer community.

www.tmcnet.com/2249.1

ENUM – Call Routing in an All IP World

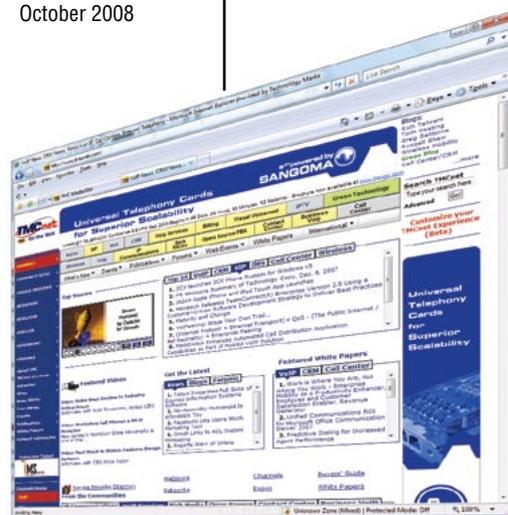
This paper provides an overview of industry trends and issues involving ENUM. Additionally, this document proposes the concept of a subscriber routing database (SRDB), to house all subscriber routing information - thus allowing operators to create a more efficient network.

www.tmcnet.com/2250.1

Selecting a Gateway for your Microsoft Office Communications Server 2007 Deployment

Microsoft Office Communications Server 2007 allows companies to integrate VoIP technology into existing telephony infrastructure, eliminating the need for expensive network overhauls and also extending the useful life of existing investments. The purpose of this white paper is to propose the criteria on which to select a SIP-based gateway appliance to connect Microsoft Office Communications Server 2007 with legacy TDM-based equipment. Topics addressed include: deployment scenarios; lowering the total cost of ownership; ease of use; protocol support; and the benefits of a hybrid gateway.

www.tmcnet.com/2072.1



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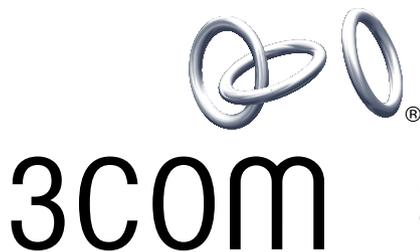
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By: Brough Turner



Circuits-over-Packets: IMS is Further Delayed

The 3GPP's IP Multimedia Subsystem ([News - Alert](#)) (IMS) is the ultimate next-generation network with which others (CableLab's PacketCable, ETSI's TISPAN and 3GPP2's MMD) have decided to align. But it's complex and expensive, and thus delayed.

An IMS network can guarantee bandwidth, latency and other Quality of Service (QoS) parameters on a per-session basis. This not only guarantees service quality but allows operators to charge different prices for different services. However, all communication between endpoints must be established by centralized network servers, so an IMS network has the complexity of the traditional telephone network and then some. As a result, it's taken years to develop the standards, they are still evolving, and mobile operators are still searching for the killer application that justifies the expense.

Meanwhile, fixed-line VoIP networks continue to spread as they save money today without the complexity of IMS. There are a few dozen IMS networks in existence, but they are partial implementations and most are trials. In each case, IMS is being deployed to support a new service with new revenues, e.g., Push-to-talk over Cellular (PoC), Fixed-Mobile Convergence (FMC) or video sharing, not traditional mobile voice services.

Circuits-over-Packets for Mobile Cost Savings

Mobile operators save money when all services share a single packet-based core network, so existing operators are migrating to IP. More to the point, new networks in rapidly growing markets like China, India and Africa are

beginning to use packet-based backbones to interconnect conventional mobile switches and even radio base stations. But these networks are not using SIP or IMS for voice services — they are using circuits-over-IP.

Circuits-over-IP preserves conventional SS7-based mobile signaling but sends it using SIGTRAN protocols over an IP-MPLS backbone while a softswitch controls voice circuits over the same IP-MPLS backbone. Traditional signaling protocols remain, so roaming and handoffs work as always and subscriber management is untouched. Most important, there is no need to install IMS/SIP software on consumer handsets, so billions of existing handsets continue to work.

Service platforms look a little different. SS7 messages go over SCTP/IP rather than MTP & TDM and voice goes over RTP/UDP ([News - Alert](#))/IP rather than TDM, but nothing fundamental changes. It's the PSTN-over-IP or more properly, a PLMN (Public Land Mobile Network) over IP.

Long-Term Prospects for IMS

Because IMS is complex and equipment volumes are still small, IMS lacks the cost savings for mobile voice telephony that the circuits-over-packets approach provides. Operators continue to see IMS as their long-term solution, but they only invest to save money or to support new applications with new revenues. Thus we have a classic chicken-and-egg problem that will only be solved in increments over many years.

Brough Turner is ([News - Alert](#)) Senior VP of Technology, CTO and Co-Founder of NMS Communications (www.nmscommunications.com).



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By: Mike Sheridan



Collaboration: Increasing Productivity or Increasing Disruptions?

In my previous column, I examined an everyday issue facing enterprise workers: How to find the right person who can answer your questions. In that example, I had an expense account question, and I wasn't sure if I needed someone in HR or accounting. How could I identify the company's resident "expert" on the matter?

Well, I found my expert, although not through any use of technology. I just asked someone I knew personally in HR. But, that got me thinking. What if you're one of these experts in the company, pinged incessantly by co-workers to answer questions, dealing with constant interruptions? How do you ever carve out any time for your "day job"?

And, these interruptions do come at a cost — about \$588 billion a year, according to a recent study by Basex, a knowledge management research firm.¹ Analysts claim that interruptions from phone calls, emails and instant messages eat up 28 percent of a knowledge worker's workday, resulting in 28 billion hours of lost productivity a year, the study found. The \$588 billion figure assumes a salary of \$21 per hour for knowledge workers.

Companies need to strike the right balance between answering questions quickly — satisfying the information seeker — while being respectful of the knowledge worker's time — the information giver. The issue is larger than simply managing knowledge workers. It's about managing the flow of knowledge itself.

UC technology— instant messaging, presence, email, etc.— is making it easier to *reach out to* people in real-time. You've heard the promises of unified communications, including always-on connectivity and even location-based awareness. Is this newfound ability get in touch with anyone, anywhere, anytime, doing much for our collective productivity? Is there a way to take advantage of the profound benefits that UC offers, but still control how and when people are "interrupting" to get their questions answered in a timely fashion?

Companies need to strike the right balance between answering questions quickly — satisfying the information seeker — while being respectful of the knowledge worker's time — the information giver. The issue is larger than simply managing knowledge workers. It's about managing the flow of knowledge itself.

This is exactly what the contact center has grappled with over the years and learned to address. So, what can the enterprise learn from those who field questions from knowledge seekers (aka consumers) every day?

Since questions in a contact center are often asked in a certain predictable pattern — e.g., billing questions come at the beginning of the month — it is often possible to predict when customer service experts will need to be available to answer inquiries. Predictive models can be built upon this pattern. Contact centers leverage workforce management software to model the behaviors of customers' inquires and schedule people accordingly. While I don't advocate turning the enterprise into a contact center, these complex interactions can give us fresh insights into how we can more efficiently manage knowledge throughout the enterprise.

One of the contact center's best practices is to have *groups* of experts available during particular periods of the day. This pooling of resources enables better service, improves "first call resolution" and also eases the burden from any one individual to be constantly available to answer all questions.

The same concepts might apply in the enterprise. For example, a solution could track and analyze calls, emails or IMs to individuals in a defined group (such as accounts payable), and determine that they tend to receive a barrage of inquiries on Friday at 2 p.m. regarding expense reports. Because people want to get in their reports before the weekend, they tend to call the accounts payable group regarding questions that require additional help from an expert. So the idea is, if an organization can use technology to predict when these calls are coming in, this makes it easier to schedule experts — potentially using the whole of accounts payable as a group — to ensure they have someone available to take those calls during those key hours. And, because the accounts payable person knows this is going to happen and that they're likely to be interrupted, they can organize the rest of the day better so they can complete their other tasks. Furthermore, calendars could be automatically updated to block out the time.

We know that people with expertise to share are more efficient, less stressed, and more productive when they can work on certain tasks consistently without interruption. Likewise, people who have questions will have more trust in the system if they find that their needs are answered in a timely manner.

When I contacted that HR employee on my expense account question, I would hate to think that I interrupted her from an important task, because I know I don't like to be interrupted when I'm deep into a project. But it's hard to envision a perfect world where no one will ever be interrupted and all questions are always answered promptly, so it's nice to know there are tools that organizations can employ that can help us re-think the way we manage knowledge assets in the age of unified communications and still be respectful of people's time.

Footnote:

¹ *eWeek*, January 2, 2008, "Study: Collaboration Overload Costs U.S. \$588B a Year".

Mike Sheridan is Senior Vice President, Strategy and Marketing for Aspect (News - Alert) Software (www.aspect.com).

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By: Michael Stanford



Adding Cell Phones to Your PBX

Businesses looking to bring mobile phones under the umbrella of their corporate voice systems have an array of options. They can keep their PBX on-premises or they can go with an IP-Centrex solution. Similarly, they can get their PBX-to-cellular integration capability

through an equipment vendor or through a service provider. This column looks at some examples of getting the cell phone integration from a service provider while keeping the PBX on-premises.

There are two basic flavors: first, extending the capabilities of the PBX over the cellular network; second, doing this plus using a dual-mode cell phone's WiFi connection to make VoIP calls.

Verizon's (News - Alert) PBX Mobile Extension service is an implementation of RIM's Ascendant Mobile Voice System. This is one of a class of solutions that makes the cell phone behave like an extension to the corporate PBX, while still using only the cellular connection (never WiFi) to carry the call. Its primary benefit is that you have all the PBX features even when you are away from the office. RIM's solution has the further benefit that this PBX functionality is built into the BlackBerry user interface seamlessly, while competitive solutions of this type usually need add-on software in the phone. It lacks all the benefits associated with running calls over WiFi, like improved coverage inside the office, which benefits the customer, and network offload,

which benefits the carrier. Using the cellular connection for in-office calls is normally more expensive than WiFi, but this example is a service provider offering; Verizon may choose to meter on-premises calls differently than off-premises to mitigate this disadvantage. As for the improved coverage and network offload benefits of WiFi, soon femtocells may offer a carrier-oriented alternative. So it can be argued that WiFi would not be much extra help.

RIM is not the only company offering mobile network providers equipment that integrates cell phones with corporate PBXs; there are several, for example OnRelay and Tango Networks (News - Alert), which (like RIM) have products that work with many different PBXs. Unlike RIM's MVS, these products also work with cell phones from multiple vendors. But it is very tough to do an elegant user interface to PBX features that works on multiple handset platforms.

A few equipment vendors go the extra step of combining the benefit of PBX feature extension to cellular with WiFi calls, and add the further benefit of seamless handover of calls in progress between the cellular and WiFi networks. These vendors tend to focus directly on enterprise customers, but some, like DiVitas and Varaha, are also beginning to get traction with specialist service providers.

Michael Stanford (News - Alert) has been an entrepreneur and strategist in Voice-over-IP for over a decade.

Ask the Mobile VoIP Expert

By: Mark Hewitt



Connectivity and Choice

During the past decade, we have watched with interest the adoption of mobile phone technology throughout the world. As examples, we have seen remote villages use prepaid

phones to exchange money where no banking system exists, and an American Presidential candidate has reached out to millions of supporters with a text message.

As creatures of "Connectivity", we build networks around ourselves, friends, family, co-workers, and community. The mobile phone has become a critical link in this chain, as it fits naturally into our lifestyles. Since information interlinks human networks, the mobile phone has become an anchor in our daily lives by allowing us to store contact information, schedules, news items, and events that are central to our everyday activities.

The global success of the BlackBerry device relies not on its flashy screen, text keypad, or any single application like email (we all remember the BlackBerry email crash in April 2007). Instead, BlackBerry's success revolves around RIM's ability to bridge the "walled garden networks" of the carriers. My BlackBerry on Verizon's network allows me to interact with my co-workers and my enterprise application server, regardless of which network each is connected to.

This is the promise of "Mobile VoIP" — the future dismantling of barriers between platforms and networks. Any mobile device with software or connectivity to a core platform outside of a

"Walled Garden" warrants classification as a Mobile VoIP device. I still include the "V" (as in "Voice") in this definition, because a communications device that does not support voice transmission is simply not a communications device. The future of Mobile VoIP lies in the plethora of applications that can "bridge" platforms and networks. These range from enterprise applications that manage medical, mobile, service, repair, and inventory systems, to shopping and social networking possibilities.

In the evolution of mobility, we also need to recognize the anchor for this range of new products and services. Apple has proven the power of the Applications Store. However, the Google Android mobile OS has more recently announced yet another application anchor — the Android Market — with one very critical difference: Google provides developers and consumers with the ability to make their own decisions. The Google Store will not be run like Apple's iTunes store, as developers can build to their hearts' content without constant threat of being disconnected.

I predict that Google will achieve the same market dominance in the Mobility market that it has accomplished in the Search Engine world. Apple may soon find itself in the back seat, much like Yahoo did when Google's "Open" approach provided savvy consumers with the one thing they all want — "Choice".

Mark Hewitt is Chief Strategic Officer of i2Telecom (News - Alert) International, Inc. (www.i2telecom.com).

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The technology **driving** your success



By: Tony Rybczynski



Getting the Mobility Tiger by the Tail

Enterprises around the world give service providers about \$500M every year in exchange for bandwidth and connectivity services — well over 35 percent of this goes for cell services!

Enterprises need to get more out of their growing mobility investments and get more control over their mobility environments from cost, security and functionality perspectives. So how should you do this?

IT-101 tells you that understanding your overall cell bill, and managing your service providers, is a good place to start. Technology can help on two fronts: reducing local and LD minutes, and reducing out-of-plan roaming charges. Extending PBX features to your cell phone allows you to carry your calls over your internal network, thus avoiding toll charges. Any way to leverage the Internet (at home, at hotels, and hotspots) is also a path for lowering your cell charges. This includes using your laptop or leveraging dual mode devices (Flag: some carriers may block this capability).

There are also significant opportunities for improved productivity when on the road. What if your cell could have two numbers: one for your business use (in fact, the same as your office number) and one for your personal use? Whenever you made a business call, the called party would see your business number or name. Whenever you are on your cell, presence would show you 'on the phone'. If you had a smart

phone with a unified communication (UC) client, the experience would be even richer. And you could save up to 30 percent on your cell charges by using fewer cell minutes, bypassing roaming charges and leveraging WiFi, if you had a dual-mode phone with cell and WiFi capabilities.

Here are some of the tricks of the trade:

Firstly, the PBX can maintain control of the mobile device, hence the ability to assign a business number to a cell phone. Secondly, when a mobile user receives an incoming call notification, the user can choose to accept the call on his/her mobile device, or re-direct the call to any number shown on the pop-up menu. Thirdly, when initiating a call from the mobile phone, the user can choose to have the communications server call them first at any specified number. Finally, when in WiFi coverage, the user can select to use VoIP bypassing the cell network altogether.

These types of UC mobility solutions deliver more efficient and affordable mobile communications that are simpler to use and manage. The end user is king.

Tony Rybczynski (News - Alert) is Director of Strategic Enterprise Technologies at Nortel (www.nortel.com).

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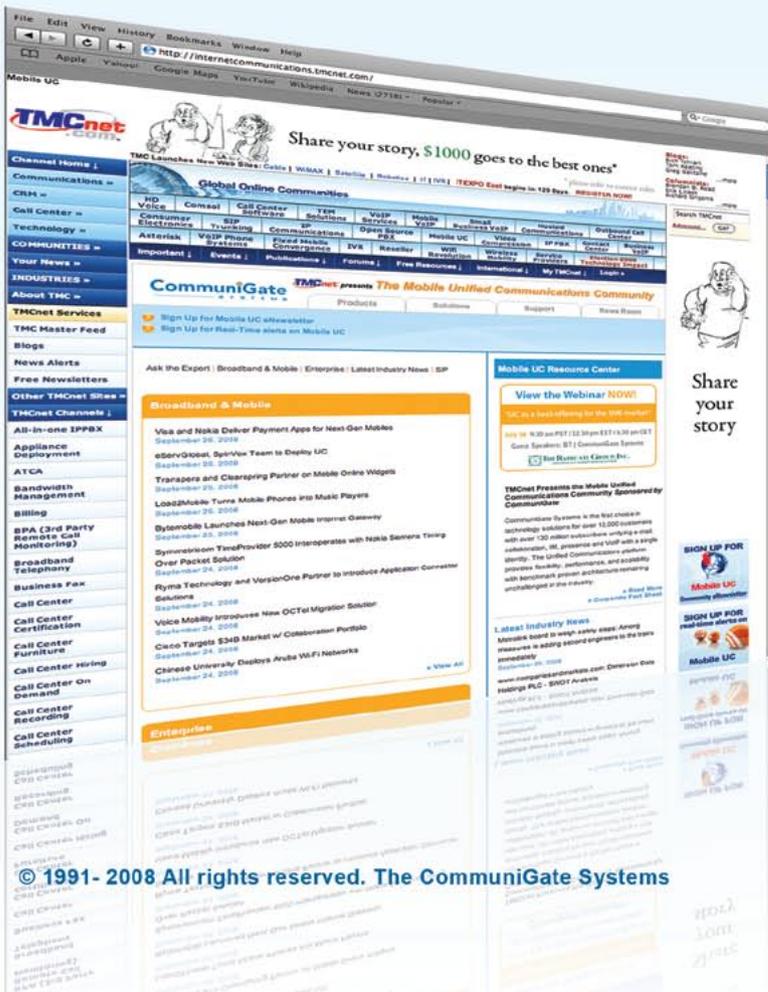
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By: Jeff Hudgins



Video Enhanced Telephony — Part I

In the mass-market today, the onslaught of rich video content and social networking has greatly increased the impact of online video on the network. The expectation by the consumer is a high quality video that can add to the end user experience in a very seamless manner. This represents a huge opportunity and a plethora of issues all at the same time.

To better understand the issues, I found some emerging experts in the video enhanced telephony space at Dialogic Corporation. Joe Mele, Vice President at Dialogic ([News - Alert](#)) Media Labs, states that several “breakthrough” video algorithms and technologies are being created by the Media Labs team. More information can be found at http://www.dialogic.com/press/press_releases/openmedialabs.htm.

One of the major challenges the team is exploring is how to deliver high quality video in a low network bandwidth environment. The latest standard, H.264, addressed the needs for proper video compression techniques. However, compression techniques get much more interesting when they enhance telephony applications with video. According to Brian Peebles, CTO at Dialogic, “Video processing operations require that the content be uncompressed and then recompressed and doing so consumes a considerable amount of processing power. Additional processing such as combining conference streams, synchronizing audio, image overlay, etc, requires even more processing

power. The processing power needed for transcoding or for combining an image is a function of the total number of bits processed, which will depend on the overall image quality required.” Brian went on to say that the relevant factors in designing a video processing gateway or server include the following:

- Scaling over a factor of 100 in channel density.
- Scaling over a factor of 200 in processing density per channel.
- Field upgradeability to accommodate new algorithms.
- Cost effectiveness.

“In short, scalability, versatility, density, and usability are four notable design principles for video processing architectures,” says Peebles.

Final Score

IMS is an end-to-end architectural framework. Video-enhanced telephony will be the future content driver for broadband networks for network operators and service providers deploying these IMS solutions. Resolving the complex networking bandwidth and compression challenges will be critical for providers to successfully deploy video enhanced telephony.

Jeff Hudgins is VP of Product Management at NEI, Inc. For more information, visit the company online at www.NEI.com.



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By: Hunter Newby



IP Building Blocks

Peering as it relates to VoIP comes in many different shapes and sizes and for some this can be confusing. Traditional IP Peering has a point of reference and those that understand it may however not fully understand the scope of VoIP Peering, as it has a direct relationship to a specific application, whereas straight-up IP peering does not. Simply put, IP Peering lacks the “Vo”.

Basically any application that uses IP can be described as being “over” it and then defined specifically with interoperability standards and be made to seamlessly interconnect whether over the public Internet, or a private IP network. This somewhat dilutes the purist form of peering which is rather simple and simple is usually better and easier to understand. What is also understandable is the challenge of finding a functional similarity in the use of the term peering for all groups in the IP world. The truth is that IP is layer 3, but the Vo is Layers 5-7. Just as with any other religion, though, there are sects, but they share the same common root at some point.

In the VoIP sect there are many developments occurring. VoIP Peering is manifesting itself in application to network bridge-building at several levels. A recent example of this comes from a Dallas-based company, Jaduka ([News - Alert](#)) (www.jaduka.com). Jaduka and their Transaction Services link Point of Sale (POS) with mobile networks and devices and also ecommerce via the web, all to voice (VoIP and PSTN) networks.

The uses for these capabilities are financial transaction in nature. Working towards a more integrated experience with data integrity and security are very valid efforts and they truly create the “glue that binds”. What is particularly interesting about this group and their work is in their roots. Jaduka’s parent company, NetworkIP, is a carrier-grade telecom service provider.

For them the concept of developing web APIs as an interface to the voice network was a logical way to drive more traffic. Through the process of creating a web-window to the mobile and fixed voice world with ties to the commerce terminals of brick and mortar they have built an IP version of a free-trade zone allowing multiple parties to virtually meet in the middle and transact. It is virtual real estate for a giant digital Wal-Mart.

As with all things in life, there are building blocks. From those early stages, the future is built. Not many can explain how it all works, but most can benefit from what has been created without even knowing what really went in to it.

Hunter Newby (News - Alert) is the Chief Strategy Officer and a Director of a Special Purpose Acquisition Corporation focused on the communications industry. Reach him at hunter@hunternewby.com or visit www.hunternewby.com.

Enterprise View

By: Max Schroeder



A Reseller Educational Series: Converged IP Expands into New Markets

The telecommunications industry has certainly embraced convergence in a big way and many resellers feel that there are unlimited new opportunities. One marketing segment is just now coming on strong — imaging. Yes, that copier and Multi-Function-Peripheral (MFP) you pass every day in your office can now be part of your converged IP solution.

A good example is the Sharp OSA Platform from Sharp Corporation, which enables Sharp plus its channel and program members to quickly offer solutions that tightly integrate Sharp MFPs with software applications. Sharp OSA technology uses industry-standard protocols such as XML and SOAP. The platform offers the ability for customization to better address customer needs and promotes a better fit for communications, workflows and business processes.

Nebraska Title Company has been providing timely and comprehensive title and closing services since 1947 but is an example of a “mature dog” learning new tricks. Their reseller, Eakes Office Plus, began in 1945 when the founder, Howard Eakes, returned from WWII. Eakes is another illustration that companies succeed because they embrace new technologies more quickly than their less-than-successful counterparts. Today there are 10 Eakes locations, 120,000 square feet of store space, and 183 employees.

Ne Title wanted to replace their legacy fax machines and copiers but as Doug Gallaway, Eakes’ Product Manager, says, “The current vendor was recommending just replacing their existing equipment. We did our requisite full audit of their processes. Based on the audit we recommended that they take advantage of Sharp’s OSA-enabled product line to maximize the automation for all aspects of their operations.” Ne Title replaced all of their analog fax units and all of their copiers with Sharp OSA-enabled MFPs. They can now send and receive faxes from their desktops, scan in documents at the MFPs for faxing, track all their incoming as well as outbound faxes, and inbound route faxes electronically so they never have to hit paper, all from seven networked locations. Doug also mentioned that Ne Title is very happy with the end result.

