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INTERNET TELEPHONY®

The IP Communications Authority Since 1998™

VOLUME 10/NUMBER 3 MARCH 2007

Fixed Mobile Entertainment?

Pg. 88

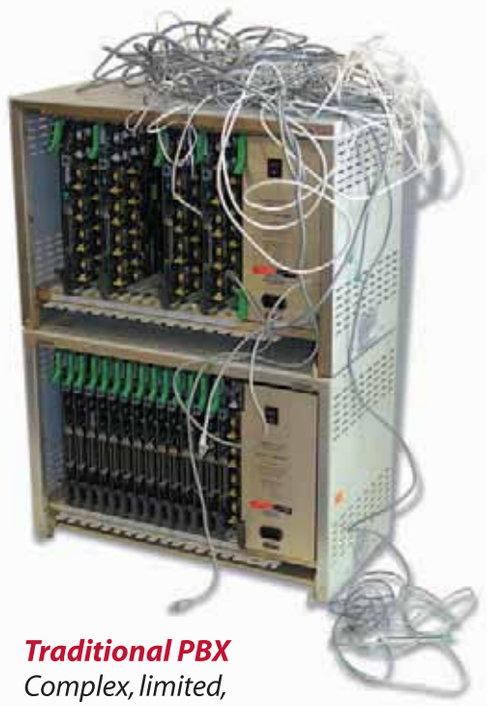
WiFi TELEPHONY

Goes **Mainstream**

Also In This Issue:

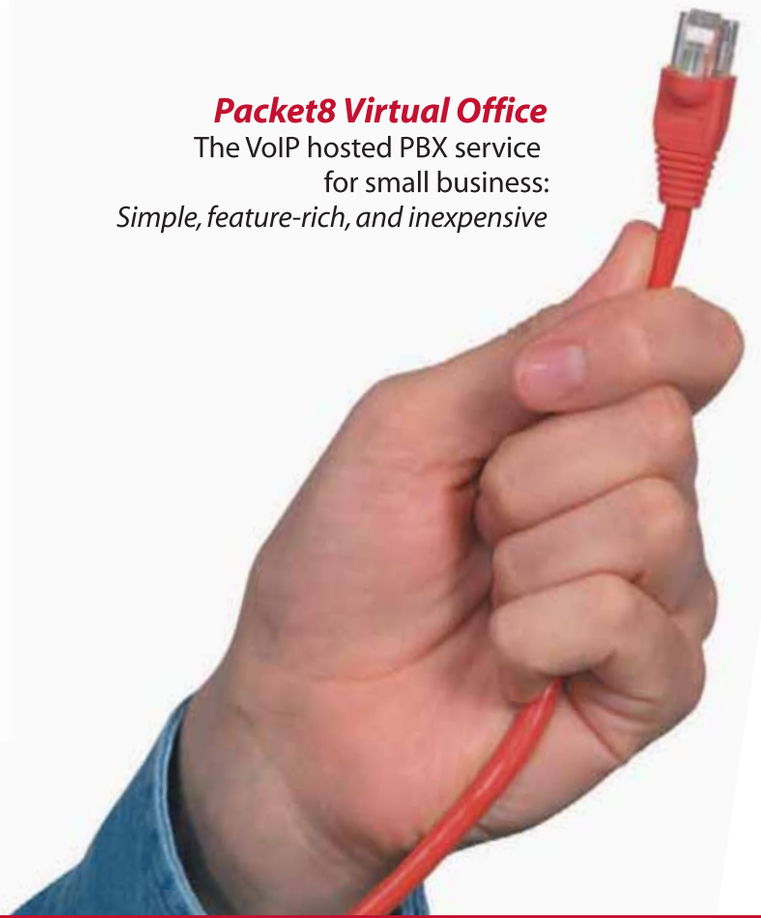
- The State of Session Border Control
- Moving Beyond Triple Play
- IPTV over Ethernet Networks

Which PBX is Right for Your Small Business?



Traditional PBX
Complex, limited, expensive to buy and maintain

Packet8 Virtual Office
The VoIP hosted PBX service for small business:
Simple, feature-rich, and inexpensive



The Choice is Clear.

Making a decision on a phone system just got easier. Traditional PBX systems are complex, limited, and expensive to buy and maintain. Packet8's Virtual Office VoIP hosted PBX service is simple to use, feature-rich, and affordable—many businesses cut their start up costs by over 80%. Virtual Office can also lower your monthly phone bills by 50% or more. The choice is clear.