Convergence is definitely changing our methods of doing business. Products like the Sharp OSA now facilitate paper-less workflow, fax communications and integration with VoIP and FoIP products. The same MFPs could also communicate utilizing the Dialogic Brooktrout SR140 product line with Dialogic media gateways and VoIP. In other words, full VoIP, data, FoIP and workflow convergence spread over multiple locations and states. Maybe it’s time to do an audit of your current product offerings and add some imaging to the mix.

Max Schroeder is the Senior Vice President of FaxCore (News - Alert), Inc. (www.faxcore.com) and was also the moderator of Reseller Live at ITEXPO West 2008.



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By: Rich Tehrani & Max Schroeder

A Call to Action



A Snapshot in Time — August 25-31, 2008. The Atlantic hurricane season officially extends from

June until November with September being the most active month. During our Snapshot Week a new hurricane, Gustav, hit Haiti and Jamaica and was in the Gulf of Mexico targeting the U.S. Gulf Coast. Another tropical storm, Hanna, became the 8th named storm of the season and was close on the tail of Gustav.

Snapshot Week was selected based on its historical significance as August 29th is the 2-year anniversary of Katrina. The National Hurricane Center describes Katrina as “one of the most devastating natural disasters” in U.S. history. Katrina was also the catalyst that triggered this column’s authors to envisage the formation of a Disaster Planning Communications Forum (DPCF) which was launched at the Los Angeles INTERNET TELEPHONY Conference & Expo Fall 2005.

During Snapshot Week, tourists were evacuating Jamaica, government officials were heading to New Orleans, Gulf oil rig operators were planning to extract personnel and numerous other organizations were scrambling to prepare. Two full years after Katrina, the storm that killed more than 1600 people, “scrambling at the last minute” defined the state of preparedness for many. A prime example is that the New Orleans repairs are not even close to being finished (see the links below for additional statistics). Newscasters covering the historic Democratic National Convention in Denver

were now shifting their focus to weather coverage. As Yogi Berra said, “This is like déjà vu all over again.”

There are many reasons why your company should actively participate in the DPCF but the most important reason is to help your company focus on business continuity and disaster avoidance. Let the week you read this column be designated as your **Snapshot Week** and picture yourself on the Gulf Coast monitoring the latest news on Gustav and Hannah (or in St. Louis watching the Mississippi rise). Then ask yourself “Are we ready?” Next steps:

1. Visit the DPCF site and begin your research.
2. Begin your participation in the DPCF by completing a member application. Note the benefits particularly if you are a reseller or vendor that would like to participate in ITEXPO East 2009 (<http://www.tmcnet.com/voip/conference/east-09/>)
3. Act *now* to avoid having your company become a statistic.

For additional information please visit: www.tmcnet.com/2371.1 or contact Max Schroeder at maxschroeder@tmcnet.com.

Katrina statistics: www.tmcnet.com/2372.1 and www.tmcnet.com/2373.1.

Max Schroeder is the Senior Vice President of FaxCore, Inc. (www.faxcore.com) and Managing Director of the DPCF.

Rich Tehrani is the President and Group Editor-in-Chief at TMC and is Conference Chairman of Internet Telephony (*News - Alert*) Conference & EXPO.

Nitty Gritty

By: Richard “Zippy” Grigonis



Elma’s New 2nd Generation 5U ATCA Chassis

Elma Electronic (www.elma.com), that huge maker of electronic packaging products, has introduced the 2nd generation of its horizontal-format, 5U high and 19-inch wide rackmount AdvancedTCA (ATCA) Chassis. It now sports full redundancy and high availability features.

It has side-to-side cooling via plug-in fan trays holding dual 170 CFM fans subject to PWM (Pulse (News - Alert) Width Modulation) control. The fans’ redundant push/pull configurations enhance reliability, and they can reach to the back of the chassis to cool the rear I/O slots. The 5U chassis offers dual 1200 watt AC power supplies and dual shelf managers, which are all front pluggable above the card cage. DC power versions are also available.

The unit’s 2nd generation shelf manager supports bussed or quasi-radial IPMB (Intelligent Platform Management Bus) routing. The 5-slot horizontal format ATCA backplane provides specially-placed connectors for flexible pluggability. Full mesh, replicated mesh, and dual star topologies can be implemented on the same backplane. The backplane employs the common AMC (Advanced Mezzanine Card) connector for plugging into Elma’s 2nd-gen Shelf Manager. A 6-slot backplane is also optional in certain configurations.

The card guides are equipped with Elma’s unique board mating receptacle that assures secure grounding, accurate alignment and accepts wide tolerances of alignment pin spacing. There are also convenient, dual on/off switches on each side of the rear of the enclosure, as well as NEBS-grade washable air filters that are attached via Velcro to the filter trays. For serviceability, the filter tray and fan tray are separately removable.

Richard Grigonis is Executive Editor of TMC’s IP Communications Group.



Elma 5U ATCA

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By: Steven Johnson



Securing SIP Trunks

SIP Trunks are a simple, cost-effective way for enterprises to adopt VoIP. They are also a stepping stone to eventual adoption of Unified Communications. After all, once the network is set up to use SIP-based VoIP *via* a SIP trunk, the infrastructure is already in place to start using IM, realtime video and the wide array of SIP-based applications available now and in the future.

So what's stopping many enterprises from embracing SIP trunks? By far, what we hear from customers as the top concern is interoperability — how can I be sure that my PBX will interact properly with the SIP trunking service provider? This is followed closely by security — how can communications routed over the public Internet or a managed connection really be secure?

The fact is, with the right measures in place and with the proper planning, SIP trunk deployments can work flawlessly and be more secure than the PSTN. Here's how:

Address interoperability at the start — Making sure the IP-PBX and ITSP are interoperable will not only smooth the way for an easy deployment, but also solve many security headaches. Opportunities for hackers, spoofers, *etc.* are easy to come by when there are inconsistencies between these two key components. Leading IP-PBXs and ITSPs are aggressively conducting interoperability testing; make sure your choice of equipment and service providers have demonstrated successful interoperability with one another.

Several leading PBX vendors recommend that a SIP-based edge device be installed for multiple reasons, one of which is to smooth out interoperability issues. The edge device can perform “normalization” functions both for your current environment as well as any future changes you may make, essentially future-proofing your SIP trunk deployments to ensure interoperability down the road.

Further simplifying vendor interoperability, the SIP Forum has developed the SIPconnect Technical Recommendation, a standards-based guideline for SIP trunking between IP PBXs and VoIP service provider networks. As more service providers, PBX vendors and edge device manufacturers adopt this standard, issues with SIP Trunk implementations will be significantly reduced.

Employ security measures — Like any other server in the enterprise network, the IP-PBX should be protected from unauthorized access. Many firewalls today do not adequately protect against attacks on SIP infrastructure so the edge device chosen should enforce rules and policies designed to protect this vital asset. For further protection, SIP based communications can be encrypted to keep the sessions private with no chance of eavesdropping.

Authentication with the service provider — Some IP-PBX equipment can support this natively, while others cannot. A full SIP proxy firewall or other edge device may offer this capability as well, allowing enterprises with non-authenticating IP-PBXs to leverage the benefits of SIP trunking securely.

Steven Johnson is President of Ingate® Systems (www.ingate.com)

Regulation Watch

By: William B. Wilhelm, Jr.



Another Brick in the Wall: The Impact of the FCC's Comcast Net Neutrality Decision

On August 20th, 2008 the FCC released its order partially granting a complaint against Comcast ([News - Alert](#)) for “secretly degrading peer-to-peer applications”. The FCC found that Comcast had engaged in “unreasonable network management practices”, by interrupting some peer-to-peer connections over its Internet access facilities. The Order applies only to Comcast and Comcast's network management practices but the FCC indicated it has the authority to look at other behavior on a case-by-case basis.

The Commission found that Comcast blocked and degraded the Internet service of customers using peer-to-peer programs, that its actions did not constitute reasonable network management. The Commission observed that Comcast could have elected several alternative non-discriminatory network management practices, or Comcast can work with the application vendors themselves.

In reaching this conclusion, the Commission determined that it had authority to enforce the *Internet Policy Statement* primarily under Sections 1 and 230 of the Communications Act. However, the Commission also relied on five other sections of the Act. The Commission

made clear that it has the authority to address this and other similar complaints through an adjudicative process rather than a generally applicable rulemaking proceeding. The Commission highlighted that the order does not address whether prioritizing packets associated with either affiliated or third-party content, or other network management practices, would similarly violate the Commission's *Internet Policy Statement*.

The Order requires Comcast, among other things, to submit a compliance plan to the Commission with interim benchmarks that describes how it intends to transition from discriminatory to nondiscriminatory network management practices by the end of the year.

Whatever Comcast decides, expect network neutrality issues to remain actively discussed within Congress and the telecommunications industry.

William B. Wilhelm is a partner in the law firm of Bingham McCutchen LLP. For more information please visit them online at www.bingham.com. The preceding represents the views of the author and does not necessarily represent the views of Bingham McCutchen LLP or its clients.



Introducing the Global IVR Community

Evolving standards and speech technologies are driving the business case for companies to deploy new speech applications to create additional revenue streams, increase customer satisfaction, and trim costs. Voxeo's IVR Global Online Community on TMCnet is the industry destination for tools, information, and resources for building and deploying enhanced IVR and VoIP applications.

- Hosted and on-premise IVR
- VoIP Platforms
- Free developer tools
- VoiceXML, CCXML and SIP Standards

<http://ivr.tmcnet.com>

The screenshot displays the TMCnet website interface. At the top, there's a navigation bar with links like 'Home', 'About TMCnet', and 'Contact Us'. The main content area features a large headline 'Zip. Nada. Nothing.' with a sub-headline 'That's what it costs to start building great IVR applications using Voxeo.' Below this, there's a section titled 'Global Online Communities' with a table listing various categories like 'Economic Solutions', 'Call Center', 'Technology', and 'Green Technology'. The 'IVR RESOURCE CENTER' is prominently displayed, offering links to 'Sign up for IVR Community newsletter', 'Sign up for real-time alerts on IVR', 'Why VoiceXML?', 'VoiceXML Development Guide', 'What is CCXML?', 'Hosted or Premise? Why not both?', and 'IVR MEGASITE - Free tutorials, tools, forums, sample code and more!'. A sidebar on the right contains a search box, a 'Go!' button, and an advertisement for Voxeo with the text 'It's not rocket science. Offer a great IVR and VoIP platform. Make it exceptionally easy to try, buy and use. Provide amazing support. Try Voxeo now at www.voxeo.com/tree'. The bottom of the page features the TMCnet logo and the Voxeo logo.

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By: Don Witt



Morphing VoIP Providers OR VoIP Providers Needs are Changing over Time

Providers need an inexpensive solution for hosting multi-tenant, secure, scalable VoIP services. Such a solution is now available in the marketplace.

Traditional Provider

When VoIP technology first moved into the mainstream, solutions were rare and expensive. Solutions introduced included Session Border Controllers (SBCs), softswitches, and Gateways.

Softswitches started replacing the hardware switches from manufacturers like Nortel. Companies like Broadvox ([News - Alert](#)) and Metaswitch provide the softswitch technology at a high cost. For a provider to get started, it was common to spend \$250,000 to millions, not including the personnel expense that was needed to support the equipment.

VoIP has a variety of problems on the Internet. For example SIP was developed without regard to NAT and doesn't work well when a VoIP phone is behind NAT. Manufacturers developed devices like Session Border Controllers to support VoIP. These include Acme Packet ([News - Alert](#)), Kagoor Networks, Jasomi, Netrake, and Nextone. These devices helped backbone providers, and VoIP service providers to ensure the quality of each call. They are expensive and complex.

Others decided to design another open source technology from the ground up to be used as a softswitch by VoIP providers. Those visionaries started the FreeSWITCH movement. The product was designed for more than a year before coding started. FreeSWITCH has been gaining momentum and has a substantial following.

New Age Provider

With the introduction of Asterisk ([News - Alert](#)), resellers started delivering dedicated iPBXs to small and medium enterprises. Many entrepreneurs were targeting the same market based on the same technology, a copy of Asterisk running on a server.

Systems for Providers

There is a different market for service providers. Service providers want to provide services for multiple customers, not just give a single

customer a single dedicated PBX. It's hard to do this with Asterisk. Asterisk doesn't scale well, it's not an easy multi-tenant solution. Trying to support more than one company's iPBX with Asterisk requires adding a SIP proxy like SER or Open SER and a lot of custom scripting and coding. It turns out that Asterisk, while good for the individual company, does not work well as a multi-tenant solution, even when combined with a SIP proxy like SER.

The next attempt to improve the ROI was virtualization. Asterisk doesn't work well with either ZEN or VMWare. They both are limited to running a few copies of asterisk on a single Server. They have serious problems with the real time clock and timing for Asterisk. Conferencing and voicemail don't work correctly.

Asterisk as a provider solution has scaling issues. Each instance of Asterisk will only support about 900 SIP phones. This is a major limiting problem for the VoIP provider. Transcoding is a serious issue. For example a server may support 400 to 450 simultaneous calls without transcoding. Transcoding G.711 to G.729 will limit the server to about 125 calls. If it is G.711 to ILBC, the server can support about 15 calls.

Solutions of the Future

Asterisk has been the *de facto* standard for the VoIP open source community. This may be the result of its having been designed as an iPBX. The limitations identified above caused many early users to reconsider the use of Asterisk. Some, such as Panterra Networks, would develop proprietary solutions that have been in production for years.

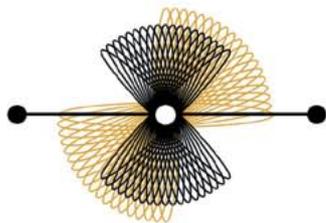
Others decided to design another open source technology from the ground up to be used as a softswitch by VoIP providers. Those visionaries started the **FreeSWITCH** movement. The product was designed for more than a year before coding started. FreeSWITCH has been gaining momentum and has a substantial following. Most want a softswitch that is superior to any Asterisk-based softswitch. FreeSWITCH is about to release 1.0.2.

Ring Carrier provides a multi-tenant scaleable that uses Asterisk as a component. Ring Carrier runs from 50 to 75 copies of Asterisk on a single server. This fixes the multi-tenant issue because it's cheap and easy to give each tenant their own Asterisk PBX. It's easy to scale. Ring Carrier provides a gateway for the colo that scales from 4-T1s to 64-T1s or 1-DS3 to 3-DS3s or 1 OC3. The gateway performs the transcoding. A single gateway transcodes up to 2,048 channels simultaneously from any CODEC to any other CODEC. Up to 16 of these units can be linked together. Ring Carrier is just now bringing to market a new gateway for the customer premises that provides for QoS and security and fixes NAT and other problems.

Don Witt is President of Cylogistics (www.cylogistics.com).

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By: Elaine Cascio



Measuring The Customer Experience

If you're like me, you run across white papers and articles every day that talk about how you can improve the customer experience. And while many have good concepts and ideas, none of them really talk about how you *know when*

you've created an excellent customer experience.

Most of the time when I ask people how they measure customer experience, they talk about customer satisfaction surveys. Okay, that's part of it, but they're missing a lot of other information that provides a complete picture of what your customers experience when they deal with your company.

Put yourself in your customers' shoes

One key task is to try to accomplish common tasks — what is the customer experience at some key moments of truth? For example, if you work for an airline, make a reservation, check in for your flight, and actually take the flight. Try a number of different channels. Where is the experience positive and where is it lacking? Think like a passenger — is the check-in experience easy and intuitive, are agents and others friendly and helpful, is the flight comfortable? Map each experience and list all the satisfiers and the dissatisfiers.

Building these customer experience maps helps you understand pain points as well as where you're doing well. Take the satisfiers and dissatisfiers and score the experience. You can score the total experience, experience by channel, or by customer segment. Weight each element based on your customer interaction strategy. Consider criteria like branding, channel consistency, ease of use, or efficiency.

Other Measures

What else should you measure? Two kinds of measures make up the customer experience: *emotional and practical*.

Emotional Measures

There are lots of ways to gain insight into what your customers are feeling, including:

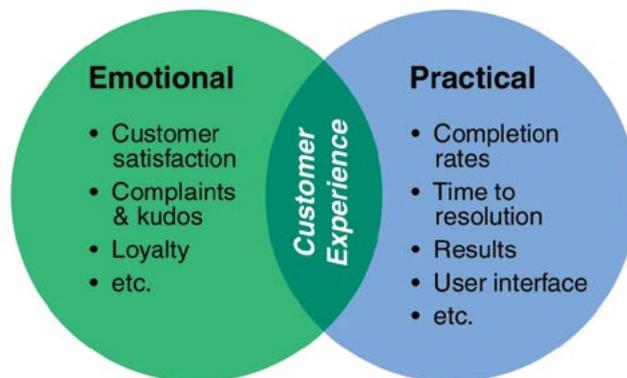
- Customer satisfaction — gather it through good old-fashioned surveys or focus groups. Also get feedback from employees who work directly with customers every day — tap into your contact center agents, sales associates, branch employees. Find out what customers are saying to them.
- Complaints and kudos — customers are happy to tell thousands of strangers about a problem, but often won't tell the company itself. These types of toxic complaints should be monitored and responded to right away. Get a daily feed from a search engine, regularly check sites like complaints.com, criticzone.com, and planetfeedback.com.
- Loyalty — Netpromoter scores are part of this equation, but check on how your customers really perform. What kind of customer turnover rate do you have? Which segments turn over the most? Which cost the most to support? How many and what types of customers actually bring in new business?
- Brand appeal — if you're lucky enough to work for Apple or Harley Davidson, brand appeal is easy to see and measure. Others of us

can search Facebook ([News - Alert](#)), My Space or other networking sites to see if customers have banded together to support the brand.

Practical Measures

Focus on indicators of customer success across all channels in order to understand:

- What are customers trying to do?
- How successful are they?
- How easy is it?
- Do they need help?
- Do they use other channels before or after?



Most people gather these metrics on the contact center side, but few track them across channels. Some key measures include:

- First contact resolution — not just in the contact center, but on a cross channel basis. How many channels did your customer have to touch to solve a single problem?
- Channel completion rates — measure completions in the IVR, on the web, at kiosks, or other self service channels.
- Usability — how well do your user interfaces mirror customer needs and customer centered processes? Aside from usability testing new or revised applications, track areas of success and failure. Monitor search success. Observe user interactions on self-service channels to see where they struggle, and get feedback from agents.
- Quality Scores — if your quality monitoring program is truly customer-centric, scores can be a good indicator of the customer experience.

Yes, it sounds like a lot of work, but customer experience has enterprise-wide implications for how customers perceive your company and where you can improve that perception. I suggest that you develop a report card with some of your strategic measures, create a baseline, and identify all changes and benefits. Track and assign real value to improvements. That way you can understand how a better customer experience helps make more money, save money or avoid costs.

Elaine Cascio is a Vice President at Vanguard Communications Corporation, a consulting firm that specializes in contact center processes, operations and technology. She heads Vanguard's self service practice. Visit www.vanguard.net or contact Elaine at ecascio@vanguard.net.

Join The Packet 8 VoIP Services Community!

Whether you are a start up or an established company, a one-person business or an organization of 100 employees, a VoIP-hosted phone solution with a lower TCO, reduced complexity and more advanced communication features is the obvious and smart choice.

But, one size does NOT fit all! As such, TMCnet has joined together with one of the industry's leading IP communications service providers, 8x8, Inc., originator of Packet8 Internet Phone Service, to educate the business and residential communities on the advantages and efficiencies of VoIP-hosted phone service.



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voipservices.tmcnet.com

By: Gary Kim



www.tmcnet.com/2385.1

Customer-Owned Fiber?

Some policy proponents now are touting the advantages of “customer-owned” optical fiber plant, an idea that has surfaced in the wireless arena as well, mostly in the form of Fon-style collective networks. The notion of customer-owned fiber derives in part from the demonstrable fact that enterprises and large organizations often “own” their own access, in the form of leased optical circuits, dark fiber, wavelengths or wireless point to point connections.

In the multi-tenant building space, there have been sporadic efforts for more than a decade to create “condominium” style communications infrastructure and services within a single building, where the developer or building manager installs high-capacity access and services and then makes them available to tenants as a part of the lease.

The Ottawa trial suggests that a fiber connection can cost less than \$3000 per household, in the range of what service providers generally expect. The issue is how many home owners will decide it makes sense to own their access connection.

These days, application providers and policy advocates unhappy with either access speeds or possible service provider control of bandwidth features now are resurrecting the idea of end-user-owned fiber, and extending the concept beyond the enterprise and into the single family home arena.

In June 2008, for example, construction was completed on a pilot project that ran fiber optic cables to 400 homes in Ottawa. The developer plans to sell the fiber strands outright to individual homeowners.

These customer-owned connections are linked to a network peer-ing point, basically in the same manner as an enterprise might directly connect to its service provider points of presence.

The Ottawa trial suggests that a fiber connection can cost less than \$3000 per household, in the range of what service providers generally

expect. The issue is how many home owners will decide it makes sense to own their access connection. In principle, each homeowner could sign up with any willing ISP for Internet access service, and with any over-the-top voice provider.

Bill St. Arnaud, a Canadian researcher at CANARIE, a government-funded research organization, estimates that, if 10 percent of homes participate, the total cost will be about \$2700 per house. Higher take-up means lower prices. Connections could cost as little as \$1000 if half the homes buy in. Homeowners can pay a lump sum or make monthly installments over three to five years. Once the final payment is made, the fiber strand would be the property of the homeowner.

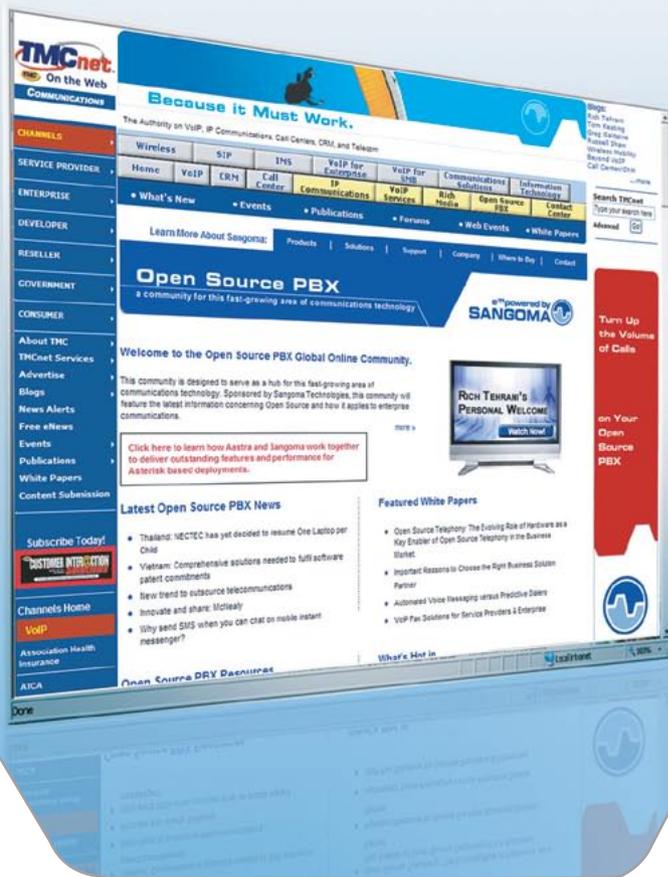
Communications industry executives rightly will be skeptical about the widespread feasibility of such a plan. Cost is only the first obstacle. Owning the fiber means speed isn't an issue. But the consumer, after having paid for the access pipe, then has to pay an ISP for service, as well. So the idea that any consumer actually will save money is doubtful. If a typical homeowner moves every seven years or so, that's all the time there is to amortize the investment in the fiber link.

Assume such a user can save \$30 a month on a broadband access connection, or \$360 a year. If the amortization of the fiber connection is amortized over five years, that represents \$600 a year in payments. So it might actually cost a user more to own the fiber connection than to buy it retail from a cable or telephone provider. The difference is what it is worth to a user to have independence from the cable and telephone companies for local loop access, even if it costs more money.

Undoubtedly there will be relatively small-scale tests of this concept here and there. The idea surely will get attention from some policy proponents. Whether the economics ever work out or not is debatable. All new fiber access projects are highly dependent on penetration assumptions where it comes to payback. The issue is whether such “own your own fiber” facilities, if available, will be attractive enough to get reasonable penetration, allowing the cost of the network to be amortized over a broader base of customers.

It is unclear whether the \$3,000 cost estimate also includes on-going maintenance of the access network and overhead. If not, that would further degrade the payback scenario from end user or provider points of view.

It is one thing to assert that end users will be comfortable owning their own customer premises equipment, and quite another to argue they will see value in owning access connections.



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By: Brendan B. Read



www.tmcnet.com/2386.1

New Sugar 5.1 Sweetens Mobile CRM

With more workers relying on wireless on high-function devices to stay in touch with and about their clients in real-time, it is becoming exceptionally critical to have customer relationship management (CRM) applications finely-tuned to this environment.

SugarCRM ([News - Alert](#)) has done just that by putting on the table its latest software, Sugar 5.1, and is it ever sweet for mobile users, as well as others.

Sugar 5.1 has a new wireless HTML client that supports BlackBerry ([News - Alert](#)) and iPhone smartphones. Search has been improved to include saved searched as well as deeper search capabilities that allows users to access their most commonly used report and customer data from mobile devices.

The new Sugar solution delivers an improved mobile user interface which makes it more consistent look-and-feel wise to the desktop version, with more modules supported. Mobile workers will therefore not have to think twice when transitioning from their desktops or laptops to their wireless units when they go on the road, thereby making them more efficient.

Sugar 5.1 also makes it easier than ever to move data from applications such as Excel, Act!, Microsoft Outlook, and Salesforce.com ([News - Alert](#)) into SugarCRM thanks to enhanced data import applications. The open source CRM solution also has advanced reporting and analytics that support complex reporting, matrix reports, run-time filters, and integration with Microsoft Excel.

Mobile workers as well as their desk-bound counterparts will experience a smoother flow in using the system thanks to tracker reports in Sugar 5.1. They provide snapshots into system usage that allows managers to see who is actually using the CRM, and which modules may need tweaking to drive complete adoption. For example if there are modules and screens that are being hit on heavily, IT staff can respond by devising more streamlined workflows to catch and prevent performance bottlenecks.

SugarCRM's software is more flexible than ever. Its module builder tools have been enhanced so that they can support new and more complex relationships between them to permit more robust composite application scenarios.

"Software is transitioning from lock-in based proprietary systems to an open, standards-based world," said John Roberts, CEO of SugarCRM. "As the mass adoption of SugarCRM proves, users want freedom and choice in their software, not artificial constraints and dictates from software providers."

By: Bob Emmerson



www.tmcnet.com/2387.1

Location-Based Services 'On the Move'

During 2007, North America generated 81 percent of the world's Location-Based Services (LBS) revenue. In 2013, that percentage will be just 32 percent. In the same period, Western and Eastern Europe's combined LBS revenues will jump from just 5 percent to 31 percent. The Asia-Pacific region, meanwhile, will see a rise from a 2007 share of 11 percent to 27 percent.

"Location-based services are not a zero-sum game," says ABI Research ([News - Alert](#)) analyst Dominique Bonte. "It's not that Americans will lose enthusiasm for LBS. These changing shares of global LBS revenue just reflect the fact that a market, which for technical reasons has been largely restricted to North America, will finally grow strongly in other world regions."

LBS's slow uptake outside North America has had everything to do with the fact that CDMA phones have utilized GPS to comply with the United States' E911 regulatory mandate.

The GSM handsets owned by most users in Europe and Asia have not generally offered native GPS support. However with the broader proliferation of GPS-enabled GSM handsets in those other regions, and with the quickening rollout of 3G services worldwide, the opportunities for LBS service offerings are set to grow.

That's not to say that the same applications will be adopted at the same rate everywhere, or that LBS revenues will be uniform.

"Since most LBS application developers sell to the world, and most of their products are platform-agnostic, the cost per service for users is likely to be similar in all regions," says Bonte. "However, a navigation service can cost as much as \$9.99/month, whereas friend-finder services might only be \$2.99. On that basis, as well as via cultural preferences, particular services will be popular to differing degrees in different regions. That can affect the total revenue to be generated from a particular region.

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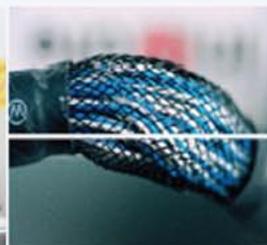
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Chime Intros iCall Center Module

Chime Software has released its iCall Center module for the Chime iPBX software. This module is designed to enable small businesses to benefit from the same call center functionality that enterprises and call centers offer at a much higher cost. The Chime Software iPBX features two powerful components — the iAdmin and iAssist — which provide a customer friendly user interface. iAssist is a desktop integration program which works seamlessly with phones to access powerful features by just a click or touch. iAdmin is a Web interface for configuring devices, hunt groups, conference rooms and other setup options.

www.chimesoft.com

www.tmcnet.com/2366.1

Nortel Offers Web 2.0 Capabilities

Nortel (News - Alert) has announced the release of new software to expand its unified communications portfolio and enable Web 2.0 customer care centers to offer service options beyond menu-driven interactive voice response (IVR). The new Nortel Interactive Communications Portal (ICP) is designed to help businesses install instant messenger (IM), e-mail and click-to-call features quickly to self-service and speech applications.

Nortel ICP is a software-only solution built on Nortel's Media Applications Server, a platform that provides extensive support for conferencing, messaging, and interactive voice/video response features. The solution leverages Nortel's SOA strategy, as well as the company's service creation environment in an effort to help take VoiceXML to the next level. A software-only self service solution running native SIP, ICP is designed to simplify the process of getting up and running and it will appear to the network like just another SIP device.

www.nortel.com

www.tmcnet.com/2389.1

SMBs Reduce Unified Communications Spending

While Unified Communications (UC) can provide significant improvements in both operation and cost for companies of all sizes, recent research has shown that small and medium-sized businesses (SMBs) are backing off of their drive to

implement such technologies — at least for the time being. According to recent InfoTech research on the SMB market demand for UC, roughly 70 percent of U.S. SMBs are implementing, trialing or planning to implement UC applications. These plans however, are not always meshing with IT budgets. Cutbacks in IT spending have had an impact on about 25 percent of reporting companies, resulting in significant changes to their implementation plans of IP Telephony and UC applications for 2008.

www.infotech.com

www.tmcnet.com/2390.1

Twisted Pair Releases Wave 4.0

Twisted Pair Solutions announced the release of Wave 4.0, upgrading the company's flagship unified communications software platform. Wave 4.0 offers integration with Microsoft Office Communication Server (OCS) 2007 and Nortel IP telephony solutions. The platform also helps to incorporate Push to Talk (PTT) radios and other communication devices into the unified communications environment of the organization. Wave 4.0 also offers solution developers a comprehensive Software Development Kit (SDK), with support for both Linux and Windows Operating Systems. Custom client applications can be built in Java or .NET as required, using the Application Programming Interfaces (API) provided in the SDK. The SDK can also be used in conjunction with the Windows Workflow Foundation to build automated communications-enabled business processes.

www.twistpair.com

www.tmcnet.com/2369.1

Objectworld UC Server Now Supports Multiple PBXs

Objectworld Communications Corporation has announced the industry's widest support for multiple PBX and unified messaging systems integrated with its Objectworld Unified Communication (UC) Server software.

Adding support for multiple PBXs, Google Gmail and Novell (News - Alert) GroupWise to its unified messaging capabilities allows Objectworld to enable businesses to integrate a wide variety of PBX systems, messages stores, PBX systems,

SIP phones and gateways and third-party hardware, software and services into a single unified communications solution.

www.objectworld.com

www.tmcnet.com/2391.1

Covergence Unveils Collaboration Gateway to Bolster UC Platforms

Covergence, Inc., has announced its Collaboration Gateway (News - Alert) to enhance communication between enterprise organizations and enable them to protect and extend investments in unified communications platforms. The solution supports interoperability between Microsoft OCS/LCS and IBM (News - Alert) Sametime version 6.5, 7.0, 7.5, and 8.0 and also features new pricing, with subscriptions as low as \$1 per user per month. The company said it offers controlled, secure connectivity between disparate UC platforms, allowing users from different organizations — even different companies — to work together as if they were served by the same UC platform, enjoying shared presence information, instant messaging and other features.

www.covergence.com

www.tmcnet.com/2392.1

3CX Debuts Free Business VoIP Phone

3CX (News - Alert) announced the release of a completely free, new VoIP phone that lets users make and receive calls from their computer using VoIP providers or SIP servers.

The 3CX VoIP Phone offers important

business features. With a user-friendly and intuitive interface with dial pad and buttons, the 3CX VoIP Phone transfers and forwards calls. It also allows users to check their call history, place calls on hold, and to easily accept, reject or ignore calls with a mouse click, and much more. One of the unique features of the 3CX VoIP Phone is that it integrates with Microsoft Outlook. Users can make calls directly from their contacts' list within Outlook by just right-clicking on the name of the person they wish to call.

www.3cx.com



www.tmcnet.com/2393.1

BroadSoft Acquires GENBAND's M6 Line

BroadSoft ([News - Alert](#)) has announced the acquisition of GENBAND's M6 Communication Applications Server product line and related customer base. The acquisition is expected to allow BroadSoft to extend its position in the VoIP applications market, enabling GENBAND to focus its efforts on advancing its gateway product innovation. BroadSoft recognized GENBAND's divestiture of its M6 application product as a powerful opportunity to enhance its market position in the VoIP applications industry. As the demand for VoIP solutions grows, opportunities are immense. The expansion of BroadSoft's offering will create a significant growth advantage. With the acquisition, BroadSoft's total customer base will grow to 435.

www.broadsoft.com
www.genband.com

www.tmcnet.com/2395.1

Report: VoIP Service Revenue Up in 2007

According to a recent Infonetics Research report, "VoIP Services and Subscribers," worldwide revenue from hosted VoIP and managed IP PBX services jumped 52 percent to \$24 billion in 2007 after surging 66 percent in 2006. The communications market research firm expects this revenue to grow in the strong double-digits through at least 2011. The report indicates that hosted VoIP services continue to outpace managed IP PBX services by far, and residential services are driving the market growth. Matthias Machowinski, directing analyst for enterprise voice and data at Infonetics, noted that although VoIP services are being embraced by consumers worldwide, businesses have been comparatively slower in their adoption due to various roadblocks.

www.infonetics.com

www.tmcnet.com/2396.1

Dutch Broadband Market Growth Slows to a Crawl

The Dutch broadband market grew by only 1.1 percent during 2Q, almost 50 percent less than during the first quarter, when the market grew by 2 percent. The stats come from a recent *Telecompaper* update on

the Dutch consumer broadband market. During the quarter, Dutch ISPs attracted 63,300 new broadband customers to reach a total 5.61 million on 30 June 2008. This represents the lowest quarterly net additions since 2003. Year-on-year, the market grew by 6.6 percent with 345,000 net additions. Broadband (Cable, ADSL) penetration per household increased to 77.9 percent at the end of the second quarter, growing by 4.4 percent percentage points compared with the end of Q2 2007. When FTTH connections and residential mobile broadband users are included, the broadband penetration per household reached 79.9 percent at end of Q2 2008.

<http://cable.tmcnet.com>

www.tmcnet.com/2397.1

Zhone Intros Bitstorm IP DSLAMs

Zhone Technologies ([News - Alert](#)), Inc., a provider of multi-service access solutions, has introduced two new IP DSLAMs for VDSL2 and ADSL2+ for single or bonded-pair copper. Delivering 45-plus mega-



bits per second (Mbps) for short loops and 25 Mbps up to 10,000 feet, Bitstorm RP provides 48 ports of ADSL2+ and operates in single-pair or bonded-pair modes. The Bitstorm HP is a 24 Port, VDSL2 IP-DSLAM provides up to 100 Mbps symmetrical services on each port with full ADSL2+ support. Officials from Zhone say Bitstorm RP supports bridged mode or advanced layer operations for premium Quality of Service smart home or business applications. It also includes new features such as hot-swap servicing and single click configuration with automatic line recognition.

www.zhone.com

www.tmcnet.com/2398.1

UTStarcom, Aksh to Power BSNL IPTV Service

UTStarcom has entered into a contract with Aksh Optifibre to deploy UTStarcom's end-to-end RollingStream Internet Protocol TV (IPTV) solution in 20 cities

on Bharat Sanchar Nigam's ADSL 2+ network. The service is planned to cover 250,000 BSNL ([News - Alert](#)) broadband subscribers in 20 cities throughout India; with Aksh's iControl service, the IPTV solution will give both large cities and small towns the opportunity to experience interactive entertainment such as time-shifting, video-on-demand (VOD), interactive gaming, live television voting and distance learning programs. BSNL, a Government of India owned corporation, has a network of over 60 million subscribers covering 5000 towns with over 35 million fixed line telephone connections. UTStarcom's RollingStream end-to-end IPTV system currently supports more than 956,000 live IPTV subscribers globally.

www.utstar.com

www.tmcnet.com/2399.1

Cisco Enables Sify to Pioneer IP NGN Adoption in India

Sify has chosen the Cisco CRS-1 Carrier Routing System as the foundation of its Internet Protocol Next Generation Network (IP NGN), in order to enhance its existing core network to meet its increasing customer demand for sophisticated network services and to address the rapidly evolving India market. A core component of the Cisco IP NGN architecture, the Cisco CRS-1 Carrier Routing System offers capabilities, reliability and scalability required for service providers to provide any-play services. Naresh Wadhwa, president and country manager, Cisco India and SAARC, said that the CRS-1, is designed to let carriers seamlessly migrate all of their existing communications infrastructures for voice, video, and data onto a single, packet infrastructure.

www.cisco.com

www.sifycorp.com



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www.tmcnet.com/2400.1

Forecast: 103 Million FMC Access Points by 2013

Analysts at the London office of ABI Research are reporting that consumers will require more than 100 million fixed-mobile convergence access points by 2013. Generally speaking, fixed-mobile convergence, or "FMC," refers to providing both fixed and mobile telephony convergence in a single device that can switch between networks. WiFi, WiMax and femtocells are technologies that have emerged as solution competitors in the coveted FMC market. ABI predicts that consumers must see 103 million access points in five years. According to ABI Vice President and Research Director Stuart Carlaw, cell-based femtocells will take over the baton from UMA- and SIP-based WiFi solutions by 2013, gaining 62 percent of the market.

www.abiresearch.com

www.tmcnet.com/2401.1

Rock the Vote and Trilibis Mobile Aim to Motivate Young Voters

Rock the Vote (RTV) and Trilibis Mobile, a publisher of interactive network applications for mobile phones, are set to launch Rock the Vote Mobile — a mobile site developed to make voter registration more accessible and fun. Rock the Vote Mobile also aims to motivate young voters to vote during the 2008 U.S. general elections. Fully integrated with RocktheVote.com, RTV Mobile provides a cohesive user experience. Visitors are also invited to examine today's hottest issues affecting young Americans, read the RTV blog, check up on important election dates and see pictures from Rock the Vote events around the country. Mobile phone subscribers can also receive SMS message alerts with Election Day reminders, political quizzes, polls, celebrity messages, RTV concert dates and mobilization alerts.

<http://wap.rockthevote.com>



www.tmcnet.com/2402.1

Mobile Messaging Skyrockets Toward 100 Billion

VeriSign (News - Alert) has announced another record-breaking quarter for mobile messaging, based on the latest quarterly index of mobile messaging statistics compiled by VeriSign's Messaging and Mobile Media division. VeriSign, a provider of Internet infrastructure

services for the networked world, says that through June 30, its combined mobile messaging networks delivered 95.4 billion Inter-carrier Short Message Service (ICSMS) messages in the calendar year, eclipsing the previous record for text messaging in the first half of any year. VeriSign's network also set a single-day record by enabling 648 million texts over a 24-hour period and a one-hour record of 42 million messages.

www.verisign.com

www.tmcnet.com/2403.1

Clartalk and Nortel Intro Advanced CDMA Wireless in Texas

Clartalk recently announced the deployment of Nortel's CDMA (Code Division Multiple Access) network for the extension of its services to customers in Amarillo and Lubbock. With Nortel's network, Clartalk aims to deliver its customer a good-quality mobile communication at flat-rate voice plans, along with additional services like text messaging, long-distance calling and Web surfing. Flat Wireless, LLC does business in Texas under the name Clartalk. Nortel's solution will help Clartalk in delivering its services both to rural as well as populated parts of Texas, thereby reaping the benefits of its recently acquired AWS spectrum. By using Nortel's ATCA-based Packet Mobile Switching Center, Clartalk will provide users with enhanced voice quality in its suite of voice and data services.

www.nortel.com

www.clartalk.net

www.tmcnet.com/2404.1

Nokia Unveils N79 Model

Nokia (News - Alert) has unveiled the Nokia N79, the latest addition to the company's Nseries range. This latest model offers a full range of multimedia experiences, including integrated navigation, music with FM transmitter, high-speed connectivity, Web browsing, pre-loaded N-Gage games and an advanced five-megapixel camera with Carl Zeiss optics. The handset comes with Xpress-on smart covers that are available in five colors: Light Sea Blue, Espresso Brown, Olive Green, White and Coral Red. According to Nokia officials, "the convergence of photos, music



and navigation in the Nokia N79 combines with high-speed 3.5 HSDPA and Wi-Fi to make it easy to share experiences on Web sites, blogs or online communities."

www.tmcnet.com/2405.1

Mobile Payments to Grow Nearly Ten Fold by 2013

According to the latest findings from Juniper Research (News - Alert), by 2013, purchases via mobile devices of digital and physical goods, contactless NFC (Near Field Communications) transactions, and money transfers will together generate transactions worth over \$600bn. The latest research, "Mobile Payments Markets: Strategies & Forecasts 2008-2013," notes that the figure represents the gross value of all the items being purchased or the value of money being transferred. Report author Howard Wilcox said that they are forecasting that all segments of the market will see growth over the next five years, which is driven by both the rapid availability of exciting, easy to use services, and the continued growth in mobile subscriber penetration, particularly in developing countries.

www.juniperresearch.com

www.tmcnet.com/2406.1

AT&T, Sierra Wireless Intro USBConnect Mercury

AT&T Inc., and Sierra Wireless have announced the availability of the AT&T USBConnect Mercury, the newest and smallest addition to AT&T's High Speed Packet Access (HSPA)-capable lineup of LaptopConnect devices designed to access the company's third-generation (3G) network. Designed and manufactured by Sierra Wireless, the device provides plug-and-play installation by including a preloaded version of AT&T Communication Manager software for Microsoft Windows Vista, XP and 2000 notebooks and Sierra's Watcher software for Mac notebooks (versions 10.4.11 or later) so that new customers can get up and running quickly and easily. The AT&T USBConnect Mercury includes an integrated microSD slot that provides customers with a portable storage solution, eliminating the need for additional storage hardware.

www.att.com

www.sierrawireless.com



DEVELOPER

www.tmcnet.com/2367.1

Zarlink Debuts VoiceEdge VE792

Zarlink Semiconductor ([News - Alert](#)) has launched the VoiceEdge VE792 Next Generation Carrier Chipset (NGCC), an integrated voice silicon solution. As a chipset solution, VoiceEdge VE792 features support for simultaneous high-speed video and voice, carrier grade line testing, and the lowest power usage and highest density on the market.



The VoiceEdge VE792 chipset includes an octal Subscriber Line Audio-Processing Circuit (SLAC), with integrated carrier grade line test toolbox and DTMF detection, a Single Channel Subscriber Line Interface Circuit (SLIC) and a multi-port Voice Control Processor ([News - Alert](#)) (VCP). It provides up to 72 channels of real-time call control functions, as well as a full carrier grade line test, when enabled with the Zarlink LineCare software suite. www.zarlink.com

www.tmcnet.com/2407.1

NeoPhotonics Becomes Top Optical Component Supplier to Huawei

NeoPhotonics has reportedly emerged as a top optical component supplier to Huawei ([News - Alert](#)) for the first half of 2008. Sales figures from 2006 through the second quarter of 2008 establish the company as a top supplier of optical components — for fiber access, metro and long-haul optical network equipment — to Huawei, one of the world's largest suppliers of telecommunications network equipment.