Learn more about Virtual Office at: www.Packet8.net

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Packet8

This Call's For You

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With traditional business phone systems, companies must purchase expensive PBX equipment that can cost upwards of $1000 per user, not including installation fees, monthly maintenance and trunk lines. For most small businesses, these prohibitive costs often narrow their telecom options to a basic phone service that offers limited features and requires all users to be in the same physical location.

THE BETTER ALTERNATIVE: PACKET8 VIRTUAL OFFICE

Packet8 Virtual Office is an Internet-hosted (VoIP) Business Phone Service designed to provide small to medium sized companies with the same PBX functionality large corporations have access to at a fraction of the cost. Virtual Office dramatically decreases a businesses' total cost of telecommunications ownership while increasing the features, benefits, and productivity of the organization. Virtual Office start-up costs are less than $200 per user, and just $49.99 per month per extension for unlimited local and long distance calling. With the Virtual Office service, businesses can keep their existing local and toll-free numbers or receive a new number from the largest national phone number footprint available. Virtual Office can be self-installed and running in minutes. All maintenance, service upgrades, support and administration are included with the service. And, Packet8 offers a complete online account management tool to easily customize your settings at any time.

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Businesses with users in multiple locations can benefit from seamless communications, free inter-office phone calls and advanced PBX calling features. With Packet8 Virtual Office, employees and companies are not bound to a single geographical location – all a user needs is a high-speed Internet connection for their Virtual Office extension.

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With Virtual Office, a company can add a Virtual Telephone Number in their clients' area code, enabling them to call without incurring long distance charges. This feature also allows customers using Virtual Office to grow their business by simply adding phone numbers and not offices. Packet8 can also supply you with toll-free numbers to give callers across the country convenient, toll-free access to your company.

THE SMART OPTION: PACKET8 VIRTUAL OFFICE

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Packet8 Virtual Office provides unlimited local and long distance calling in the U.S. and Canada and unlimited calling to other Packet8 subscribers worldwide. The service includes features such as: Auto-Attendant, Music On Hold, Extension Dialing, Business-Class Voicemail, Caller-ID with Name, Call Waiting, Call Transfer, 3-Way Calling, Call Forwarding, Do Not Disturb, Distinctive Ringing, Hunt Groups, Ring Groups and many more.

Packet8 Virtual Office Service Plans range from $24.99-$49.99 per month for all of the features outlined above as well as service configuration and counseling, administration, changes, upgrades, tech support and complete web-based administration system controls. In addition, each Virtual Office extension requires a Packet8 hands-free business-class telephone and Broadband Phone Adapter priced at $99.99 with an initial one-time activation fee of $39.99 per physical extension.
For additional information: www.Packet8.net/about/virtual_office.asp

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The Zippy Files

By Richard "Zippy" Grigonis

Win-Win Situation

One of the few downsides to being a journalist is to be forever precluded from winning corporate contests, particularly those held by one's own corporation. It's got something to do with Journalism being a sacred trust, which it actually used to be when I was a kid and got to read real newspapers such as the two greatest of them all, the dearly-departed New York *Herald Tribune* and New Jersey's *Newark Evening News*. Now, of course, we've got Anna Nicole in the headlines, and I could be appearing on *American Idol* if I just had the gumption.

In any case, Yours Truly was present at TMC's ITEXPO East show in Fort Lauderdale, Florida, patiently waiting for the last event of the last day, when Rich Tehrani, with his usual aplomb, presided over the Grand Finale of the show — the drawing for a sunny yellow Toyota FJ Cruiser SUV. The lucky fellow who won it turned out to be from my home state of New Jersey: Ari Zoldan, of Launch 3 (http://www.launch3.net) a company that invests in communications companies worldwide. (See the camera phone photo that accompanies this piece.)

In a sense, however, everybody at ITEXPO East was a winner. Exhibitors loved the attendance traffic, a big increase over our previous show in San Diego. Attendees got to meet and greet a host of new up-and-coming companies. Analysts and venture capital people were poking about everywhere. And corporate types intent on purchasing one of those new-fangled IP phone systems showed up with their "short lists" and asked lots of questions. ITEXPO East had all the hallmarks of a successful show.