"While Huawei does not officially report purchasing figures from their suppliers, we have been informed that Huawei purchased more optical components from NeoPhotonics ([News - Alert](#)) than any other supplier in the first half of 2008," said, Tim Jenks, chief executive officer of NeoPhotonics. "We are very pleased to achieve this level of recognition at Huawei."

www.neophotonics.com
www.huawei.com

SIP

www.tmcnet.com/2408.1

Voxeo Releases Prophecy 9 SIP-Based VoIP Platform

Upgrading its free, downloadable platform and touting it as a user-friendly cost-saving measure during this slower economy, Voxeo has released a new version of its flagship speech, SIP, VoIP and IVR solutions product. Prophecy 9 makes telephony applications "easy to create and deploy," Voxeo ([News - Alert](#)) officials say, because it's built on open, modern standards — as opposed to VoIP platforms that pre-dated technologies such as Java and XML — and is easy to install. The platform comes with two free ports. A testament to the product's popularity, more than 80,000 ports have been installed in the past year, Voxeo officials say, and 114,000 ports have been installed since 2006.

www.voxeo.com

IP CONTACT CENTER

www.tmcnet.com/2409.1

Syntellect Launches Survey Manager

Syntellect has launched Survey Manager, a new integrated survey module for Syntellect Customer Interaction Management (CIM) solution. Tightly integrating with the Syntellect CIM offering, Survey Manager gives customers the ability to provide valuable feedback about their customer service experience. Follow-up actions, based on survey answers, can be automatically assigned to agents or queues. This is advantageous for responding to a poor customer experience or taking advantage of a potential sales opportunity. Moreover, these surveys can provide immediate feedback and either be offered as IVR surveys or delivered later via e-mail through the survey Web site. Individual survey campaigns can support voice, e-mail and Web chat interactions simultaneously.

www.syntellect.com

www.tmcnet.com/2410.1

True Corporation Selects Amdocs CES 7.5 Software

Thailand's quad-play provider, True Corporation, recently announced its decision to deploy Amdocs CES ([News - Alert](#)) – Billing 7.5, from Amdocs Customer Experience Systems' product portfolio. This new agree-

ment expands a 5-year relationship between the two companies. True Corporation has already deployed Amdocs' ([News - Alert](#)) billing software to support its wireless, broadband and wireline operations. This announcement will enable the company to upgrade to Amdocs CES - Billing 7.5 to support its convergent offerings spanning wireline, wireless, broadband cable, Pay TV and Internet services. Amdocs will also provide ongoing product support and maintenance for the upgrade.

www.truecorp.co.th
www.amdocs.com

www.tmcnet.com/2411.1

Skills Router from Intuit Now Available as SaaS

Intuit ([News - Alert](#)) Consulting announced the availability of its specialist skills routing product, PER, as a software-as-a-service model. Company officials say they believe it is the first in its industry to make this particular business model available to customers. Tom Pienaar, Director at Intuit Consulting, said he thinks SaaS is a good fit for the current business climate. "Contact center managers seem to like the all inclusive rental concept because they're not tied in to lengthy contracts or technologies. The set-up costs are low, and the total cost is also much cheaper as it allows for fluctuating CSR ([News - Alert](#)) headcount and call volumes," he noted.

www.intuitconsulting.com

CHANNEL

www.tmcnet.com/2412.1

Westcon, Aruba Team Up for Telecommuting

Westcon Group ([News - Alert](#)) is now offering new solutions from Aruba Networks targeted to the remote worker market. Bryan Bayges, director of mobility solutions at Westcon Group stated that with today's traveling costs, people are trying to commute less. Because of this, businesses are losing good employees and the productivity that goes along with employing them. In an effort to keep employees, businesses are turning to telecommuting and remote worker options, but they need the right technologies to make it happen in the best and most secure manner.

www.arubanetworks.com
www.westcongroup.com

www.tmcnet.com/2413.1**JetBlue to Integrate Ariba's Spend Management Solution**

JetBlue Airways Corporation announced that it has expanded its relationship with Ariba, Inc. and is broadening its portfolio of on-demand spend management solutions to include Ariba's "Procure-to-Pay" in an effort to maintain its cost structure and competitive advantage. Ariba Procure-To-Pay combines the functionality of Ariba Buyer, Ariba Invoice, Ariba Settlement and Ariba Analysis in a single, integrated solution and is designed to facilitate savings identified through strategic sourcing to actually reach the bottom line, according to the company. With the help of this solution, JetBlue can accelerate the results provided by its own spend management initiatives by centralizing its procurement process, company officials say.

www.ariba.comwww.tmcnet.com/2414.1**ISI's TEM Solution Now Avaya Compliant**

ISI Telemanagement Solutions (News - Alert), Inc., has announced that its Infortel Select 7.6 Telecom Reporting application is now compliant with IP telephony solutions from Avaya (News - Alert). Infortel Select 7.6 helps organizations monitor telecom usage across the enterprise. The application now is compliance-tested by Avaya for communication Manager 5.0. ISI Telemanagement Solutions is part of the Avaya DevConnect program, which helps develop and sell third-party products that interoperate with Avaya technology and extend a company's investment in its network.

www.avaya.com
www.isi-info.comwww.tmcnet.com/2415.1**Sonoco Implements Radius' PECAS Vision ERP/MIS**

Radius Solutions, has announced that the Sonoco Flexible Packaging division is implementing the PECAS Vision ERP system in its North America operations. Sonoco's Flexible Packaging division had acquired a number of facilities over the past decade and said each of these facilities leverages

different enterprise management applications. To help improve operational efficiencies, respond more quickly to customer needs and to gain immediate access to critical management information across its facilities, they wanted to implement a new system that would do all this and reduce the costs and risks of maintaining highly customized legacy applications.

www.sonoco.com
www.radiussolutions.comwww.tmcnet.com/2416.1**Telapprise, TeleBright in Core Management Services Pact**

Looking to support Telecom Expense Management (TEM), Telapprise announced a strategic partnership with TeleBright (News - Alert). Under the agreement, TeleBright and Telapprise will provide telecom billing management, auditing, chargeback accounting, mobile device management, procurement, MACDS, change management and vendor contract management by developing new solutions and upgrade technology with enhanced performance and functionality. Both companies have a shared vision of safeguarding the public, private and government organizations across the country from unnecessary telecom expenditures.

www.telapprise.com
www.telebright.comwww.tmcnet.com/2417.1**Research: How Companies Cut Telecom Costs by Over 30 Percent**

A new report from market research firm, Aberdeen (News - Alert) Group, revealed that companies keeping a close eye on their telecom expenses reduce them by over 30 percent, compared to companies that do not actively evaluate their telecom costs. The report, "Slashing Telecom Expenses in a Looming Recession" shows that companies must invest in new organizational capabilities and technologies to excel in telecom lifecycle management. The report also uncovered that most telecom expenses are not just direct landline and mobile device-related. With the telecom environment expanding, telecom expenses now include categories such as asset

insurance, contract negotiations, procurement, security, federal compliance, and dispute resolution.

www.aberdeen.comwww.tmcnet.com/2418.1**TnT Expanding in Europe, Rest of World**

TnT Expense Management a provider of telecommunications and technology expense management services, has announced the last phase in its ongoing global expansion plans. Currently, TnT is trying to reach global customers by opening international offices, increasing client support in Europe, receiving Safe Harbor certification, and developing state-of-the-art systems to support international business transactions at every level, the company said. This spring, TnT entered the international marketplace by opening a new office in Hamburg, Germany. The company plans to open three more international offices in Paris, London and Tokyo by the end of this year. TnT also plans to expand to Bermuda, Switzerland and India.

www.tntem.comwww.tmcnet.com/2419.1**Growing Demand for TEM Yields High Growth to Ezwim**

Ezwim (News - Alert), a company providing Telecom Expense Management (TEM) services to enterprises and Online Telecom Manager (OTM) services to telecom operators, has announced that a growing global tendency to manage telecom costs has helped the company realize 22 percent growth in its Monthly Recurring Revenue (MRR) in the first half of 2008. The company now hopes its MRR will increase by 50 percent in the year 2008. Ezwim offers telecom expense management and Telecom Service Management software to enterprises and operators, which help the organizations in achieving visibility and control upon the assets and costs of mobile and fixed communications. The company has said that the main factors behind its growth are the launching of MNC Portal and Telecom Service Management (TSM) services, and the growing tendency within large enterprises to adopt the SaaS model.

www.ezwim.com

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VoX Communications Harnesses the “Power of the Cloud” to Deliver VoIP Solutions

By Richard “Zippy” Grigonis

In an era when many upstart Voice-over-IP (VoIP) service providers claim low-cost, feature-laden alternatives to traditional landline phone service, Orlando, Florida-based VoX Communications (www.voxcorp.net) stands out as a proven wholesale provider of white-labeled hosted VoIP solutions for business and residential VoIP services.

A subsidiary of Pervasip Corp. (OTCBB:PVSP), VoX Communications offers extensive wholesale broadband voice, origination and termination services for cable operators, carriers, CLECs, ISPs, WISPs and resellers, as well as enhanced retail VoIP telephone services for small business and residential users.

The success of VoX can be traced to its nationwide SIP-based network, which leverages industry standards, open systems hardware and software, and high availability server cluster architecture. Instead of a single, gargantuan, centralized system, VoX has instead developed and deployed a distributed architecture that allows for an array of independent servers, logically grouped into server clusters thanks to the company’s ingenious software. This greatly minimizes the up-front equipment expenditures required to support VoIP services.

As VoX Communications’ Founder and Chief Information Officer, Mark Richards, says, “VoX has developed and deployed its own advanced SIP Voice and Transactional application ‘server cluster’ architecture, running Red Hat Linux. It’s an extremely stable and scalable cluster platform free of any single-point of failure. We can scale this system up to a multitude of SIP Proxy and Media servers in a load-balanced environment that can easily support thousands of calls per second. If you examine our design principals and engineering methodology, you can see that this platform is a takeoff on the ‘Google Linux server farm’ concept that they use for searches. At VoX, however, we’ve applied a similar architectural mindset for VoIP and transactional data processing. We’re also able to do on-the-fly upgrades and bring new servers online without disturbing customers, which is tremendously important.”

The uniquely low financial risk associated with scaling this technology is evidenced by the fact that, unlike competitors whose technologies scale in multi-million dollar increments, the VoX server architecture can scale in much smaller increments — \$100,000 or so. Thus, VoX is never burdened with underutilized, expensive plant and equipment and does not have to pay for underutilized bandwidth or technical personnel. Moreover, the capital costs of a new server cluster can be recouped in a relatively short timeframe.

“We are extremely comfortable that this platform, together with the latest VoIP signaling protocol — SIP — and enhanced compression voice codec — G.729 — can process the smallest packets of information possible both quickly and efficiently,” says Richards. “We’re even able to deploy multiple ‘personalities’ remotely from a central location,



considering SIP, RTP, CDR, features and other network architecture elements as single components, or ‘personalities’ as we call them.”

“A North American IP infrastructure or even a global infrastructure could be deployed relatively quickly and at low cost,” beams Richards. “We believe that our network embraces ‘the power of the cloud’ — the Internet — and as such, benefits from stability in the core network from our Tier-1 carrier partners. We have moved the control and intelligence to the edge. By deploying our VoIP SuperPOPs we simply have to control only on-ramp and off-ramp QoS.”

The VoX system also allows for an extraordinarily flexible wholesale architecture, which enables the Company to tailor services to the specific requirements of a wide range of potential wholesale clients.

“It generally takes between two weeks and 30 days to get the technology all set to go for the wholesaler — that includes things such as billing, the website, and so forth,” says Richards. “Then there’s a period during which the wholesaler is fully trained — after all, they must be able to answer certain questions from their customers. We work closely with them so they’re ready for specific questions about adapters, or what it means when some particular light starts blinking. On average, it’s a 90 day cycle from the initial inquiry to market launch for our service provider customers.”

And Back at the Back Office...

Further bolstering this system is the more than 50,000 man-hours of development that has been invested in the highly automated, scalable VoX back office.

“No human ever touches an order other than a few address validation exceptions and actually putting the express shipping label on the box prior to shipment,” says Richards. “This is by design a very capable back office that will easily scale and provision orders for very large

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wholesale partners without having to hire a large staff to meet demand. The back office and processes are in place and able to handle 1,000, and even 10,000, orders per day. I question how many other companies could realistically put this same stake in the ground.”

Excelling in the Marketplace

“The technical wizardry of VoX Communications is complemented by our program structure, pricing and support services that will enable our Company to become a market leader against competing and sometimes better known VoIP service providers.” states Richards.

“I sincerely believe that our product can easily be private-labeled and our technology is rock-solid,” Richards continues. “Our strategy has been to pursue a wholesale model, and not to compete with Vonage ([News - Alert](#)) and others for retail digital voice services. Through a massive marketing effort over the last few years, the retail players have done an excellent job of introducing VoIP services to the mainstream market, and signing up large numbers of residential customers. But it has come at a high price — over \$300 per subscriber. With an attrition rate close to 3% per month, this becomes an untenable situation in my opinion. We have tested various alternatives as an entrée in the retail market, and have chosen not to go down that path.”

“We are executing on a wholesale model in which we empower our clients to private label and sell high-quality digital voice services. Many of our wholesale customers already have a large customer base that they can market to at a substantially reduced cost, far below \$300. The cable operators are a great example — they are experiencing a high penetration rate within their served markets because they can bundle the voice product with cable and Internet services. As a result, they increase their average revenue per customer (ARPU), they gain additional contribution margins, and they create a tremendous customer stickiness that results from the voice product. They will eventually see penetration rates of over 30% throughout their served market. This is true also of the ISPs, wireless broadband providers, and a large number of resellers and ASPs, all of whom have access to and a trusted relationship with large numbers of retail clients.”

“As our wholesale customers are having success signing their own retail end users, and at a low acquisition cost, we also experience a very low per-subscriber cost. VoX merely delivers the

back end, walks them through the process, and provides a customized web presence for them. Our technology is a bit more ‘nimble’ and flexible than others. Since we benchmarked others in this business, we learned from our predecessors’ trials and tribulations. Whereas others had to quickly build a network with multiple vendors, VoX took the time to deploy a predictable, scalable platform that’s capable of serving millions of customers.”

Richards continues, “For the retail service providers, I think the critical challenge today is to keep attrition down — one of the main reasons their growth has stalled. Users are turning to their friendly local cable company, and other providers, many times seeking better quality and additional features at a competitive price. Additionally, customers now can choose from new retail providers such as Phone.com ([News - Alert](#)), Clearband, and a multitude of others that have come on the scene recently. There are literally thousands of companies around the world selling VoIP, but few do so successfully using their own equipment as we do. Since some smaller wholesale providers have fewer subscribers, they perhaps don’t yet have to worry about customer growth affecting their ability to provide good quality phone conversations. But at some point every provider must face the challenges of quality of service. We began with quality in mind and the ability to scale to large numbers.”

The Future

“Various people on Wall Street and elsewhere have difficulty differentiating VoIP providers,” says Richards. “I could tell them that some of our competitors have at least \$3 in hidden fees, and we have none. But quite frankly, since there will be \$30 billion in revenue coming off the PSTN in the next 5 years, it doesn’t matter. We just have to be there and continue to provide high-quality products and features at a competitive price. People often tell us they’ve tried other wholesale providers and the experience hasn’t always been a good one for many of them. We can deliver a 2-port ATA [Analog Telephone Adapter] or an IP Phone that will plug-and-play wherever you are in the world and you’ll experience toll-quality voice with no dropped calls. As the multi-billion dollar PSTN network goes away, we just have to continue to execute on our simple but effective strategy.”

“We intend to build a profitable company for our shareholders,” says Richards. “It’s a huge market opportunity and less a matter of delivering the lowest price than delivering

a quality service, reaching more people, and finding more channels to sell the product. I’m confident that we have the lowest cost-per-port, industrial-strength technology available for IP soft-switching. The value proposition made possible by our technology’s cost-efficiency should be compelling to wholesale and retail customers and invasive to our industry. We pay a lot of attention to our business and its financial metrics as we continue to define and pioneer new services of our own.”

“The future of VoX? Well, we have reduced reliable telephony to a simple application, which technically can run in a browser. Once you have done that you have achieved mobility, and this is where your imagination really kicks in. VoX digital voice service is already running on a cell phone for one of our partners, and as smart phones evolve, we want to be there. I see us running on the Blackberry, the Apple iPhone ([News - Alert](#)), and similar devices where voice is just an application.”

“Some people say that the big phone companies would block us.” says Richards. “But I have been an Information technology guy for 30 years and I could encrypt my packets, stealth my ports via a proxy or run within the context of a VPN — block me? — Good luck with that! [smiles]”

“Where does VoX go from here?” asks Richards. “We are just beginning. When you can switch to channel 33 for personal communications on your TV and use VoX to do an IP Video call to your family two continents away — only then will VoX have evolved to where I want it to be. Companies like LG are doing some very interesting things with the next generation of TV and when your TV has a microphone or you can’t tell your TV from your PC because it’s the same box — then we will be truly moving into the IP communications age. Where can we go from here? — anywhere and everywhere — there is no limit to technology or ‘the power of the cloud [Internet]’. The future is limited only by our own imagination.”

Based on expressions of interest from dozens of U.S. and international carriers, it’s quite likely that Richards is correct in his assumptions. And in 2005, we here at *Internet Telephony* named VoX the “Most Innovative VoIP Technology Provider”.

Richard Grigonis is Executive Editor of TMC’s IP Communications Group.

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Talking with Mike Storella, snom

By: Richard “Zippy” Grigonis

Michael Storella is Director of Business Development in North America at snom (www.snom.com), a developer and maker of VoIP phones. He’s responsible for building and expanding the sales and support channels for snom’s family of IP telephone products in North America. Storella has 30+ years of experience in business development, channel operations, customer service, and strategic planning, having held executive posts at RNK Telecom, Whaleback Systems, Pingtel ([News - Alert](#)) Corporation, Priority Call Management, IBM/Rolm Corp., Lightstream, Cisco Systems, New England Telephone and ITT-CS. He has consistently delivered bold deployments of emerging technology products coupled with customer-support initiatives.



RG: What changes have you seen in the open source marketplace?

MS: Five or so years ago, everyone was just trying to make a successful VoIP call, but today there has been tremendous growth and a maturing of the market. We see a lot more professionalism in terms of taking open source code and creating products with it. The open source community is now populated with companies that offer products in appliance form that you can buy and they’re all supportable. Digium now has some considerable competition, though at the moment everyone is still targeting the SMB space – I’ve heard recently that a university was going to deploy Asterisk as their phone system, but I’m not yet willing to say that we’ll see open source software be used to serve an entire, huge enterprise. Still, at some point we’re likely to see some larger institutions tackle it, provided they’re staffed with Linux experts who have some coding ability.

But back at the SMB level, everyone wants to make things easier – automated installations and that kind of thing. We see more and more efforts in terms of developing and deploying plug-and-play environment where devices and systems are capable of auto-discovery, so when customers plug a phone into the network, its MAC address can be inserted into the PBX, and an auto-provisioning routine takes care of everything. And then the advanced features come on line, such as busy lamp fields, shared lines, and so forth. So there’s a lot more sophistication entering the picture and more ease-of-use developments.

For example, at snom we have a full suite of security protocols for our phones, such as Secure SIP and Secure RTP using encryption,

but in our top-of-the-line phone we’ve added a VPN client so in those environments where perhaps PBXs don’t use those security protocols, they can use our Model 370 and put every phone on a VPN client to ensure security.

RG: Any other trends?

MS: One nice thing about the growth in open source for snom is that, for the most part, VoIP is based on SIP [Session Initiation Protocol ([News - Alert](#))], which is becoming the protocol of choice for various implementations, and we’re very strong in SIP – we’ve made SIP phones for seven years now, and we don’t work with any other VoIP signaling protocol like that. And we do a considerable amount of interop testing with many of the open source companies, and we have partnerships with companies such as Digium/Asterisk, which has tested many of our products has incorporated them into their Business Edition. Many open source telephony software developers like our phones for their technical ‘depth’ and ease with which they can do SIP registrations and things like that. Our Series 300 phones have a mature SIP stack, along with many features. People are often relieved that once they download open source telephony software and run it on a PC, they can test it immediately with a snom phone. And every two or three weeks we get calls from developers about to introduce an open source product that they’ve embedded either in an appliance or their server, and they want to validate it with snom phones.

So, we’re naturally a big proponent of the open source community.

Richard Grigonis is Executive Editor of TMC’s IP Communications Group.

www.tmcnet.com/2365.1

Unison Technologies Brings UC to Linux

Unison Technologies ([News - Alert](#)) announced that it has entered into a partnership with Canonical, Inc. to bring unified communications to Linux. Unison is fully unified communications software capable of running on both Ubuntu Server and on Ubuntu Desktop Edition. For Ubuntu users this will be a cost-effective and more functional alternative to legacy solutions.

Rurik Bradbury, CMO of Unison Technologies, said, "We believe that Unison on Ubuntu is a 'killer app' for Linux and a great option for any small or medium business. It is more powerful and far more affordable than the Microsoft alternative. With the user-friendliness and wide distribution of Ubuntu, we expect this partnership to further accelerate the growth of both Linux in business IT as well as unified communications."

www.unison.com

www.tmcnet.com/2420.1

Digium Announces Release of Version 1.2.0 for Asterisk Appliance 50

Digium has announced the latest release of its full-featured, cost-effective Asterisk Appliance, the AA50. The latest version is the first to feature the Digium-developed Asterisk-GUI framework and is designed to bring small to medium enterprises a feature-rich, cost-effective, reliable telephony solution. A stand-alone embedded Asterisk-based PBX, the Asterisk Appliance is targeted for small to medium businesses (2–50 users), remote branch offices of larger organizations (2–50 users per site), and managed service providers for on-premise CPE-based solutions with SIP or IAX trunking. The new AA50 offers the commercially licensed Asterisk Business Edition software, in addition to the first Digium-developed AsteriskGUI. The Appliance is available in the following configurations: VoIP Only, Eight FXO, and Four FXS with Four FXO.



www.tmcnet.com/2421.1

Continuent Debuts Tungsten Scale-Out Stack

Continuent, Inc., a provider of commercial open source solutions for database replication and scale-out, has announced an advanced replication for MySQL with its Tungsten Replicator. Continuent Tungsten is an open source stack, a collection of integrated projects, for database scale-out using commodity hardware. The cross-site clustering feature maintains and replicates databases on multiple sites for disaster recovery and the heterogeneous data integration replicates from MySQL to Oracle and the other way round. It populates a data warehouse by copying data from production database into a replica for purposes of reporting.

www.continuent.com

www.tmcnet.com/2422.1

Xen.org Releases Xen 3.3 Engine

Xen.org has announced the release of the Xen 3.3 engine. The latest version of the open source hypervisor is now available for download from the Xen.org community site and includes enhancements that further advance its position as a fast, scalable, secure virtualization engine for the industry's broadest range of server and PC chipsets — from super computers to PDAs. The new Xen 3.3 release has the ability to further improve overall performance of the hypervisor engine in mainstream enterprise computing environments. The company cites the example of Intel's continued contribution to the Xen project, which is driving parallel advances in hardware and software virtualization capabilities to ensure that Xen-based solutions take full advantage of next-generation microprocessor technologies.

www.xen.org

www.tmcnet.com/2423.1

Sun Microsystems Powers New Release of Open Source TWiki

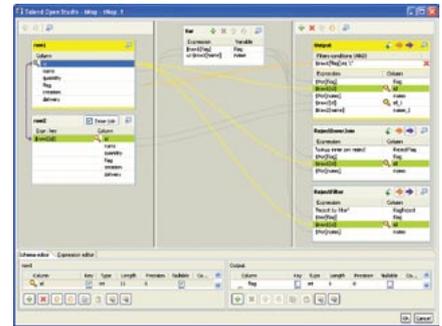
A provider of open source enterprise collaboration solutions, TWIKI.NET, has announced a new release of open source TWiki. TWiki version 4.2 software includes a new WYSIWYG editor that is easy to use and can dramatically reduce the learning curve for first time users. It also offers support for a SQL-like query language to aide the end-user in building wiki applications. This software release coincides with the open source project migration to a new Sun Fire T5220 server, a Sun Fire X4450 server

and a Sun StorageTek 5320 NAS Gateway System contributed by Sun Microsystems.

www.twiki.org

www.tmcnet.com/2424.1

Novel Open Source Data Quality Product from Talend



Talend announced its Talend Data Quality product designed to combine data integration, data profiling, and data quality in a single open source suite. Talend says it is the first to deliver such a product to the open source community — after three years of intense research and development, and with solid financial backing from leading investment firms. Talend Data Quality will be available as a standalone product or as an added feature to the Talend Integration Suite. Talend Data Quality includes a special feature where current and historical snapshots can be compared to measure the improvement or degradation of data. It can identify the quality of the data on a record to record basis, and also cleans incorrect, incomplete or inconsistent data by cross checking against other databases and reference data.

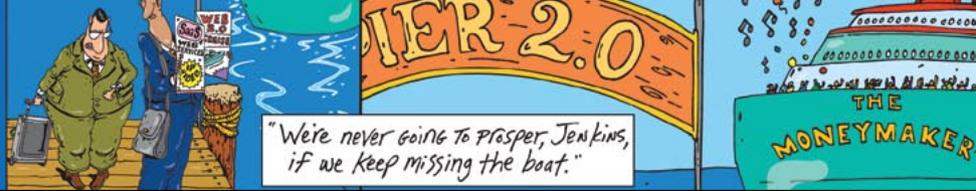
www.talend.com

www.tmcnet.com/2425.1

Concursive Offers Free One-Year Trial of ConcourseSuite 5.0 CRM

Concursive Corporation, a developer of open source Customer Relationship Management (CRM), content management and business social networking technologies, has announced that it is providing its on-demand ConcourseSuite 5.0 customer relationship management (CRM) software free of charge to as many as 100 users for a period of one year. ConcourseSuite 5.0 is a Software as a Service on-demand offering and requires no setup. Business users can simply subscribe and then login to begin using the system. It really is that simple.

www.concursive.com



Innovative Ideas from the “Specialized Applications Developer” Experts

Juniper Networks’ PSDP — a Powerful Tool for Service Providers

By Richard “Zippy” Grigonis

As service providers embark on new business models, their underlying IP network becomes an important asset, enabling them to create and deliver new applications. Today’s converged IP networks carry communications, entertain, improve productivity, drive revenue growth and much more. However, the requirements of an increasingly disparate and global marketplace are creating pressure for greater network innovation that extend beyond any single vendor’s capabilities.

Juniper Networks (www.juniper.net) recently introduced an innovative set of tools under their Partner Solution Development Platform (PSDP), enabling customers and partners to develop their own specialized applications for their networking platforms (IP/MPLS Routing Systems, Ethernet Switching Systems and Security Systems). The PSDP offers a powerful set of resources that include a Software Development Kit (SDK) with intelligent and secure interfaces to key network functions, which will facilitate the delivery of new services by providers. These tools provide customers and partners with greater choice and control in designing, developing and deploying specialized applications for the network. Juniper’s pioneering partner development platform for a carrier-class network operating system gives telcos greater choice and control while creating new opportunities for business growth and productivity.

Service providers are evolving towards a converged Next-Generation Network (NGN) capable of delivering a dynamic mix of new and integrated residential, business and mobile services. Open interfaces enable this convergence by easing integration between disparate types of equipment and support systems that were originally built for the standalone needs of wireline, Internet, wireless or video traffic.

Ravi Medikonda, Vice President of Wireline & Managed Services Segment at Juniper Networks, says, “As service providers are transforming themselves to a Telco 2.0 model where applications, content and multimedia are the key service offerings, they are compelled to make their networks relevant, by adding more service intelligence to their network. Our PSDP provides a unique and powerful tool to increase the rate of industry innovation on networks. With the PSDP, service providers or their development partners can independently create customized applications that streamline operations and enable rapid entry into new services markets.”

With the influx of IPTV and Internet user-generated-content, service providers are experiencing rapid traffic growth. Many report fast-moving “hot spots” that complicate capacity planning. Meanwhile

the very high growth rates for voice and video result in more and more of the traffic being especially sensitive to changes in network performance. Successfully managing traffic in this environment requires deeper information for a greater number of packets.

Integrating performance and monitoring management tools directly into the network device simplifies operations and improves scalability to deal with modern network traffic.

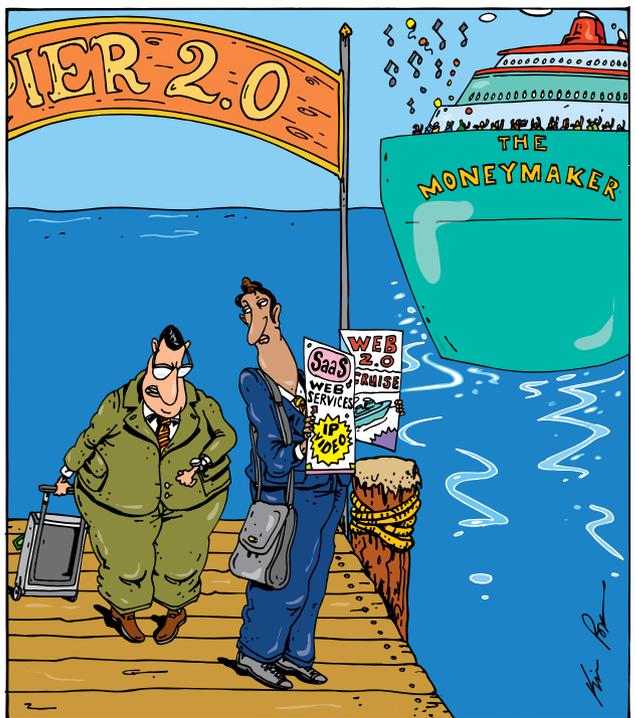
“Juniper’s PSDP allows monitoring applications to be distributed throughout the network,” says Medikonda. “With more insightful monitoring and analysis tools that leverage distributed network intelligence, including information of events beyond the network, networks can respond more quickly to equitably distribute load and ensure performance for high-priority services and users.”

Given the variety and complexity of these converging systems, service providers often require very specific new development for their individual integration needs and targeted market opportunities. The increasing diversity of the environments often exceeds the pace of development now available in the market.

“Among the first PSDP developments for service providers are applications addressing immediate operational challenges to improve service delivery and increase productivity in newly converged systems,” says Medikonda. “Building on top of their network, service providers can extend the Command Line Interface [CLI], automate custom operations or integrate into legacy OSS/BSS and network systems. They can also implement monitoring tools for specific services or types of customers, improving SLA compliance while reducing overhead. Integrating these functions into the existing networking devices — rather than on separate platforms — takes advantage of our hardware performance and scalability, decreases the number of devices to manage, and reduces the overall footprint of the solution.”

The power of networks is their ability to connect people with different areas of knowledge or expertise in order to produce something that neither could have done individually. This is evidenced by the rapid development of often unanticipated applications that take advantage of network reach and ubiquity. It is ironic that the Internet, an open infrastructure that has enabled many of these innovations, is itself built on predominantly closed networking platforms. With Juniper’s PSDP, these previously closed boundaries of innovation will now open up, creating a plethora of new applications that can directly influence the behavior of the underlying network, thus making the network more relevant.

To find out more, go to www.juniper.net/monetize.



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Hosted VoIP in the Enterprise

By Richard “Zippy” Grigonis

Hosted solutions are attracting scads of new business customers. You don't have to buy new equipment or pay IT staff to install, configure and maintain it. And new, flexible technologies allow services to interoperate with any legacy premise equipment you may have. Furthermore, many services can be offered with high “granularity” – you can buy them on a per-line basis, and your maintenance contract is generally based on per-seat licenses.

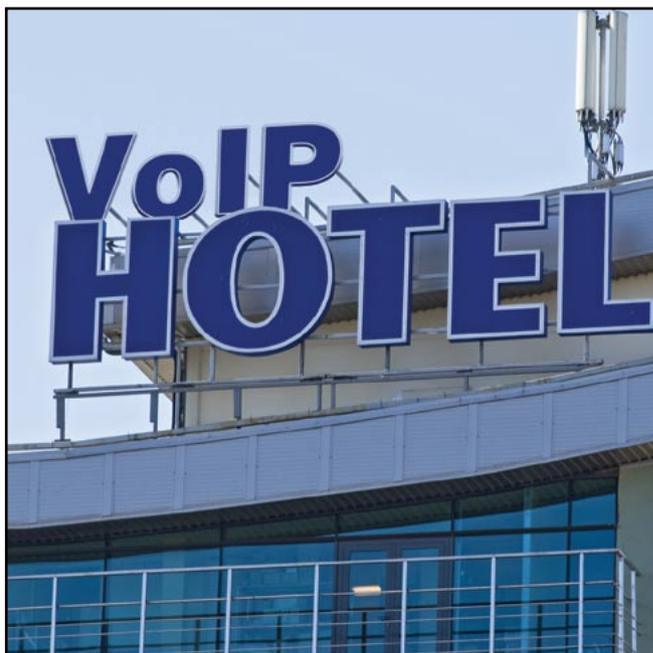
M5 provides IP Telephony and PBX telephone key systems using VoIP in the greater New York and New Jersey area. Dan Hoffman ([News - Alert](#)), CEO of M5, says, “The good news for the field is that everyone is acknowledging that this is a good idea, and our prediction, along with some other analysts, is that in 5 or 10 years the mid-size enterprise will stop buying its own systems entirely. All signs of the economics of customer satisfaction point in that direction, and there has been a growth in the resiliency of the network to make hosting possible. Within that broad landscape, we see the end customer splitting the industry into two directions. First, there's a group that wants to see that costs continue to be driven down, and get basic dial tone over the network. Second, there's a group that views the technology as a way to drive costs down *and* drive service levels up.”

“So there's this group of businesses that are very voice-connected to their customers,” says Hoffman, “and they consider this voice delivery model as a way to finally get some major impact from all of the R&D and all of the rich features that are going into the telephony world, and they want it hosted because feel these things are simply too complicated to deploy by themselves. Just about everybody likes the service model, and customers are gobbling it up as soon as they can find providers who can deliver the services well and reliably. But there are people who are increasingly using it as a way to deploy the advanced features, and that's where we're getting some really exciting stories.”

“The key is that, in order to get anything out of those features, you need to present them as an easy-to-use service. For as long as there have been phone systems, we've had some devices laden with thousands of features, but no one uses them all. When we talk to end-user businesses, all of this stuff makes their eyes glaze over, unless there is someone who can set it up, support it, and make it easy for them. They just don't have that capability in-house. The richness of unified communications is making it necessary to deliver such enormous functionality as a service.”

Larger carriers are also in the hosted VoIP arena. For example, Qwest ([News - Alert](#)) OneFlex Hosted VoIP is a VoIP service that replaces your need for a premise-based phone system, and it provides popular applications such as voicemail, conferencing and unified messaging. It also offers Microsoft Outlook integration.

Also in the game is XO Communications ([News - Alert](#)), a nationwide provider of advanced communications services and solutions for



businesses, enterprises, government, carriers and service providers. Its customers include more than half of the Fortune 500, in addition to leading cable companies, carriers, content providers and mobile network operators. Its infrastructure comprises an interesting amalgam of high-capacity nationwide and metro networks and broadband wireless, which helps XO offer customers a wide range of scalable, managed voice, data and IP services in over 75 U.S. metropolitan markets.

XO's Director of Voice and Converged Services, Nic Jackson, says, “Our XO One Managed iPBX services business provide a managed solution that includes a PBX as well as network services, installation, maintenance and management of the end-to-end voice solution, which is great for enterprise customers.”

XO's Eric Hyman, Director of Managed Services, says, “In fact, we have two product lines that support managed services in one type of hosted environment. The first one is the XO One iPBX. Our primary manufacturer of choice is Avaya, although we do work with Nortel on occasion, and we're in the midst of working on a trial with Cisco. In that environment XO carries the capital for the hardware and the maintenance. It's a very different model and value proposition that you would probably encounter with anybody else. It has the ability to reduce IT capital expense — meaning staff headcount — and it enables the customer company to focus on its core business, while XO focuses on the hardware and network solution. By the way, XO One is a complete bundled solution, which means it includes not only the hardware, maintenance, and management of that hardware, but it also includes XO's network. So it's a single bundle from a single provider, allowing for a single point of contact to our customers for any and all telecommunications issues.”

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“This product has had a steady upward trajectory,” says Hyman. “It’s a fairly successful product for XO Communications. I would say that Avaya would probably rank us as either Number 5 or 6 in terms of domestic resellers in the SMB space. So we have a very strong symbiotic working relationship with Avaya.”

“Second, we’re finding even greater success in multi-location deals,” says Hyman, “where customers are not only taking this hardware, but they’re adopting XO’s MPLS VPN product too. They also like to send voice over the MPLS VPN if it’s our IP Flex with the VPN.” (XO IP Flex is one simple bundle containing a complete package of communications solutions for a business, including the XO Anywhere feature for unified communications, local and long distance voice, Internet access and webhosting — all at a flat monthly rate consolidated on one invoice. XO IP Flex is available with Business Lines, Digital Trunks or ISDN-PRI connectivity.)

Hosted or Managed?

The rising tide of VoIP hosting has spurred carriers to bring their infrastructures in line with what’s expected of a next-gen network, whether by “home grown” efforts or by scrambling to find companies that offer the proper technology, particularly when it comes to offering truly “managed” services involving customer premise equipment not actually managed by the customer. Turin Networks, for example, recently announced new feature enhancements that position the company’s popular Adit product line as a major carrier-grade Converged Services Access Gateway (CSAG) platform optimized specifically for the migration to VoIP and the delivery of new managed IP-services to SMBs. There are more than 130,000 Adit units out there, deployed by customers that include 6 of the 10 largest LECs in the U.S. — they are the premier component of Turin’s iConnect for Converged Services solution. Turin’s Adit 600 now has a MultiService Router (MSR) module with SIP-based VoIP, making the Turin Adit 600 a super-flexible multiservice CPE platform enabling service providers to deliver a complete range of traditional TDM voice, VoIP, Internet access, and IP-based VPN/Security services from a single, modular device.

Ironically, Mitel ([News - Alert](#)), a company long known for its CPE business phone systems, is also experiencing growing interest in its managed services offering, the recently expanded Mitel TotalSolution managed services program, used by more than 17,000 large and small companies. The Mitel TotalSolution program now includes the extensive Mitel unified communications portfolio of platforms and applications, IP/data communications network planning, provisioning, and carrier services, along with complete service, training, and support, as well as other financial benefits. Thus, unlike competing “simple lease” programs, Mitel provides a more comprehensive offering that ranges from up-front consulting and maintenance to upgrades and carrier services. Mitel has the ability to interoperate across various network vendors’ equipment, and Mitel consultants can work with a customer’s IT infrastructure and help them leverage existing investments.

Helping Hands

Increasingly cut-throat competition has forced network operators and service providers to focus on value-added services that are easy and inexpensive to deploy. But many service providers or telcos wanting to get into the hosted services business have difficulty building and incorporating new customized applications. Fortunately, Sylanro Systems ([News - Alert](#)) of Campbell, California, has developed software enabling service providers to deliver innovative customized, hosted VoIP applications and services for business, consumer, and wireless subscribers. Many business and residential voice communication services across fixed, mobile, and converged IMS networks have their origins in Sylanro technology.

Sylanro recently won a 2008 TMC Labs Innovation Award for its Synergy ([News - Alert](#)) Web Attendant Console. Based on a cost-effective SaaS (Software as a Service) model — in particular Sylanro’s Snapps Web Services — the multi-user, browser-based Web Attendant Console allows end-users to grow their own solution and integrate other web services such as location and CRM into the same app, thus enabling carriers to sell additional services to end-users without additional hardware such as sidecar consoles. Using this multi-user, Flash-built solution, office receptionists can control and dispatch incoming calls to corporate and departmental numbers from any browser running on a desktop, independent of physical location. Indeed, there is no physical installation of any desktop software or hardware.

Also, in February 2008, Sylanro unveiled Release 4.2 of its Synergy Multiplay Application Feature Server, which now includes a software suite focused on mobile users, enabling sophisticated, hosted IP communication services across fixed, mobile and cable networks. With Sylanro’s technology, enterprise customers can use their mobile phones as an extension of their hosted PBX services with the ability to interact with business PBX applications such as Automatic Call Distribution (ACD) and phone presence over the mobile handset. Moreover, the system supports real-time call handover between multiple devices, such as a desk phone and a mobile phone.

And in the Contact Center...

Many people don’t realize that call/contact center capabilities can also be delivered as a service. Take for example, Version 5.2 of CosmoCom’s ([News - Alert](#)) flagship product CosmoCall Universe.

Interestingly, CosmoCom is as adept at supporting internal corporate communications as well as those entering an organization from the outside world. That’s because the need for communication between contact center agents and their supervisors has been underserved in the past, fostering a cottage industry of third-party add-on products. Now, however, CosmoCall Universe includes tools that agents can use to request supervisor assistance, and supervisors can use to broadcast critical information to all agents or to any defined group of agents. Agent-initiated help requests are automatically routed to a qualified supervisor who responds by opening up a keyboard chat session with the agent, which can become a voice call with one click. One click can also put the supervisor in silent monitor, whisper, or barge-in mode for the requesting agent’s current call. The assisting chat session is independent of the agent’s conversation with the customer, regardless of the channel. Supervisors can also request chat sessions with agents or with other supervisors. In addition to the need for one-to-one sessions with agents, supervisors often need to broadcast announcements to agents — with CosmoCall Universe, these announcements pop up on the agents’ screens just like a chat window. CosmoCom even offers a GUI service creation tool, CosmoDesigner.

Richard Grigonis is Executive Editor of TMC’s IP Communications Group.

The following companies were mentioned in this article:

CosmoCom
www.cosmocom.com

M5
www.m5net.com

Mitel
www.mitel.com

Qwest
www.qwest.com

Sylanro Systems
www.sylanro.com

Turin Networks
www.turinnetworks.com

XO Communications
www.xo.com



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Small business VoIP adoption is growing, largely because of the cost benefits, but the fact is that hosted VoIP services for small business, like Packet8's Virtual Office, provide much more than cost savings. The greater versatility of hosted VoIP system allows businesses to customize their telecommunications packages to meet their unique needs, but without requiring large up-front expenditures for equipment, installation, maintenance, or IT staff. For the latest news and information on VoIP services specifically designed for the small business market, visit the Small Business VoIP community on TMCnet, sponsored by Packet8. Packet8 Virtual Office is an affordable, robust and easy-to-manage phone solution with all the premium PBX features and functionality of a traditional telecom system.

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Next-gen Network Migration: A Signaling Perspective

By Ravi Ravishankar

Within the diverse global conversation around IMS, one point is common: the move to IMS will be a gradual transition over time, requiring the interoperability and integration of different network applications, technologies and protocols as the networks evolve. The ideal architecture for the transition is one that provides flexibility to service providers by enabling them to deploy new revenue-generating services on IP based technologies, while keeping costs in line by leveraging existing services and Signaling System 7 (SS7) infrastructure as long as it makes sense. The key to success in this complex and competitive environment is to understand how the evolution of the network will impact a service provider's business and signaling network, and how to create a practical transitional strategy.

Most people are now beginning to realize that large-scale IP Multimedia Subsystem (IMS) deployments won't be occurring in the near future. While many operators are still trying to determine when exactly IMS will be a now-technology, rather than something in the very distant future, they're not letting this time go to waste. Operators are beginning to work with vendors to start deploying components of an IMS network (Session Initiation Protocol [SIP], SIP routers, Service Capability Interaction Manager [SCIM], etc.) by laying the groundwork for a standalone SIP signaling framework as defined by the 3GPP specification. The SIP signaling framework allows operators to integrate different types of SIP-based traffic and to capitalize on that traffic to increase their revenues, without having to deploy a full IMS architecture — with all of its components.

The migration to IMS has thus far proven to be an evolutionary rather than a revolutionary transition, which has generated a significant impact on the signaling layer. Signaling is embedded in every service today. When you turn your mobile phone on — you generate signaling messages. Every text message you send or receive generates 4-6 signaling messages. This won't change any time soon. Therefore, signaling is the obvious starting point of the network's evolution. As the network evolves, the signaling protocol will migrate from SS7 to SIP and the Signal Transfer Point (STP) of the Public Switched Telephone Network (PSTN) will transition to the Call Session Control Function (CSCF) of the IMS architecture.

Such evolutionary steps to IMS are becoming more popular. In addition, operators face the challenge of interworking many technologies and protocols to enable seamless service delivery across a variety of network types, interoperability between new products and different vendors, and legacy system connectivity to newer systems. Even though operators aren't fully deploying IMS networks, they can begin using IMS components to solve network problems today. However, before carriers begin deploying IMS network components, they first need to anticipate and overcome a few technical challenges:

- Implementing a SIP signaling and session control layer in the NGN.
- Limitations of today's network and bridging the gap to future pre-IMS and IMS networks.

- Deploying an IMS architecture gradually.
- Ensuring all SIP issues (present and future) are addressed.

Since operators are starting to see a downturn in voice revenue, they're beginning to look for ways to further leverage already existing components of their networks to offer new multimedia services for customers.

There exists a multi-prong strategy for helping operators migrate to the next-generation service delivery model at their own pace and via the path that best suits their needs, including: gradually moving to IMS by supporting service orchestration and mediation across the Intelligent Network (IN), Next-Gen Network (NGN) and IMS domains; continue building out their NGN to support VoIP growth, while integrating some IMS technologies to experience some of the benefits of IMS without the cost of deploying the entire architecture; and carriers who want to go straight to IMS or who want to deploy IMS-based applications.

Implementing a SIP Signaling Layer in the NGN

The core signaling and session control layer has proven its importance in the SS7 signaling network and is identified in the IMS network architecture. A major issue with the NGN architecture is the lack of core-signaling infrastructure to assist NGN elements with signaling and session routing activities. Without a hierarchical session control layer, each NGN network element must handle all control layer related tasks such as routing, traffic management, redundancy and service implementation. All of this causes a number of barriers to creating an efficient network. For instance, each NGN network element must make application layer routing decisions based upon the destination address (i.e., SIP URI). Thus, all possible routes must be defined at each network element so that each will have one or more signaling routes between them.

The NGN cannot be properly expanded without the implementation of a suitable signaling and session control framework capable of off-loading various SIP signaling and session tasks from the edge NGN elements. With a capable session layer, session-related tasks are migrated from the edge NGN nodes to a centralized core SIP session framework. The resulting architecture allows the NGN network to grow systematically in response to increasing demand for VoIP, while avoiding the various limitations previously mentioned.

This session-based framework also presents an ideal opportunity to introduce the benefits of an IMS architecture into the NGN environment. Essentially, the IMS session management technology is a perfect candidate for implementing a signaling layer in the NGN. With the appropriate signaling and session control framework the NGN network can realize many of the attributes promised by the IMS architecture, such as access independence, Home Service Control model, subscription-based service orchestration, and multimedia support.

Moreover, with an independent control layer, a robust and bearer independent signaling and session control network can be implemented to offer highly available signaling that provides session setup for any type of multimedia service. Therefore, an operator can offer not only VoIP but any other type of media with the reliability and scalability of an SS7 network.

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Service Orchestration and Mediation among SS7, NGN and IMS Networks

As carriers transition their networks, an important consideration is how to inter-work their existing networks with future IMS networks to deliver a seamless service experience to subscribers regardless of their access technology. Operators want to leverage their investment in current technology and avoid duplicating services in multiple domains. In addition, providers need the ability to mix services from multiple domains to create unique service packages.

Operators can use SCIM, an IMS-defined technology, to bridge TDM, NGN and IMS networks, providing the orchestration and mediation to enable SIP-based application servers and IN service platforms to inter-work. This allows carriers to deliver SIP-based services such as presence, location, enhanced VPN and IP conferencing to SS7-based subscribers. Conversely, IMS subscribers have access to SS7-based applications like number portability, directory assistance and calling-name delivery.

After the SCIM functionality is deployed at the STP in the SS7 network, operators can extend the SCIM capabilities to the pre-IMS/NGN and IMS domains with a SIP interface. This is a logical interconnection point since the SS7 network is the backbone for intelligent service delivery, data and application interaction, and flexible routing in circuit based networks.

With SCIM deployed in an NGN or IMS network, its functionality can be extended to an SS7 network using SIGTRAN, an SS7 over IP signaling protocol. Deploying SIGTRAN brings the IP service infrastructure into the core signaling network, allowing SIP and SS7 signaling to be processed over the same IP signaling framework. This arrangement allows users on SIP-based terminals to access legacy network services and interact fully with legacy network users.