Expo/conferences are funny things. Some of them go through life cycles, like a living organism, or move in lock-step with the current robustness of their industry. One mistake (or a series of them) can lead to a death spiral — take Computer Telephony Expo, for example, which was once the hottest thing going in telecom and is now just a quaint memory. (Of course, if it hadn't vanished along with *Computer Telephony* magazine, Yours Truly wouldn't be here, dutifully enlightening our readership.)

In the case of the ITEXPOs, we're now on a roll, one which doesn't appear to be ending any time soon. Many denizens of corporate America as well as the telecom industry come to our ITEXPOs to be educated, informed, to spread some gossip, to chat up some new item, and ultimately to do some business. Representatives of both enterprises and service providers can be found at an ITEXPO, talking, negotiating, buying and selling. I've been in telecom media since 1994, and I must admit that TMC is the most accommodating, make-the-customer-feel-good company in this business — they're also the nicest bunch of guys I've ever worked for, which is not too surprising, if you've ever seen my resume!

Our next big show will be at the Los Angeles Convention Center, a big futuristic building that regularly appears as a backdrop in commercials and science fiction movies such as *Starship Troopers*. I have no doubt that things will be even more busy there than they were in Fort Lauderdale, which is good. More happy buyers and sellers. IP Communications is on the march!

I don't even mind not winning the Toyota — after all, I don't drive! IT

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

Lucky winner Ari Zoldan of Launch 3 luxuriates with his new Toyota FJ Cruiser SUV, won at ITEXPO East in Fort Lauderdale, Florida.

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convergence, meet the new guy.

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

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TMCnet Contents

WHAT'S ON TMCNET.COM RIGHT NOW

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

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

Looking Into My Crystal Ball, I See Video on the Horizon

While most of the world's enterprises are still grappling with VoIP transitions for PBXs and IVRs, and service providers are still trying to define what they mean by IMS, video technology is quickly coming on to the scene, promising to further shake up how we define customer service and communication.
http://www.tmcnet.com/460.1

Mobile Device Makers to Discuss UC Needs — Here are the Questions!

I don't need to tell you what is going on with mobile "smartphones" because your e-mail box must be loaded with reports and announcements, just like mine is. Of course, I have always seen multimodal mobile devices as being key to driving end user demand for UC and UM, because that's where the UC need and benefits will be greatest.
http://www.tmcnet.com/461.1

Wireless Communication Test and Measurement Market Will See Growth

The global wireless communication test and measurement market is growing as a result of rising demand for enhanced applications such as gaming, video and music download, multimedia messaging, ringtones, mobile Internet, and Bluetooth.
http://www.tmcnet.com/462.1

Instant Messaging for Enterprise Communications Everywhere

Five years ago, when my oldest child left home for college, I was introduced to the joys of instant messaging. About the same time, I noticed that my colleagues were using instant messaging in the same way. We'd coordinate meetings, get quick answers, and figure out when others were free to talk.
http://www.tmcnet.com/463.1

Dominican Call Centers Serve the U.S. Hispanic Marketplace

As Hispanic-American consumers become more affluent, they represent a rapidly expanding sector of the business-to-consumer market. American businesses are starting to realize that if they want to reap sales from this increasingly valuable market segment, they need to offer marketing and customer service in both Spanish and English..
http://www.tmcnet.com/464.1

TMC's Whitepapers of the Month

Visit TMCnet's Whitepaper Library (http://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.

The Essential Guide to Fax over VoIP

Learn about VoIP Fax technology, terminology, and SIP T.38 protocols for more reliable faxing with VoIP systems. This guide explains how integrating "VoIP Fax" and "Fax over IP" with VoIP networks will leverage and add value to converged network architectures.
http://www.tmcnet.com/465.1

3G Mobile Network Security

Mobile operators need to recognize their newfound role as ISPs. No longer do they just provide cellular voice services; now they also provide high-speed Internet Protocol-based (IP) data services. So as to offer a wider array of services and content to their data subscribers, mobile operators are opening up their formerly closed networks to numerous other mobile operators, data networks and the public Internet.
http://www.tmcnet.com/466.1

TMCnet's Channels and Global Online Communities provide the latest, most comprehensive news, analysis, and case studies for all your IP Communications needs.

TMCnet's Call Recording Channel

The Call Recording Channel on TMCnet features the latest news and information to explain the importance of integrating call recording features into your VoIP platform. Check back frequently for the latest feature articles and case studies on how businesses can meet their call recording needs: http://www.tmcnet.com/channels/call-recording. Sponsored by Telrex.