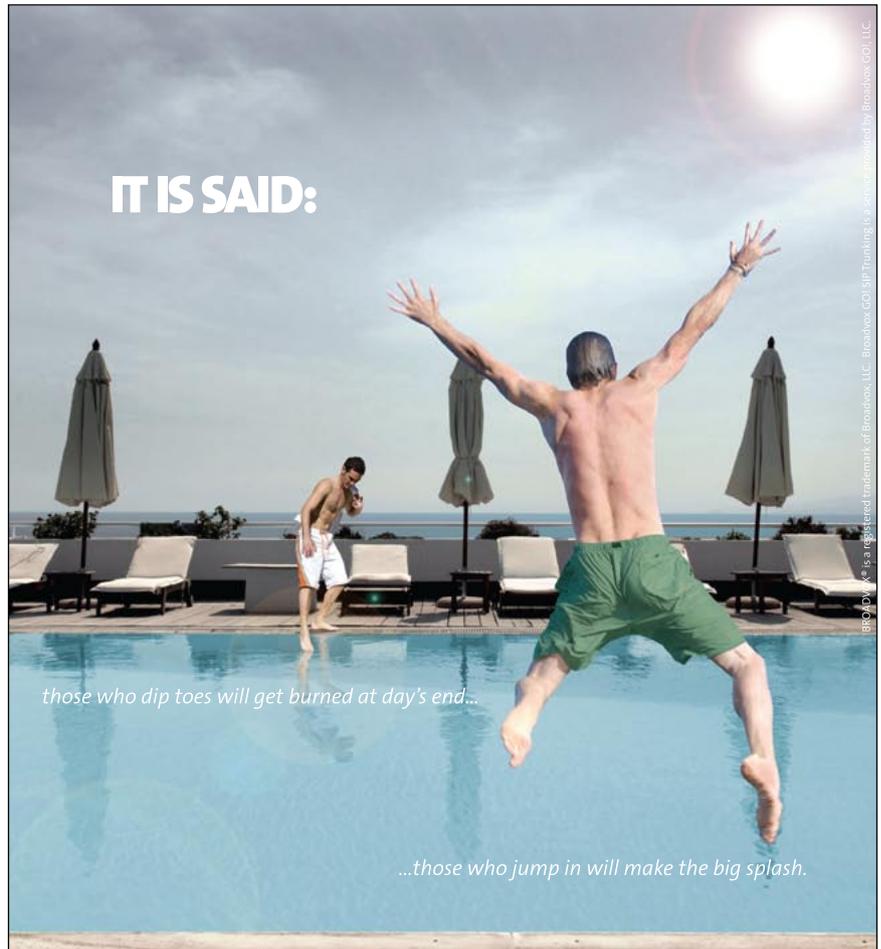
Conclusion

While the transition to IMS appears to be the end goal, the path and length of time to get there are unknown at this point in time. The reality is that operators are borrowing the best of IMS today to get the most benefits possible, without deploying a full-blown IMS infrastructure, which causes the IMS business case not to work that well. The incremental approach being taken by operators allows them to prove-in the IMS business case much easier than just building the entire IMS infrastructure and waiting for the subscribers and revenues to come.

One thing is clear: the move to IMS will be a gradual transition over time, requiring the interplay of different network applications, technologies and protocols as the networks

evolve. The key to success in this complex and competitive environment is to understand how the evolution of the network will impact a service provider's business and signaling network, and how to create a good transitional strategy.

Ravi Ravishankar is Director of Product Marketing, Tekelec (News - Alert) (www.tekelec.com).



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Making the Business Case for IP Communications

By Richard “Zippy” Grigonis

The business world finally gets it. IP communications in all its forms — voice, video, email, instant messaging, etc. — can actually save money, increase productivity and improve customer satisfaction. That’s true whether you’re talking about customer premise equipment (IP PBXs) or hosted solutions. But just about everybody continues to phase in IP gradually, stretching out their investment in legacy TDM technology.

A Yankee Group ([News - Alert](#)) study demonstrated that VoIP systems were about 22 percent less expensive to run than older circuit-switched systems. Moreover, Cisco claims that installation costs for new systems have dropped by 40 percent to 60 percent because a company need now rely merely on a single IP infrastructure instead of both packet data and TDM networks.

Furthermore, a study conducted by Sage Research for Cisco showed that when IP is adopted by companies in their contact centers, 74 percent reported generating an additional \$5000 or more per month per sales agent, nearly 50 percent reported agents handled an average of 30 or more additional calls per day, 67 percent reported being able to assist an additional ten or more customers per day, and 91 percent reported completion of an additional 10 or more outbound calls per day, per agent.

Sage Research also found an average reduction of 30 percent in in-house conferencing and \$1700 monthly on travel avoidance by using rich-media conferencing, with unified communications-enabled employees saving an average of 55 minutes per day.

The march to IP adoption has been witnessed in some unexpected places. For example, take Exalt Communications, which supplies next-gen wireless backhaul systems for service providers and enterprises worldwide. Exalt’s advanced carrier class, spectrally efficient, and high capacity microwave radio systems are designed to alleviate bottlenecks in last mile, middle mile, and first mile network segments.

Exalt’s CEO, Amir Zoufonoun, says, “We now have over 350 customers, many of whom are enterprise customers in various segments. We see an interesting trend across the board in all segments. Regardless of geography and type of organization — even service providers — there has been a definite trend toward using IP. We’re dealing with mining companies, railroads, power companies, rural power companies, education, healthcare and all sorts of other verticals. Literally everybody, without exception, is on the path of transitioning from TDM to IP. Everybody wants to move to IP and do the transition as fast as they can. At the same time, they say they would like to get the maximum usage out of their legacy equipment and previous investments in the TDM infrastructure. So they would like to run these things in parallel if at all possible. Obviously, the more they have invested in TDM technology, the stronger is the case for keeping the equipment around for as long as possible. This would include large users who own private networks and have a lot of TDM-based equipment.”



“What’s interesting is that when these organizations add IP, they find themselves asking for a great deal more bandwidth,” says Zoufonoun. “They want hundreds of megabits per second at every node, as opposed to a traditional solution such as a couple of T-1s. That’s an interesting combination, and it means that you need sophisticated technologies to be able to handle it, particularly on the transport side. It’s not easy to suddenly upgrade from one or two megabits per second to 200, 300 or more Mbps, which is the ‘sweet spot’ right now when it comes to IP connectivity.”

“So, everybody wants IP and everybody wants more bandwidth along with it,” says Zoufonoun. “That’s a very interesting combination for us at Exalt Communications, because that’s exactly what we saw happening in our ‘crystal ball’ four years ago — that the world was going to experience this transition, and that the need for bandwidth would definitely increase from a nodal perspective. At the time we felt that many incumbent carriers didn’t see that trend developing, and that we would have an ‘edge’. As it turns out, that is definitely the case, both with our existing customer base and prospects who contact us. And of course, over the next five to ten years, we will see a demand for TDM support. That’s why Exalt offers native TDM and native IP in every box that we ship. The customer can decide, under software control, how much bandwidth they would like to allocate to each one of their transport mechanisms. As they retire their TDM equipment, companies can shift the bandwidth over to IP.”

Zoufonoun adds, “The other innovation that helps in this case is that IP has an asymmetrical nature, as opposed to symmetrical TDM-based traffic. With Exalt we have asymmetrical transmission built-in, and the customer can allocate as they wish the ‘lanes of the highway’, if you will, depending on the type of traffic or its direction. If you have a lot of video content, for example, it makes sense that one direction has a lot more bandwidth allocated than the other. That’s

certainly the case with government applications, where you encounter Homeland Security-related activities, and crime 'eye' applications, where you have very high bandwidth camera clusters, and bandwidth consumption can be anywhere from 200 to 500 Mbps per cluster, which you'd like to direct back to the data center/control center. Hospital systems also use asymmetrical transport, where large X-ray files are sent from radiology labs and by law can't be compressed. Asymmetrical transport enables the customer to use bandwidth a lot more efficiently. It's the same with downloads from a website over a carrier or file transfers."

"So, we see these trends of IP, increased bandwidth and asymmetrical traffic over the next five to ten years," says Zoufonoun. "We see these trends even in rural areas both in and outside of America."

Rather than making a case for IP, many major carriers are in fact simply reacting to this one-two punch of growing customer demand for IP communications and additional bandwidth by re-engineering their infrastructures with softswitches, session border controllers, and other devices in an effort to make their networks "VoIP friendly". For example, Level 3, a leading international provider of fiber-based communications services, enables its customers to drive adoption of VoIP through speed-to-market, strategic partnerships, and network footprint and reach. Level 3's network is VoIP feature-friendly, enabling customers to innovate and offer different and new applications which drive end-user demand.

Advanced Tools and Building Blocks "Speed the IP Plow"

One way to help feed demand for IP communications is to make it easy to develop enticing IP applications and services. Indeed, there has been increased sales of such innovative tools. Some are low-level programming in nature, others are higher-level "building blocks" used to implement IP strategies of greater scope.

In the latter category, take, for example, Aculab's ApplianX product line, based on this U.K. company's well-known Prosody X-enabling technology. ApplianX encompasses a range of deployment-ready devices purpose-built for use in various areas of the telecom infrastructure, such as enterprises, data centers and service providers. ApplianX products are manufactured in the U.K. and available globally through a network of distribution and value added partners.

Whereas the ApplianX IP Gateway acts as a SIP-to-TDM gateway, which can easily be configured as a DPNSS Gateway, the ApplianX Gateway for OCS 2007 has been tailored so that end users can take the most advantage of Microsoft Unified Communications in a mixed IP and TDM environment. Other incarnations of the ApplianX include the ApplianX DPNSS-to-Q.SIG Gateway, the ApplianX SIP

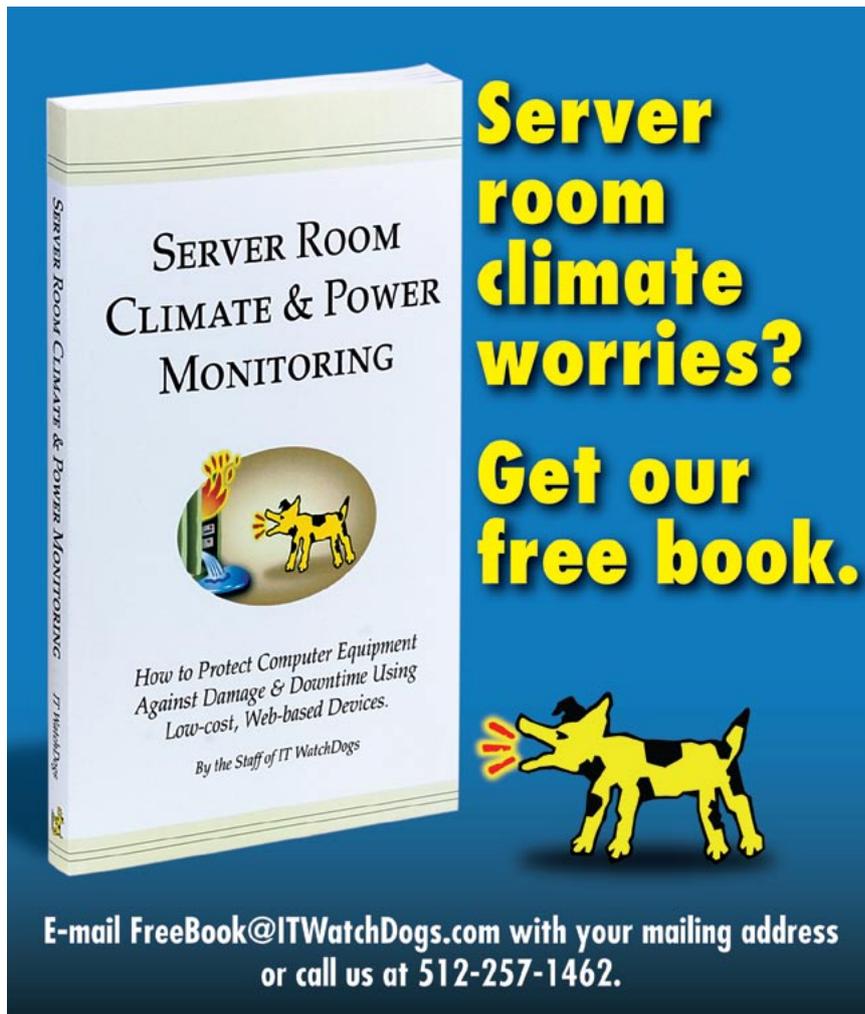
Trunking Gateway, the ApplianX 3G Video Gateway and the ApplianX SS7 Signaling Node.

Alan Pound, Managing Director, Aculab, says, "The launch of the ApplianX range of products has been extremely well received. The ApplianX IP Gateway and ApplianX Gateway for Microsoft Office Communications Server 2007 have both created much interest and demand in their respective target markets. The business case for both IP and our products are quite clear-cut and understood, which explains their success."

IP and TDM, Now and Forever

Part of the business case for IP is that organizations can often phase-in IP technology gradually. That means that vendors must offer some remarkable flexible products, such as the Iwatsu Enterprise Communications Server and Enterprise Suite from Iwatsu Voice Networks (IVN), a subsidiary company of Tokyo-based Iwatsu Electric that provides advanced business communications solutions to small and medium-sized business (SMBs).

The Iwatsu ([News - Alert](#)) Enterprise Communications Server's QuadFusion Technology manages to fuse into one platform all four



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of today's dominant forms of communication and their protocols: SIP, VoIP, TDM, and H.323. They can be used alone or in combination, thus making the Iwatsu Enterprise an extremely versatile system. It also can act as a true media bridge gateway that converges and transmits both voice and data traffic. Additionally, its modular design enables small companies to expand to 1024 ports. There are various add-on features and applications, and the Iwatsu ECS supports peer-to-peer communications, enabling IP phones to talk to each other directly rather than "trombone" out and back.

As for the Iwatsu Enterprise Suite, it provides inexpensive call processing, unified communications, speech recognition, call reporting, in-building wireless, campus networking and text-to-speech applications favored by Fortune 1000 companies.

In the case of ShoreTel ([News - Alert](#)), its ability to deal with legacy equipment was a boon to Design Within Reach, a quality furniture designer. During a phase where the company was growing at 40 percent (20 new stores) a year, and the company's IT group had to manage the Nortel voicemail and phone systems at each location. After some study, Design Within Reach adopted a ShoreTel system, which required no outside technical support and less wiring than the Nortel system, and could be managed from a centralized, web-

based administration. Because of the ability of the ShoreTel system to interface with legacy phone. The compatibility with the legacy Nortel equipment (voicemail can be passed and calls transferred between the two systems) meant that Design Within Reach could deploy the new ShoreTel system at its own pace.

An Open-and-Shut Case

So, whether it's the elimination of "phone tag" or the appearance of new and productive forms of worker collaboration, the business case for IP communications has never been stronger.

Richard "Zippy" Grigonis is Executive Editor of TMC's IP Communications Group.

The following companies were mentioned in this article:

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www.aculab.com

Cisco Systems
www.cisco.com

Exalt Communications
www.exaltcom.com

Iwatsu Voice Networks
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Level 3
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Power Protection and Management

By Richard “Zippy” Grigonis

All power utility companies at one time or other suffer from service blackouts (no power), drop-outs (very short blackouts), brownouts (lower voltage than normal), surges (higher voltage than normal) and phase shifts. Sometimes customers or their neighbors bring about their own electrical problems, such as blackouts (by overloading the local sub-station), brownouts (starting a large motor), phase shifts (using low power factor loads that require the power company to switch in power factor-correcting capacitors), voltage transients, and high frequency noise (such as from arc welding). Zeus up on Mount Olympus occasionally throws down a lightning bolt to a power line, resulting in a huge transient, and high winds can knock over power lines, creating blackouts. The solution to these problems? State-of-the-art Uninterruptible Power Supplies and power management.



The Uninterruptible Power Supply (UPS) is a device that sits between the mains power supply and the “loads” or devices drawing power, such as PCs, servers, routers, switches, appliances, and other electrical items. Most rely on a battery charger / rectifier, battery and inverter to supply power at appropriate moments, and offer power conditioning and sufficient back-up power to allow controlled shut-down of computer systems during outages.

UPS units can now be found in many homes, home offices and businesses, stationed next to PCs and routers. Call centers and data centers tend to use large rackmount units capable of supporting the power requirements of a series of servers, PCs and channel banks.

UPSs tend to fall into three categories: Off-line, line-interactive and on-line. An off-line UPS, or “standby UPS” is an inexpensive device typically used to protect single-user workstations and less critical applications. You plug an off-line UPS into an AC outlet. A switch that senses a power cut. The load is usually connected directly to the mains, and power protection occurs only when line voltage decays enough to be considered an outage, whereupon DC power is drawn from the batteries and the inverter converts the DC back into AC Power that your system needs. Off-line UPSs typically offer surge suppression, too. The time it takes to transfer from your power source to the UPS’s batteries can range from two and four milliseconds.

The more advanced line-interactive UPS is basically an off-line UPS with power conditioning enhancements. They can increase voltage coming from your AC power supply and suppress line

noise. Line-interactive UPSs don’t immediately switch over to the battery when AC voltage decreases. Instead, they keep the voltage within a certain range, say 10 to 15 percent above or below the voltage you need. Their transfer time is also about two to four milliseconds.

The most costly and advanced system is the On-line UPS. Its inverter supplies all of the load all of the time. They don’t require separate battery power because they continually recharge themselves. They continuously convert incoming AC supply to DC current, and smooth out any noise, overvoltage or undervoltage. They then change the now pristine DC current back into AC, thereby regenerating the mains sinusoidal waveform. This “double conversion” process is the perhaps the best form of power conditioning, since you end up with a perfect sinusoidal voltage waveform and the UPS can fully protect the computer load.

Power Ratings: VA and Watts

Many people become confused when judging UPS power capacity. The average UPS is rated not in Watts, but in Volt-Amps, or VA, the amount of apparent power supplied to equipment, or volts x amps. You were doubtless taught in school that Watts = Volts x Amps, so you might jump to the conclusion that VA = Watts. Actually, wattage is the actual amount of power available to do work, and is always less than or equal to the VA rating when it comes to PCs and electric motors, because VA = Watts / the “Power Factor”. Where reactive loads are present, such as with devices having capacitors or inductors, energy storage in the loads result in a time difference between the current and

voltage waveforms. This stored energy returns to the source and isn't available to do work at the load. The ratio of Watts to VA is the equipment's "power factor", which is a number between zero and one. A circuit with a low power factor will need higher currents to transfer a given quantity of real power than a circuit with a high power factor. Devices based on delicate and electronic components such as those containing transformers and capacitors have a Power Factor of less than one, such as 0.5 or 0.6. Thus, a computer may need 160VA to run correctly and if it's rated at 80 Watts, then the Power Factor is $80 / 160 = 0.5$. Since $VA = \text{Watts} / \text{Power Factor}$, then $\text{Watts} = VA \times \text{Power Factor}$. Seeing that your PC's is rated at 80 Watts, you might run to a store and accidentally buy an 80 VA UPS. That's a bad idea. Since $\text{Watts} = VA \times \text{Power Factor}$, you must realize that $80 \text{ Watts} = 160VA \times 0.5$ for our imaginary computer. This means that you actually need a 160VA unit to protect and supply power for an 80 Watt computer.

Moral of the story: even if you're confident you've determined what the proper capacity of your UPS should be, be sure to add at least another 20 percent capacity for good measure.

With modern power management, the user is notified immediately of the status of the equipment (via a phone call, over the Internet or in some other fashion) and can control the power supply remotely and manage the electrical equipment. Many systems have automatic shutdown if they sense a lack of power.

Active Power

Active Power's CleanSource AC product line is rated for both 60 Hz and 50 Hz applications, and provides enough power to ride through transients and allows time to bridge to a generator. CleanSource is offered in a 130-3600 kVA system range. They sport up to 98 percent energy efficiency, and can be configured in multi-megawatt turnkey solutions.

CleanSource is a fascinating company, because it offers products that don't rely on conventional chemical batteries.

For example, the CleanSource DC product line stores energy in a spinning flywheel. Compat-

ible with major UPS brands, CleanSource DC can be used in conjunction with a standby-generator to enable a continuous power solution, or as a standalone with a UPS for optimal power protection. CleanSource DC can also supplement or replace battery strings in existing UPS installations. CleanSource DC is sold and serviced directly through Active Power, and through strategic partners worldwide.

On the other hand, Active Power's CoolAir DC stores energy in the form of compressed air and heat. When the electrical utility fails, compressed air is routed through a Thermal Storage Unit (TSU) to acquire heat energy. The heated air spins a simple turbine/alternator to produce electric power. The CoolAir DC also contains a small, continuous-duty flywheel to support the critical load during the brief period required for the turbine to spin up to speed.

American Power Conversion (APC)

APC ([News - Alert](#)) offers an immense line of UPS devices (Yours Truly even uses three of them in his home office) for SOHOs, SMBs, enterprises, data centers, service providers, and so forth. They also offer power distribution systems (Stationary Power Distribution Units [PDU], Rack PDUs, and Rack Automatic Transfer Switches), surge protection and power conditioning devices, cables, network accessories, and a range of customer services.

APC has also perfected UPS Management solutions designed to control and monitor UPSs from desktop to data center. In the event of an extended power outage, an automated server shutdown can take place. APC's Physical Security and Environmental solutions not only perform environmental monitoring, but also access control and video surveillance of your computing environment, however big or small it may be. APC's Physical Infrastructure Management solutions enable you to operate and monitor both APC and third party devices and include intelligent ITIL-based software applications to maximize utilization of your existing data center capacity.

CyberPower Systems

CyberPower Systems has given the UPS the "Green" treatment, having developed technology that reduces energy costs and consumption. Called GreenPower UPS

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technology, CyberPower's design improves energy efficiency by reducing energy consumption during normal utility power operation by up to 75 percent compared to conventional UPS systems. During normal power mode the GreenPower UPS design bypasses the Automatic Voltage Regulation (AVR) and the transformer, thus significantly reducing the energy used and heat generated by the transformer during normal mode.

"Our competitors' UPS systems have a significantly lower level of energy-efficiency, especially when the UPS design is conventional online double-conversion, or line interactive and running under full load," says Michael Ho, President of Manufacturing for CyberPower Systems.

Eaton / Powerware

Eaton ([News - Alert](#)) offers Powerware UPS products as part of their PowerChain Management solutions portfolio. Powerware solutions include UPSs ranging from 300 VA to more than 4,000 kVA as well as DC Power Systems. They also offer various software and connectivity devices that enable you to proactively manage your systems, from basic monitoring and shutdown to predictive analysis and power management. Moreover, Powerware Integration Services offers complete solutions tailored for the specific requirements of federal, telecom, and commercial markets. Powerware solutions are backed with 7x24 service support.

Eaton has reached this point by having combined the research, innovation and expertise of several well-known brands, such as Powerware, MGE Office Protection Systems and Santak. Recently, Eaton unveil two new Powerware UPSs, the Eaton 9130 and 5130 UPSs. The 9130 is an online double-conversion UPS that operates at 95 percent efficiency. The 5130 is a highly flexible 1250 to 3000 VA line-interactive UPSs, is very compact and is thus suitable for dense rack enclosures.

Additionally, Eaton's power management software products are now cross-compatible with its Powerware, MGE Office Protection Systems, Aphel and Pulizzi product families.

Emerson Network Power

Emerson Network Power ([News - Alert](#)) offers an enormous portfolio of solutions involving their Business-Critical Continuity™ initiative: AC Power, connectivity, DC power, embedded computing, embedded power, racks/integrated cabinets, monitoring, outside plant equipment, power switching/controls, precision cooling, services and surge protection.

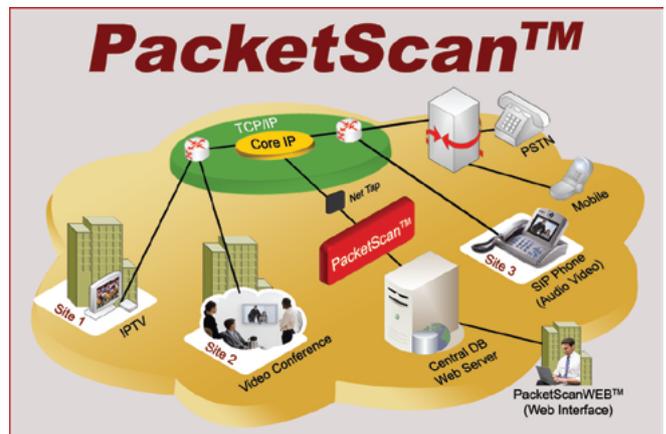
Emerson also recently introduced Energy Logic for Telecommunications, a series of 12 sequential strategies they've formulated that can be used to reduce energy consumption across the network. The key is eliminating inefficiencies along the energy path, triggering cascading benefits by avoiding associated losses upstream. The potential efficiency gains through Energy Logic for Telecommunications are significant, reducing consumption by nearly 60 percent at wireless sites and 40 percent at the central office. This is considerable when one considers that the telecom industry is estimated to be responsible for about 1 percent of the world's energy consumption last year. That equates to 15 million U.S. homes and matches the CO2 emissions of 29 million cars.

Para Systems / Minuteman

Para Systems, Inc. is a major provider of power protection and management products including the venerable Minuteman® UPSs for computers, voice and data communication system and other mission-critical equipment. Minuteman UPS products are available from 325VA to 10kVA. They come in all three categories: Standby, line-interactive, and on-line systems. They also offer Power Distribution Unit (PDU) systems, Keyboard-Video-Mouse (KVM) systems, and surge suppressors.

Recently the company debuted the Minuteman EnterprisePlus Line-Interactive UPS system, having voltage regulation, spike and surge protection and battery backup. The EnterprisePlus Line Interactive UPS series has five 120 VAC models and two 208 VAC models, ranging from the E750RM2U UPS rated at 750VA/600W — 120VAC with 6 UPS outlets, to the E3000RM2U UPS rated at 3000VA/2560W — both 120VAC and 208VAC with 7 UPS outlets.

The Minuteman EnterprisePlus line-interactive UPS occupies only 2U of space in a traditional rack. It's quite efficient, with a 0.8 power factor that increases the capacity of the unit without the need to migrate to larger models (0.88 power factor for 2000VA and 0.853 power factor for 3000VA). The units also support "load shedding", which extends the time of critical applications without adding



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external battery packs by removing power to non-essential devices connected to the same UPS through the network connections. The Minuteman EnterprisePlus independent battery bypass — allows the UPS to provide voltage regulation with surge and spike protection on the utility AC power even when batteries are weak or dead.

Tripp Lite

Chicago-based Tripp Lite is said to have long ago devised the world's first UPS system specifically for PCs, and 15 million units of its long-renowned premium surge suppressor — the Isobar — are in use. Tripp Lite offers a dizzying array of more than 1000 different products, including UPS systems, surge suppressors, inverters, KVM switches, cables and connectivity products, power strips and PDUs, notebook accessories, rack systems, network management accessories and more. Headquartered in Chicago, Illinois, Tripp Lite maintains a global presence with fully staffed offices worldwide.

Recently Tripp Lite released a new version of its free PowerAlert software, part of the PowerAlert Network Management System, consisting of three specialized components that combine to deliver full-featured power management capabilities from desktops to the enterprise. The system enables network managers to monitor and control up to 250 UPS systems and PDUs through a single interface. PowerAlert Local allows end users to monitor and control UPS systems connected to a host computer through a USB or serial cable. It also includes an SNMP agent so that UPS systems can be discovered and managed by PowerAlert Network Management System or a third-party network management system. Thus, instead of having a UPS system communicate with a PC through a USB or serial cable, PowerAlert Local running on the computer enables the end user to monitor power conditions and control the UPS system with a console interface. PowerAlert Local also directs the computer to automatically perform user-defined actions in response to changes in UPS and power conditions. For example, the computer can save open files and shut down safely when the UPS system's battery is about to be depleted during a long power failure.

PowerAlert Network Shutdown Agent is the component that allows the host computer to monitor a designated PowerAlert Local client or SNMP Webcard accessory over the network. When a selected power event is detected — typically an “on battery” event — the host computer automatically hibernates or shuts down after a user-specified delay. It targets computers having restricted system resources or that cannot connect to a UPS system through a USB or serial cable.

What are You Waiting For?

Power protection is perhaps the cheapest form of system “insurance” you can buy. The technology is solid and has proven itself over decades of research and development. You can protect PC and appliance hardware with an added cost of about 10 percent to 25 percent of the hardware's value. Of course, that doesn't include the value of the data, which these days could theoretically exceed the value of all of the equipment you own. Also, keep in mind that even the best power technology has its limitations — you may have a problem if lightning scores a direct hit on your local power line.

Richard “Zippy” Grigonis is Executive Editor of TMC's IP Communications Group.

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www.apc.com

CyberPower Systems
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Emerson Network Power
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Para Systems / Minuteman
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| Documentation: 3.5 | Performance: 4 |
| Features: 4.5 | Overall: 4.5 |

Fonality ([News - Alert](#)) is one of the premiere providers of Asterisk-based IP-PBX solutions. Fonality offers three products: PBXtra, trixbox CE (community edition), and trixbox Pro (commercial/reseller edition). trixbox Pro, which is their commercial edition runs on Fonality's "hardened" PBXtra technology, which Fonality claims has 5 thousand installations and over 325 million calls to date. trixbox Pro is a hybrid-hosted solution, which means you get 24/7 monitoring, phone mobility with no NAT traversal issues, and automatic software updates.

trixbox Pro comes in three editions. The trixbox Pro family starts with Standard Edition (SE), which is free. The remaining two editions, Enterprise Edition (EE) and Call Center Edition (CCE), are available at a low monthly cost or for a lifetime fee. TMC Labs checked out Fonality's flagship product, trixbox Pro Call Center Edition (CCE) which has all the features of trixbox Pro SE and trixbox Pro EE, plus additional call center functionality. trixbox Pro Call Center Edition scored very well in my ratings. It's lowest rating was still a very good 4 stars for 'Performance'. The reason for this not achieving 4.5 or a 5 star rating was that their hosted web interface can be occasionally slow.

trixbox Pro CCE is based on Asterisk and includes an easy web-based user interface, web-based voice mail, exportable reporting, click-to-call, mouse-driven operator panel, Outlook integration, real-time resource graphs, system alerts, auto-card configuring, seamless VoIP trunking, and more. trixbox Pro CCE is designed for companies with 2 — 200 agents and includes ACD and IVR capabilities with unlimited queues, skills-based routing, real-time queue statistics, graphical reports, and web-based recording access.

One of the most powerful features included in trixbox Pro CCE is HUD Pro, a communications software application which features enhanced presence, on-the-fly recording, call barge, call monitor, CRM integration, and one-touch agent login. Each extension has up to 6 icons at the bottom. Depending on your permissions, you can click on one of these icons to call their voicemail, record, barge, email, call their alternate number (mobile phone), or chat.



Figure 1. Fonality's compact trixbox hardware.

In Figure 1, the screenshot of HUD, you'll notice there are different colors to indicate presence and color coding of calls:

Green — Inbound/outbound call
 Orange — Queue call
 Purple — Intraoffice extension call
 Gray — Unregistered

HUD also features drag-and-drop call control, which not only lets you drag calls to someone's extension, but if that person is out of the office, you can drag the call to the mobile phone icon which will transfer the call to their mobile phone. One neat feature is that HUD can launch a Web browser to a custom URL when your extension rings. This can be used to look up inbound callers in your Web-based CRM software or even direct the search query to Google, AnyWho reverse number lookup, etc. HUD Pro also features secure chat for intraoffice instant messaging.

For users that use Outlook Contacts, there is a TAPI plugin that lets you simply right-click on a Contact and initiate a call. They have also extended TAPI so that you can call directly from your Inbox or any other Outlook email folder. What's even cooler is that trixbox Pro takes care of dialing the "9" and it automatically takes your phone off-hook (speakerphone mode) so you don't have to even touch the phone. The off-hook speakerphone mode actually works throughout HUD. So you can also double-click an internal extension from within HUD and your phone will go off-hook automatically. Similarly, you can highlight a phone number anywhere on your computer, and then "drag" that number into HUD and HUD will dial the number. I should mention that currently trixbox Pro supports this off-hook feature on Polycom ([News - Alert](#)) and Aastra phones.

trixbox Pro has some other interesting tricks up its sleeve. For instance, it has a Firefox plugin called FONcall which automatically highlights a phone number on a web-page. You simply click it and it initiates the call — once again automatically taking your phone off-hook.



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Figure 2. Screenshot of HUD during an internal extension call.

Similar to an Outlook toast popup on an incoming email, HUD also displays a toast alert in the lower right of your screen on an inbound or outbound call. This allows you to direct callers to voicemail, record, or other functions without having to open the main HUD interface. The feature-rich HUD Pro client is certainly a competitive advantage Fonality has over many other Asterisk-based solutions. Though, Fonality does offer a free version HUD Lite which has a slimmed down feature-set and which works on most Asterisk flavors. HUD Lite for instance, doesn't have on-the-fly recording, recording of others, log in & out of queues, call barging, call monitoring, and some other features. Thus, the powerful functionality in HUD Pro is a compelling reason for prospective buyers evaluating various flavors of Asterisk.



Figure 3. HUD toast alert.

trixbox Pro supports your traditional telephony features such as auto-attendant, IVR, and voicemail. Similarly, from your desktop phone you get your traditional features such as call parking, call transfer (after a flash hook), and call conferencing. All of these work as expected. trixbox Pro also supports Ring-All (Blast Group) and similarly the ability to intercom page an extension or a group.

For trunk support, trixbox Pro supports analog, T1/E1, and now BRI. The user-friendly web-based administrator supports plug-and-play detection of your telephony hardware, which is typically Sangoma hardware in trixbox Pro. I liked the ease at which I was able to detect and configure the T1/E1 card and the two analog cards in the machine.

Faxing is also supported on trixbox Pro. While faxing on Asterisk-based platforms often gets a bad rap, (due to timing/clock syncing issues) Sangoma has recently built some very good analog hardware to solve this problem. Actually, they developed a simple bridging cable that connects from the T1/E1 card to the analog hardware to keep the timing in sync. Presto, bango! — reliable faxing on an Asterisk-based platform!

trixbox Pro has extensive BLF support, although only for Aastra (News - Alert) phones. You can easily drag-and-drop users into your BLF area on any Aastra model with BLF support. Fonality also added automatic detection and support for the Aastra 536M and 560M sidecars to extend the number of BLF keys available on your Aastra phone.

Another key feature is the built-in conference bridges. The 5 built-in conference bridges each support an unlimited number of internal participants and as many external participants as you have inbound phone lines.

Mobility features are very strong in trixbox Pro. Each user can logon to their own personal web control panel and specify rules for how/when/where they are contacted as part of their FindMe feature (see Figure 4).

FindMe supports presence detection (via HUD) to know when you have walked away from your desk and thereby ring your cell phone. Further, it features a “white list” to only allow specific people to access “findme”, as well as a VIP list (spouse, important contacts) that can reach you regardless of the schedule or your HUD presence status. Very useful feature to help stay in touch with your important contacts while respecting the times you don't wish to be contacted.

Part of FindMe, the Boomerang feature allows you to send a call that has been forwarded to your cell phone right back to any extension on your PBX. Simply press some touch-tones on your cell and the call can be redirected to your assistant or back to your own desk. You can also record calls on your mobile using Boomerang — a powerful feature. Call screening is included and one of my favorite features. The caller is prompted for their name and once again you have the choice to accept or reject the call.

Telecommuters/Home Workers Support

Telecommuting support in trixbox Pro is very good. trixbox Pro's hybrid-hosted approach means no more pesky VoIP over NAT firewall issues. I was able to take an Aastra phone I auto-provisioned in the office home with me, connect to my home broadband connection, and simply change the DNS setting on the phone to the external DNS entry of the trixbox server and voila, I was able to make & receive calls to my extension. No need to poke any holes in the corporate firewall or my home firewall. Nice and simple.



Figure 4. Sangoma bridging cable for fax.

Features:

- Outlook Integration
- Voicemail
- Voicemail-to-Email
- Hot Desk
- Music-on-Hold
- Scheduler
- Night Mode New!
- Custom CTI (AGI)
- Analog & IP Phones
- Call Forwarding
- Name Directory
- DIDs
- Unlimited VoIP Accounts
- PSTN Fallback
- Branch Office Support
- Web-based Control Panel
- Powerful Reporting
- Hands Free Auto Phone Provisioning

- FAX Support
- BLF Support
- BRI Detection
- E1 Support
- Live Backup Server
- Multiple Deployment Management
- Conference Bridges
- Routing by DIDs
- Paging / Zone Paging
- Intercom / Zone Intercom
- Voicemail Groups
- Advanced Call Forwarding
- Call Return
- Call Out
- Custom Caller IDs
- SMS/Pager Voicemail Notify
- Alerts & Notifications
- Trunks Status Pages
- Real-Time System Graphs
- FindMe
- Boomerang Mobile Integration
- Call Screening
- Music-On-Hold (Unlimited)
- Historical System Graphs
- Unlimited Call Queues
- Full Featured A.C.D.
- Skills-Based Routing
- Graphical Queue Reports
- Barge Report
- Agent Call Recording
- Agent Variable Log-off
- Agents on Cell Phones
- Agents Shared across Sites
- Real-Time Queue Stats
- HUD features:
- Operator Panel (w/ BLF)
- Call Parking Area
- Drag & Drop Call Control
- Color-Coded Call Status
- Drag & Drop to Voicemail
- Extension Sorting
- Enterprise Instant Messaging
- Outlook Integration
- Presence Management
- Click-to-Call Mobile Phones
- Click-to-Email
- Desktop Alerts
- Interactive Desktop Alerts
- Group & User Permissions
- Extension Grouping
- Extension Search
- Extension SearchQuickMenu
- Shortcuts (Hotkeys)
- On-the-Fly Recording
- Queue Status
- Agent Login/Logout
- Call Barging (active)
- Call Monitoring (passive)
- Web Access to Recordings
- Advanced CRM Integration

Some important new features in trixbox Pro

2.0 worth highlighting:

First, calendar-based scheduling has been added allowing you to have your call menu do something specific, such as special holiday greetings. trixbox Pro has had very good auto-provisioning already, but they've improved it in 2.0. I was able to connect several Aastra and Polycom phones on our network and trixbox Pro auto-detected them and auto-assigned them an extension in sequential order. Hands free phone auto-provisioning is supported on all supported Aastra models and Polycom models with firmware 2.2 and above.

Resellers will especially like the single-screen management for all of their customers. From one Admin web interface you can switch between installations with two clicks of the mouse in the lower-right corner of the Admin Panel.

Room for Improvement:

The call recordings (see Figure 5) within the web-based interface should have a memo text field to allow users to add recording details, such as caller's name, topic discussed, etc. If you keep a lot of recordings, this will make it easier to reference them in the future.

I'd like to see standard-based videoconferencing support in HUD Pro. If Counterpath can offer a slick videoconferencing app (eyeBeam softphone) based on SIP and other industry standards, then surely so can Fonality. In addition to video, perhaps collaboration capabilities (WebEx, Microsoft Live Meeting) would be a nice addition. This would negate the need for a separate collaboration platform, the associated licensing fees, and duplication of the same employee information which must also be maintained due to employee turnover.

One last suggestion would be to email the call recordings automatically, similar to the voicemail-to-email feature. You can of course access the recordings via the web and download & save to your local PC, but an automatic email option would be nice.

Conclusion

I was very impressed with the ease-of-use of the admin interface, and I especially liked the strong mobility features. Users will like the strong mobility features. Users will like the strong mobility features. Users will like the strong mobility features. The web-based

GUI is one of the best you'll see on any Asterisk-based platform and it makes extensive use of AJAX and tool-tips. Lastly, HUD's motley of features, including desktop call control, presence, and on-the-fly recording make trixbox Pro a compelling choice when deciding which IP-PBX to purchase.

Perhaps the only caveat with trixbox Pro as compared with other Asterisk-based solutions is the trixbox pricing. Many Asterisk-based solutions are extremely inexpensive, some under \$1,000. trixbox Pro does offer a relatively inexpensive monthly option. For instance, for trixbox Pro Call Center Edition (CCE) that I tested, it's \$11.39/month per extension for 26-50 extensions. However, the lifetime fee is \$159.99/month per extension which works out to be \$14,259.50 for a 50 extension IP-PBX. That's not 'terribly' ex-

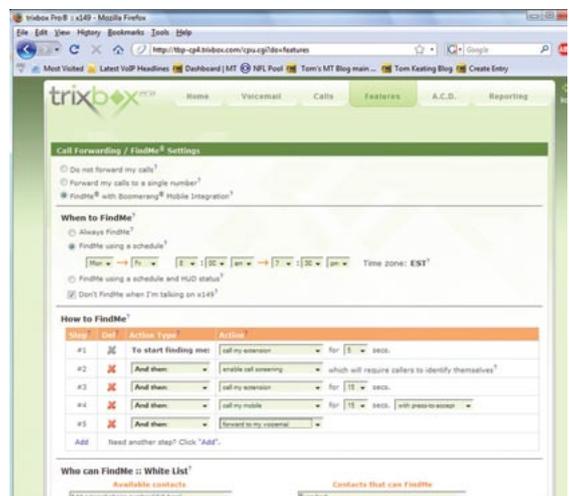


Figure 5. Call recording on web-based interface.

pensive, but it is more than some competing Asterisk-based solutions, though still much less expensive than many Nortel, Avaya, or Cisco systems.

I'm sure Fonality would argue their main competitors are not other Asterisk solutions but the "Big 3" (Avaya, Nortel, Cisco). Further, in my past discussions with Fonality, they've told me that they believe they add a lot of value to the "core" Asterisk that gives it a much stronger feature-set than other Asterisk-based systems. In testing trixbox Pro I would agree that it has many features I have not seen in many other Asterisk-based systems, including HUD Pro, call screening, call recording (some others do have this), strong call center functionality (queues), easy-to-use web-based admin, etc.



Innovative Ideas from the “VoIP Conference Phone” Experts.

Finding the Perfect VoIP Conference Phone

by Richard “Zippy” Grigonis

Analysts have talked about VoIP for years, touting the advantages it will bring to your phone system: Low cost – or even no cost – phone calls, portability, easy expandability, unified messaging (integrated voicemail and email), and all the same calling features with which you’re familiar (call forwarding, call waiting, call park, etc.). Businesses will benefit with lowered phone bills, the ability to be more flexible and grow with changing demands, as well as greatly increased productivity.

Another discussion has centered on the different communication protocols: Should I go with H.323, SIP, or some other proprietary system? Though many H.323 and proprietary systems are in use and are still being installed, it is now quite evident that SIP has become the standard that will win out.

So, sooner or later, we’ll all be making phone calls using a VoIP IP PBX running SIP.

Why should you care, you ask? It all boils down to the conference phone sitting on your conference room table.

Any business that has been around for any length of time knows the importance of good communication. And a good tabletop conference phone delivers tremendous value to any organization, regardless of size. But that old TDM conference phone won’t work on your new VoIP phone system.

Not to worry. Manufacturers like ClearOne have followed VoIP trends for years and have created new products that will make you wonder why you waited so long to dump your old TDM system. Case in point is MAX IP, the industry’s first expandable SIP-based VoIP tabletop conference phone.

ClearOne has been building some of the world’s finest professional audio conferencing and sound reinforcement systems for many years. About five years ago, ClearOne launched a line of tabletop conference phones packed with all of the same high-performance audio technologies their professional equipment contains. And MAX IP is the VoIP conference phone with that high-definition heritage. Things like Distributed Echo Cancellation™, Full Duplex, Noise Cancellation, First Mic Priority, Adaptive Modeling, and ClearEffect™, to name a few.

Here’s why those technologies should be important to you: Crystal-clear, natural-sounding audio. Just because you’re not Dow Chemical, doesn’t mean your conversations aren’t important. ClearOne feels

that great ideas need to be heard, no matter whose ideas they are. And if you’re trying to hold an important conversation over a standard telephone handset’s speakerphone or with an inferior tabletop conference phone, real communication cannot occur.

Here’s how those technologies work: Full-duplex simply means that call participants can both talk and listen at the same time. Since most speakerphones are half-duplex, when one person is talking he can’t hear anything being said from the far side without substantial audio clipping or suppression. This makes natural conversations next to impossible.

As explained by Mark Child, Director of Product Marketing – Telephony for ClearOne, “If a phone doesn’t do a good job of acoustic echo cancellation, you will often hear your own voice coming back through the loudspeaker, but at a slight delay. This echo makes it extremely difficult to carry on a normal conversation. Effective echo cancellation will identify the audio from my microphone that is being returned to my speakerphone and cancel it out—completely.”

“Almost all rooms – including most conference rooms – contain a fair amount of ambient noise from HVAC systems, fluorescent lights, projectors, computers, etc.,” says Child. “We usually don’t notice it because it’s always there. Noise cancellation software identifies these sounds and removes them. Our MAX IP uses a digital analysis technique that discriminates the talker’s voice from ambient room noise and cancels the noise.”

“Moreover, the vast majority of conference calls take place over narrow-band phone lines which eliminate the high and low tones from your voice,” says Child. “This often causes listener fatigue since participants have to strain to hear what is being said. The MAX IP has ClearEffect™ technology that simulates the high and low tones that were eliminated, creating a more full-sounding audio, even from a narrow-band phone signal. This makes the call sound much more natural and easier to listen to.”

So what’s the bottom line? By moving to a SIP-based VoIP phone system, you not only benefit from increased productivity and cost savings, but you can also take advantage of the opportunity to greatly improve the quality of your conference calls. If your VoIP phone system is running SIP, chances are the MAX IP will work with it. With its sophisticated audio processing technologies, advanced SIP features, and the ability to daisy-chain up to four phones, ClearOne’s MAX IP delivers unbeatable audio conferencing value.

Remember, if your conference phone is not up to par, your ideas won’t be heard. Imagine what it’s like to *really* connect.

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Full suite of expandable SIP, analog wired and wireless conference phones.



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WiMAX – Will America Catch Up?

By Richard “Zippy” Grigonis

Originally called WirelessMAN, WiMAX ([News - Alert](#)) (Worldwide Interoperability for Microwave Access) is the El Dorado of wireless data transmission, with versions of it providing both high-bandwidth point-to-point links and mobile cellular-type access. It's potentially a viable wireless alternative to cable and DSL. In the last 12 months, several WiMAX trials and actual commercial networks have been initiated worldwide for last mile broadband connectivity for both the consumer and enterprise segments. Until now, however, America has lagged behind the rest of the world in terms of WiMAX build-out and adoption.

The WiMAX standard originated with the IEEE 802.16 wireless broadband committee. Conformance and interoperability testing was formalized with the industry group known as the WiMAX forum (founded in 2001) formulated a set of product guidelines based on the 802.16 standards or “WiMAX profiles”.

At the moment there are two versions of WiMAX: Revision D is based on the IEEE 802.16-2004 standard. It is only for fixed applications. Revision E, based on IEEE 802.16e-2005, supports fixed and mobile applications and has a more sophisticated radio interface. These two forms of WiMAX are incompatible, so, given that the future of telecom is definitely rooted in mobility, much of the wireless industry has only paid lip service to Revision D and has instead focused on developing products adhering to Revision E (802.16e).

At the moment, Pakistan enjoys the world's largest WiMAX network. Wateen Telecom rolled out WiMAX in 17 cities throughout Pakistan on a platform built with Motorola equipment.

Indeed, Motorola is one of the companies at the forefront of WiMAX development. Motorola's Fred Wright ([News - Alert](#)), Senior Vice President for Cellular Networks & WiMAX, says, “We now have many commercial contracts for WiMAX in a number of markets around the world. A few months ago, we were in a kind of transition stage. We're now moving from the trial phase with a number of customers to commercial contracts, and we have a number of systems under construction or we will be getting them under construction fairly quickly. Today, we also have, in general, commercial service with a number of customers around the world. Customers are building out networks such as Embratel in Brazil, Axtel in Mexico, and Wateen Telecom in Pakistan is expanding and reinforcing the capacity of their network. We're building with a telco in Saudi Arabia too, as well as Mena Telecom in Bahrain. We have project after project. The technology is real, it works. We have commercial grade software out there in the field that is supporting customers. And we periodically win new contracts with new customers.”