TMCnet's Presence Channel

Presence helps employees know the changing status and availability of their colleagues at a glance from their desktops. Unifying your communications enables presence and provides the flexibility for users to decide when, how and where they wish to communicate. Presence helps users overcome communications overload, provides business process improvements and increases productivity, making the workforce more efficient and positively affects the bottom line. Learn more at http://www.tmcnet.com/channels/presence. Sponsored by Mitel.

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By Rich Tehrani

A Breakthrough Month in IP Communications

Skype, Google, Verizon, Vonage, and Other Happenings

The last few weeks have been among the most newsworthy in IP communications since this magazine's first issue in February 1998. If you have any doubts about the VoIP (define - news - alert) market's strength and power, consider that Skype has recently petitioned the FCC for something amazing. They want to apply the Carterphone rules to the wireless industry. These are the same rules that were applied to break up the AT&T monopoly on devices, allowing anyone to make products for the AT&T network — as long as these products did not harm the network.

Innovations like the fax machine and vibrant competition in the handset market ensued. It is tough to imagine what the world would be like if we still had only a few phone models to choose from — provided by a single manufacturer.

Obviously the Carterphone ruling was 100% in the best interest of consumers.

Now Skype (news - alert) is hoping the FCC will apply this ruling to the wireless industry.

It is absolutely obvious that such a ruling applied to the wireless market would be great for consumers. On GSM networks in the U.S. there is already some flexibility allowed via the use of SIM cards, but in the case of Sprint and Verizon, the networks are as closed as closed gets. Moreover, Verizon has crippled Bluetooth functions of devices, forcing customers to rely on the network or a data cable for certain data transfers to devices.

But then again, if I want to buy my own device, I can if I choose to operate on a GSM network. The way GSM providers get around this open market is by subsidizing handsets that are locked to keep customers hooked to a specific carrier.

Of course, if you want a way around this, you can purchase a pay-as-you-go calling plan.

So if you look at the matter carefully, there actually is openness and competition in the wireless market. I wouldn't call it vibrant device competition, but there is definitely competition.

Besides, many wireless devices, such as Windows Mobile devices based on the popular Microsoft operating system, allow you to have a Skype client installed today. So again, here are more signs of competition.

Perhaps the most problematic argument against Skype is the recent AT&T/Apple iPhone relationship (http://www.tmcnet.com/467.1) which forced the will of Steve Jobs on AT&T Wireless. You see, AT&T wanted to sell this device so badly they gave up full control of the iPhone's development, branding and distribution channel.

What this shows is that the network operator is actually less powerful than Steve Jobs!

So my take on this Carterphone situation is that consumers will be helped if the FCC forces operators to allow outside devices to run on their networks. The flipside is, Verizon Wireless and Sprint could be in terrible trouble if they don't have completely open devices to compete with the iPhone.

Consumers are already lining up to take numbers for the chance to buy an iPhone and jump from their current operators. Talk about a major spike in churn. Apple's iPhone will cause more churn than any other device since the Motorola RAZR. Operators will be absolutely forced to offer best-of-breed devices on their networks or perish.

In fact, in my confidential discussions with equipment manufacturers, they believe operators will be forced to stop crippling their devices and user interfaces.

So, I believe FCC Chairman Kevin Martin and company can probably choose to let the wireless carriers do business as usual, as the free markets will soon.

Obviously the Carterphone ruling was 100% in the best interest of consumers... Now Skype is hoping the FCC will apply this ruling to the wireless industry.

Google Applications

Google (quote - news - alert) has been quietly building and acquiring many of the components needed to compete against Microsoft Office. But instead of software, the company has focused on providing hosted applications based on AJAX (http://www.tmcnet.com/468.1). This technology allows Web-based applications to behave more like desktop software. While a typical Web page needs to continuously redraw the entire page, AJAX applications allow drag-and-drop functionality and only sections of a page to be

tel[x] Enterprise Peering Facility (EPF)

Enterprise Peering is the ability for enterprise network managers to freely access and directly interconnect to any other network or applications they choose without having to traverse the public networks of the PSTN or the Internet. This environment is a physical one of private, enterprise owned and managed equipment in a facility comprised of multiple networks controlled by a neutral, non-carrier operator. This is the **tel[x] Enterprise Peering Facility (EPF)** and it brings greater quality, security, choice and savings to corporate IT and MIS Directors. Countless orginizations including Financial, Insurance, Healthcare, Legal, Universities, Research Intitutions and more benefit from the tel[x] EPF. To learn how you can benefit from the tel[x] EPF contact us at: enterprisepeering@telx.com

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redrawn at a time.