“The WiMAX Forum ([News - Alert](#)) has a certification program that subjects products to intensive, rigorous testing to assure everyone that they have the ability to interoperate with WiMAX devices from other vendors that have the same certification,” says Wright. “In June, Motorola's ([News - Alert](#))



WiMAX WAP 25400 base station passed the interoperability and conformance tests and thus received the WiMAX Forum Certified seal of approval for operation. So we now have certification on our most popular base station product, called a Diversity Access Point ([News - Alert](#)), for customers around the world. This is the access point or the base station that has the power amplifiers and antennas combined into a single unit to make it nice and compact. It has a minimal footprint, which means that it only need a small common equipment cabinet that sits at the base of the tower, that can be mounted on a wall or a post or potentially placed inside of a building.”

“Right now we also in the process of getting a number of our Customer Premise Equipment [CPE] units going through the certification process,” says Wright. “We have both indoor and outdoor customer premises equipment that we sell around the world. We're just about commercially ready with a PC dongle, a USB connector that plugs into a PC and provides full mobile WiMAX functionality. We've gone through all of the shakedown tests and so forth. That product is now in a state where it should be commercially ready very soon.”

“So, Motorola has a good portfolio, not only of base station products operating in the 2.3, 2.5, 3.5 GHz frequency bands, but we also have a fairly significant variety of customer premise equipment, both indoor and outdoor varieties that come with different features. Some of them are data-only, some of them also have a voice port in them, so you can just plug an RJ-11 connector from a desktop phone into the CPE unit and you can do VoIP calling on the customer's network. Of course, you've got to connect to a VoIP switch, which is part of what we're interfacing into with various customers. Our Motorola wi4 WiMAX CPEi 750 Desktop CPE won TMC's 2008 WiMAX Distinction Award.”

Motorola's rival, Nortel, is also aggressively pursuing early market opportunities for WiMAX. For example, they recently announced that Comstar United Telesystems, Russia's leading integrated telecom service provider, has selected Nortel's WiMAX solution to provide wireless broadband in

Moscow, which has the highest penetration of mobile phone subscribers of any major Russian city (at over 150 percent) and the highest Internet penetration. (Rethink Research Associates Ltd. estimates that the number of WiMAX subscribers in Russia will grow to 1.7 million in 2010 and 4.3 million 2012.)

The Nortel WiMAX solution sold to Comstar includes the WiMAX BTS 5020 (mobile WiMAX base station), compliant with WiMAX Forum and RosSvyaz standards. Comstar will initially deploy over 160 mobile WiMAX (802.16e) base stations (BTS 5020). The network will also include Nortel's the Access Services Network Gateway (ASG) 5100, devices such as USB adapters, indoor and outdoor gateways, Business Support System (BSS) and Operational Support System (OSS) platforms as well as Nortel Global Services for WiMAX such as network design and training.

This is Nortel's first mobile WiMAX win in Russia and should be a major boost for Nortel's 4G strategy, which includes a strategic WiMAX agreement with Alvarion ([News - Alert](#)), is helping Nortel to bring WiMAX to market faster to customers.

Is Good Old Voice the WiMAX "Killer App"?

Carriers and service providers have been searching for the next "killer app" for years. Voice, however, remains the time-honored money-maker. WiMAX providers have found that voice doubles the average revenue per user, gives the service provider a bundled and branded service, broadens their market reach and decreases their cost to acquire new customers. This probably helps to explain the popularity of Alianza's ([News - Alert](#)) hosted voice platform among WiMAX service providers, which gives service providers the ability to offer a wide range of voice features and functions to small business and residential users - up to 120 different functions. Since it is a fully integrated SaaS (Software as a Service) platform with a simple interface, providers can be up and running in 30 to 90 days.

Moreover, Alianza's SaaS-based pricing model eradicates capital expenditures and slashes operating expenses. The simple plug & play implementation also eliminates the need to recruit an engineering team capable of building, integrating, and maintaining a tier-1 platform. It gives providers the ability to create custom products tailored for specific markets niches (e.g., residential, SMBs). The service provider can provision directly using proprietary telecommunications carriers. Thus, the service provider can focus on core competencies and increasing revenue.

Alianza now offers services in North America with plans to expand throughout South America, Europe, and APAC over next 6-18 months. Recent customers include DigitalBridge Communications and MVS in Mexico.

Getting the Nitty-Gritty Right

Everything about WiMAX is more sophisticated than, say WiFi. Researchers and service providers soon realized that high-performance, flexible yet cost-effective antenna solutions capable of handling coverage and interference issues were necessary for the successful deployment of WiMAX. Companies such as PCTEL ([News - Alert](#)), Inc. have thus stepped forward with their innovative antenna solutions and software-based radios. Its portfolio includes a broad range of antennas for WiMAX, Land Mobile Radio, GPS, telemetry, RFID, WiFi, indoor cellular, and mesh networks. PCTEL's products are sold worldwide through direct and indirect channels.

PCTEL is now working with several leading WiMAX OEMs to develop both point-to-point and point-to-multipoint antenna solutions. PCTEL has also devised scanning solutions to test for coverage and identify problem areas in a network.

The more sophisticated the antenna and radio interface demanded by WiMAX also results in a more sophisticated testing regimen. As Graham Celine, Senior Director of Marketing at Azimuth, says, "The key component from our perspective is that wireless technology - and it really doesn't make any difference what particular wireless technology - went through a paradigm shift when it transitioned from a single antenna to multi-antenna architecture. Doing so made it more complex. This has happened in many different technologies. In fact, it started in the WiFi realm when it moved from the single antenna 802.11a/b/g to the multi-antenna 802.11n. Similarly, in the WiMAX space, 802.16 has always been defined from pretty much Day One as multiple antenna-capable, with the first standardization of the multi-antenna form being 801.16e, or the 'Mobile WiMAX'. As you look forward, the cellular technologies such as GSM and CDMA are essentially converging. They managed to say apart in the 3G world with UMTS and 3GPP2 and EVDO type of technologies, but as mobile is moving to 4G today, such as the upcoming WiMAX and LTE, once again we've moved back to multi-antenna form factors."

"That's where we've really been involved in WiMAX," says Celine. "We're a test equipment company and so our involvement consists of determining how we can support the companies that are developing things

such as base stations or subscriber stations to properly validate these products before they're rolled out into the field. We figure out how to save providers time, money and time-to-market in producing these products. The biggest challenge for providers is that there's a real-world environment which involves multiple signal paths. If you have a mobile or stationary multi-antenna device with two antennas and a multi-antenna base station with two antennas, the signal paths multiply in both directions. In the real world, that changes. Each one of those signals goes through multiple paths and the signal gets replicated through reflection and is subject to fading in that it varies in signal strength because of those reflections and other disturbances in the path."

"That's why we've developed a channel emulator which essentially connects between the base station and the subscriber station and, through statistical modeling, recreates those over-the-air conditions," says Celine. "That really allows a vendor to do robust testing in the lab, so they can do product or radio conformance testing, or just straight functional testing. It could be throughput performance testing, or most important, interoperability testing. This can all now be done in a real-world scenario without ever having to leave the test lab. They can run this for many hours. They can create different statistical models and they can run them for a relatively long period of time. Then if they detect any discrepancies in the device behavior, they can go back and they can repeat precisely the same situation where it happened."

WiMAX When?

While Pakistanis luxuriate in WiMAX wireless broadband, we Americans await the big commercial rollout of Sprint-Nextel's Xohm ([News - Alert](#)) WiMAX service. WiMAX is appearing here and there in North America, and the ball is slowly beginning to gather momentum. Still, I'm itching to trade in my EVDO card.

Richard Grigonis is Executive Editor of TMC's IP Communications Group.

The following companies were mentioned in this article:

| | |
|-----------------|--|
| Alianza | www.alianza.com |
| Azimuth | www.azimuth.com |
| Motorola | www.motorola.com |
| Nortel Networks | www.nortel.com |
| PCTEL | www.pctel.com |

In Search of Excellence...

Presenting the 2008 Internet Telephony Excellence Award Winners

The editorial staff of INTERNET TELEPHONY® magazine is proud to announce the winners of the 2008 INTERNET TELEPHONY® Excellence Awards. These companies are as varied as there are products that fit under the IP telephony umbrella. In fact the only thing more varied than the vendors serving their customers are the customers themselves. And, as we can see from the following companies, they are increasingly turning to IP Communications solutions to build their businesses. This year's crop of award winners submitted case studies featuring a wide array of end users. For example:

A network design company was able to leverage the solution of one of our winners to take a process that entailed multiple steps and tools, and redundant tasks, often taking up to three weeks to complete and was able to reduce design turnaround time to between two and three days or less, while increasing the professionalism of their deliverables and minimizing oversights and mistakes. They realized a 60 percent reduction in quote preparation time, 90 percent reduction in presales administrative investment time and a 99 percent reduction in design errors.

When the CIO of one of the country's largest and most prestigious law firms faced significant communication objectives, he began the due diligence on replacing the firm's aging telephone and voicemail systems. And with 1,800 employees, 2,800 handsets, and monthly long-distance usage of 500,000 minutes, intra-office calling of 100,000 minutes and 200,000 minutes of conferencing, this was no small task.



In the end, by choosing a solution provided by one of our 2008 IT Excellence Award winners, the law firm deployed a unified communications solution with full redundancy and disaster recovery failover features. According to the firm's CIO, the new system delivers communications technology that meets the firm's current and future needs at a lower five-year cost than any of the other options that were reviewed. The firm can now equip their partners, lawyers, secretaries and other staff members throughout the country with the latest telecommunications technology in order to enhance productivity and create real value for their clients while sustaining voice quality and lowering their total cost of ownership.

| | | |
|------------------------------|--------------------------|---|
| Allworx Corp. | www.allworx.com | Allworx 24x |
| Avaya | www.avaya.com | Avaya IP Office |
| Avistar Communications Corp. | www.avistar.com | C3 Desktop Video and Conferencing and Collaboration |
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Regulations and More Regulations

By Richard “Zippy” Grigonis

Not so long ago, the ability of VoIP providers to supply e911 ([News - Alert](#)) service — the ability to associate a physical address with a calling party’s phone number when he or she dials 9-1-1 for emergency services and send that information to the appropriate Public Safety Answering Point (PSAP) — was a big issue. Little VoIP providers were afraid to pay huge fines and scrambled for equipment and services. Other major issues of the time: taxing IP enabled services to support the Universal Service Fund, consumer protection, and disability access regulation. But perhaps the most interesting topic related to U.S. telecom (FCC) regulation has been the Communications Assistance for Law Enforcement Act (CALEA) and the subject “lawful intercept” in general, which has led to a slew of technologies and products for spying on select (just a few, we hope) individuals.

As for e911 (Enhanced 911), VoIP providers found that much of the “heavy lifting” associated with providing such a mandated service could be delegated to such able organizations as Dash Carrier Services, whose Dash911 is perhaps the premier FCC-compliant e911 solution for VoIP. Dash911 enables VoIP service providers to quickly and cost effectively deliver such 911 service to their customers. Dash supports North American coverage, easy integration (with a branded website or SOAP API for direct integration), a flexible Interconnect (SIP or PSTN), 24x7 support by e911 experts, and full-blown OSS capabilities (Complete CDR, reporting, and management tools).

CALEA and the lawful intercept of VoIP calls, on the other hand, has a more mysterious and intriguing ambiance. In case you’re not aware, CALEA requires telcos to design or modify their services and facilities to enable law enforcement agencies armed with court orders to intercept calls and obtain call identifying information.

Lawful intercept is not quite as straightforward a proposition in VoIP as it is in the PSTN, though there are tricky areas even there, as in hybrid IP/PSTN environments. Mobile communications, for example, presents its own set of problems when it comes to lawful intercept. Even here, however, there exist companies that can bring great expertise to the problem.

Starent Networks ([News - Alert](#)), for example, provides infrastructure solutions enabling mobile operators to deliver multimedia services to their subscribers. Starent’s solutions are loaded with functions and services needed for access, mobility management and call control in mobile operators’ networks. Thanks to their integrated intelligence and high performance abilities, Starent Networks’ solutions can enhance subscriber management, billing and session policy enforcement. Their products support a wide range of mobile wireless networks, such as



UMTS, CDMA2000, WiFi, and WiMAX. Starent Networks’ products have been deployed by over 85 mobile operators in 35 countries.

Andy Capener, Vice President of Marketing Communications at Starent, says, “We sit between the radio access network and the IP Internet. We are the ‘gateway’ for the mobile subscribers into the data services they have. We play a specific role relative to those topics based on that part of the network.”

Starent’s Andrew Gibbs, Director of Product Management, says, “Lawful intercept is really a key requirement specified by most of our customers; it’s pretty much an international type of requirement in which various regulatory bodies and law enforcement organizations have interest. Lawful intercept has been done for years in the PSTN. In recent years, lawful intercept has made its way into more data-oriented types of applications. One of the requirements that we see on a fairly regular basis is that our customers want to be able to tie the interception capability and monitoring function on our access platforms so they can collect this information and convey it to various types of law enforcement agencies. At that point, the information is collected by various types of collection servers at that end. Typically, this whole process begins with some type of a court-ordered subpoena by the law enforcement agency to the telecom service provider. The provider then issues or provisions some type of wiretap against some target user’s session. That’s when the access gateways — meaning the Starent ST16 and ST40 — would be able to intercept this information and then forward it along.”

“This whole topic has become very important these days because the Internet and electronic communications is such a large part of our daily life,” says Gibbs, “and there’s more awareness of this issue, particularly by government agencies in terms of having greater control

over public security interest. That's because of some of the illicit activities that can occur over electronic communications, such as criminal activities or terrorist activities."

"It used to be that the law enforcement agency had some type of proprietary monitoring equipment on their end of this application," says Gibbs. "That was kind of an expensive way of doing things because it was nonstandard. In recent years, there has been work that's been promoted by various types of standards organizations such as the TIA ([News - Alert](#)), to introduce a mediation type of layer. This mediation layer would reside in the middle of the network, between the access provider's network and the law enforcement agency. This mediation layer, also called the delivery function, would mediate between the interception function, which would work with the access gateways, between such things as the Packet Data Services Node [PDSN], home agents, Gateway GPRS Support Nodes [GGSNs] and so forth, and the actual delivery and collection function which would be the responsibility of the law enforcement agencies."

"The other benefit of having such a mediation layer is that it's a standards-based approach, it enables support for nomadic types of use cases," says Gibbs, "where the user could be accessing the network from more than one location for fully mobile-type use cases where it's important to have some kind of location," says Gibbs. "It also enables mediation between different types of applications and also different types of access gateways from many different types of vendors. It's a more scalable type of framework, from our customers' standpoint and also from the law enforcement agencies' standpoint."

"Starent's unique contribution to this area is that our platform is considered a highly intelligent mobile subscriber-aware management system," says Gibbs. "Starent's unique benefit that it provides is that, with its subscriber awareness, our platform is able to consolidate this type of monitoring and interception function in-line, within our access platforms. So the benefit it provides to the operator is that capital avoidance as well as achieving reduced operational costs."

The Big Ear, and More

When it comes to the world's largest IP networks, another name that looms large in the world of carrier-class security and traffic intelligence is Narus ([News - Alert](#)), Inc. The company's NarusInsight is a highly scalable traffic intelligence system for capturing, analyzing and correlating IP traffic in real-time. Indeed, the

NarusInsight Intercept Suite (NIS) is said to be the industry's only network traffic intelligence system that supports real-time precision targeting, capturing and reconstruction of webmail traffic, email, chat, calendaring, draft folders, address books, etc. Traffic from all nodes and many protocols can be reassembled and viewed from a single management station or distributed across multiple stations. Additionally, NIS supports most webmail services, including Google Gmail, MSN Hotmail, Yahoo! Mail, and Gawab Mail (English and Arabic versions).

In short, Narus technology prides itself on the ability of its technology to identify and track nearly all network and application protocols across very large networks.

NarusInsight's high-speed full packet capture and processing can handle not only deep packet analysis from Layer 2 to layer 7 and full traffic correlation across every link and element on the network, but it achieves these intensive feats of packet processing at network speeds of up to OC-192 at Layer 2 and OC-48 at Layer 7, enabling carriers to monitor traffic at either the edge of the network or at the core. Thus, rather than dealing with legacy, siloed security and traffic management solutions that aren't very scalable, NarusInsight offers one common, scalable system for IP services security, intercept and traffic management that's easily extended by whatever sophisticated applications are necessary to gain insight into network traffic.

Another interesting product line in this area is DeepSweep-1 for CALEA, from IP Fabrics ([News - Alert](#)). It's a neat, self-contained network solution for broadband and VoIP CALEA compliance. DeepSweep targets small and medium-sized cable operators, ISPs and VoIP networks. A single DeepSweep system can function as a complete CALEA compliance solution, providing the probe, mediation/delivery, and administration functions that competing systems implement as separate devices. DeepSweep also offers users compliance and safe harbor by implementing multiple industry standards, including ATIS-1000013-2007 (T1.IAS), ATIS-1000021, T1.678 v2, and CableLabs CBIS.

Don't let its size fool you. DeepSweep-1's internal host processor and multi-core packet inspection accelerators allow it to monitor multiple

1 Gbps Ethernet links at true wire-speed with full layer2-7 inspection capabilities. DeepSweep fully inspects every network packet, so it doesn't require assistance from switches, routers, or other probes for discovery, filtering, or intercept. Broadband DeepSweep users enjoy extreme flexibility in expressing subject IDs, including username/text (via UTF-8 and other encodings), MAC address, IPv4/IPv6 address, and DHCP option 82 and VoIP users can select from name@host, name@IPv4/IPv6 address, phone@host, and tel:phone. DeepSweep also has the ability to specify/limit the discovery protocol, including RADIUS, IPCP, CHAP, DHCP, and PPPoE.

DeepSweep for CALEA comes in three basic models. The first two are for Broadband Internet Access and Services CALEA compliance. They adhere to either Cablelabs CBIS or ATIS-1000013.2007 (or both) and they include such features as the ability to specify subject IDs as MAC addresses, IP addresses, DHCP option 82 IDs, subject IDs via text string, pen-register, trap-and-trace, and full content intercepts. Both models will seamlessly integrate with the DeepSweep Secure Buffered Delivery systems or other buffering systems that comply with either the CBIS BIF functionality or the ATIS-1000021 specification.

The second DeepSweep model is for VoIP CALEA compliance. Adhering to ATIS T1.678, it includes the ability to specify subject IDs by host, address, or telephone, pen-register, trap-and-trace, full content intercepts, and fully configurable collection device addresses.

All DeepSweep for CALEA models support multiple concurrent cases, each with potentially multiple subjects and each dynamically updatable. The models can easily be configured for both VoIP and broadband CALEA compliance, and each system includes 500GB-1000GB (model dependent) of disk storage. Since the system is also software upgradable, it is easily modified to support buffered delivery mechanisms, such as ATIS-1000021.

Who would have thought that regulatory stuff could be this interesting?

Richard Grigonis is Executive Editor of TMC's IP Communications Group.

The following companies were mentioned in this article:

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www.dashcs.com

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Keynote Speakers Address Communications Developers

By Greg Galitzine

At the recently concluded Communications Developer Conference, a series of keynote speakers from several of the industry's leading firms spoke about the opportunities that lay ahead for developers of communications applications.

Speakers from Avaya and Cisco spoke to the assembled crowds about unified communications (UC), while a speaker representing Texas Instruments ([News - Alert](#)) laid out his vision for development of IP phones and applications specifically targeting the small and medium sized business (SMB) market.

Lawrence Byrd, Director of Unified Communications Architecture at Avaya kicked off the keynotes at the Communications Developer conference with a presentation entitled Unified Communications in a Web 2.0 World.

The gist of the speech was that developers will play a critical role in the future of communications, and in fact the developer community is the engine that runs the IP communications world.

He stressed that the developer community should recognize this as an opportunity; an "expanded playground to create ways of connecting these elements to deliver added value" for their end customers.

"We've spent the last 20 years trying to connect the phone to the Web," said Byrd. "Connect the Web to the store. That is the definition of unified communications, connecting both the old and the new."

"And as we move ahead we need to be sure that legacy applications and modern cutting edge applications work well together. That is how we add value. It has to work together. It has to be an integrated space," Byrd said.

Byrd believes that there are three key tools at the disposal of developers and that these three technologies make up the fabric of what developers need to leverage to create the next generation of communications applications.

These three tools are SIP, presence and SOA (service oriented architecture).

SOA, presence and SIP must work together in an integrated combined way that will allow developers to build business applications with the goal of delivering value internally to employees but more importantly impacting the customer experience.

"The three fabric technologies are SIP, SOA and presence working together. Use platforms that bring these together to create applications that will solve the challenges you face," said Byrd in conclusion.

Cisco's Louis Marascio, Director of Engineering for the company's Unified Application Environment which is the developer run time platform for Cisco Unified Communications solutions delivered a presentation entitled, The Network is the Platform. Marascio laid out Cisco's vision for developers, which is essentially the desire to enable developers to leverage the platform that Cisco is building around UC to develop applications around UC.

Marascio told the audience that business transformation doesn't come about "...just because you deploy a product but because developers create innovative applications that address market needs."

He pointed out that in the consumer space development happens rapidly, while enterprise application development seems to move at a slower pace. As an example speaking to the speed of innovation, he provided a statistic from Facebook, which shows that once they opened their platform to developers, over 5,000 custom apps were built by 90,000 developers in the first seven weeks.

Meanwhile in the enterprise environment, the more utilitarian parts of the platform (security reliability, scalability...) take longer to develop.

Cisco's vision is to marry the best of both worlds: To maintain the pace of consumer innovation but leverage the network to maintain security, reliability, and the like.

Marascio spoke about Cisco's unified application environment, which is an end to end developer platform that provides everything developers need to develop deploy and manage applications. He also referenced Cisco's developer community which launched in July.

"Our vision is to enable developers to leverage the services of the Cisco UC platform by exposing those capabilities in a consistent, easy to consume manner," Marascio said.

Texas Instruments' Director for CPE VoIP Products, Fred Zimmerman, rounded out the Communications Developer Conference keynotes as he delivered his presentation A Call to IP Phone and VoIP Device Vendors... Achieving Success in the SMB VoIP Market.

He began by telling the developer crowd that collectively, we need to adjust the focus of the industry in order to penetrate this market. While the market is growing, there are still challenges that must be overcome in order to be successful in the SMB space.

Zimmerman shared market statistics that show a greater amount of IP phones are now shipping into the enterprise than legacy analog and digital phones.

The residential market is also enjoying a large measure of success with simple phones and simple applications such as caller ID, call waiting, and other services that comprise a typical consumer feature set.

However, the SMB market is different from that traditional enterprise market. It's a diverse environment, with less structure. Whereas a larger enterprise might look to leverage a relatively similar feature set and communications experience for its employees, SMBs are a diverse lot, with diverse needs. The benefits of VoIP must be translated into a unique value proposition for each SMB customer. The cookie cutter approach won't cut it, Zimmerman said.

In order to successfully service this market, there exists a need for collaboration across the entire industry to facilitate growth. Technology providers, equipment makers, third parties, system integrators... all must work together.

Zimmerman told the audience of developers that in order to successfully tap into the market potential for VoIP, they need to create unique solutions for SMBs. He underscored the need for quality, enhanced functionality, saying that those elements are critical for VoIP adoption.

— Greg Galitzine ([News - Alert](#)) is TMC's editorial director.

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