This past week, the search leader made a big splash by packaging a number of AJAX-based applications together into Google Applications Premiere Edition (http://www.tmcnet.com/469.1) at a cost of $50/year/user. This compares to a street price of between $150-$200 for the latest Microsoft Office.

At first glance, Google's new offering amounts to a poor value, as the average version of Office will last you about three years and offer superior functionality and access to applications Google doesn't have competing offerings for, such as PowerPoint and Visio.

Google realizes this and subsequently ups the ante by offering as part of this package Gmail storage per user of 10 GB, APIs to integrate into your current applications, online support and 24/7 assistance including a call center. In addition, there are 3rd party applications and services available.

Having used the Google word processor and spreadsheet applications provided in this offering, I can't help but wonder why they are so stripped down. Word, for example, offers limitless features for line spacing while Google's offering does not. Then again, Google's word processing application allows you to insert images, tables, and links. In addition it allows easier collaboration as the documents are stored centrally.

In my opinion, a small business is still far better off with Microsoft's Office but the benefits of going with Google include easier collaboration and less worry about doing backups as Google handles this for you.

In fact, using Google's applications could save serious money on storage and servers, making life that much easier for small businesses.

Avaya Teams with Google

If there is one area in which Avaya (quote - news - alert) has differentiated itself these past years, it is in its developer program. The company has been far ahead of all other larger communications players as it realizes that an ecosystem of partners is the best way to add value to corporations.

It is for this reason we shouldn't be surprised to hear the company has decided to integrate (http://www.tmcnet.com/470.1) its phone systems with the latest paid software offering from Google. Although Avaya's integration news doesn't disclose all of its details, we can hope for things like toolbars in Google applications, allowing single-click calling. In addition, I hope for the ability to have full call control from Google's applications and screen pops when incoming calls arrive.

In a way this sort of integration makes sense for Avaya as the company is probably not thrilled with the Microsoft/Nortel partnership (http://www.tmcnet.com/471.1) and sees this announcement as a way to counter the move made by the Redmond/Canadian duo.

It will be a number of years before Google gains any serious Office application market share in my opinion but still this is a very smart move for Avaya.

Using Google's applications could save serious money on storage and servers, making life that much easier for small businesses.

iPhone/iPhone

The Apple/Cisco dispute over the iPhone name is now over and most people believe Apple got the better of Cisco. Others say it is a win/win as both companies will use the iPhone name and the two companies have announced that they will cooperate to provide some degree of interoperability. If Apple's iPhone takes off this could put Cisco in an enviable situation. But many say Apple doesn't adhere to agreements made in such negotiations. Time will tell.

Verizon Takes on Vonage in Court

In June of 2006 Verizon (quote - news - alert) presented (http://www.tmcnet.com/472.1) Vonage (news - alert) with a lawsuit saying it has infringed on seven of its patents. At the time, Vonage argued it had developed its technology itself and when using outside technology, did license it properly. In the latter half of February 2007, the two companies ended up in court presenting (http://www.tmcnet.com/473.1) open arguments.

In a nutshell, Verizon has a slew of broad patents making it difficult for virtually any company to provide competing VoIP service. Based on discussions I have had with experts, some, if not all, of these patents should perhaps never have been granted.

This gets us to the patent system in America and why it is so easy to acquire patents. In telecom, I have seen companies develop amazing technologies for many years and many of these companies do not apply for patents on their innovations. Instead, a much larger company applies for patents on the same innovations many years later and receives them.

Simply stated, the patents in the U.S. are awarded much too easily without the USPTO doing enough due diligence. So the courts and shareholders spend billions and billions of dollars each year to defend against patents on innovations the patent holders did not create.

I am not targeting any companies in particular here, but I do think the USPTO can be improved. I wish the government would spend significant resources on hiring more experts at the USPTO so we would avoid these problems.

Additionally, now that so many companies have amassed broad patent portfolios, the small player in virtually any mar-

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Give your clients the breaks they need with Covad ClearEdge Pro, a fully hosted voice and data solution that will save them time, money and space. Once they realize the boost in their productivity and improvement to their bottom line, they'll be erecting a statue in your honor. Suffice it to say that the industry-leading commission and recurring monthly payments for the life of your customers will be incentive enough. For more details on our full suite of award-winning voice and broadband solutions, visit www.covadalliance.com.

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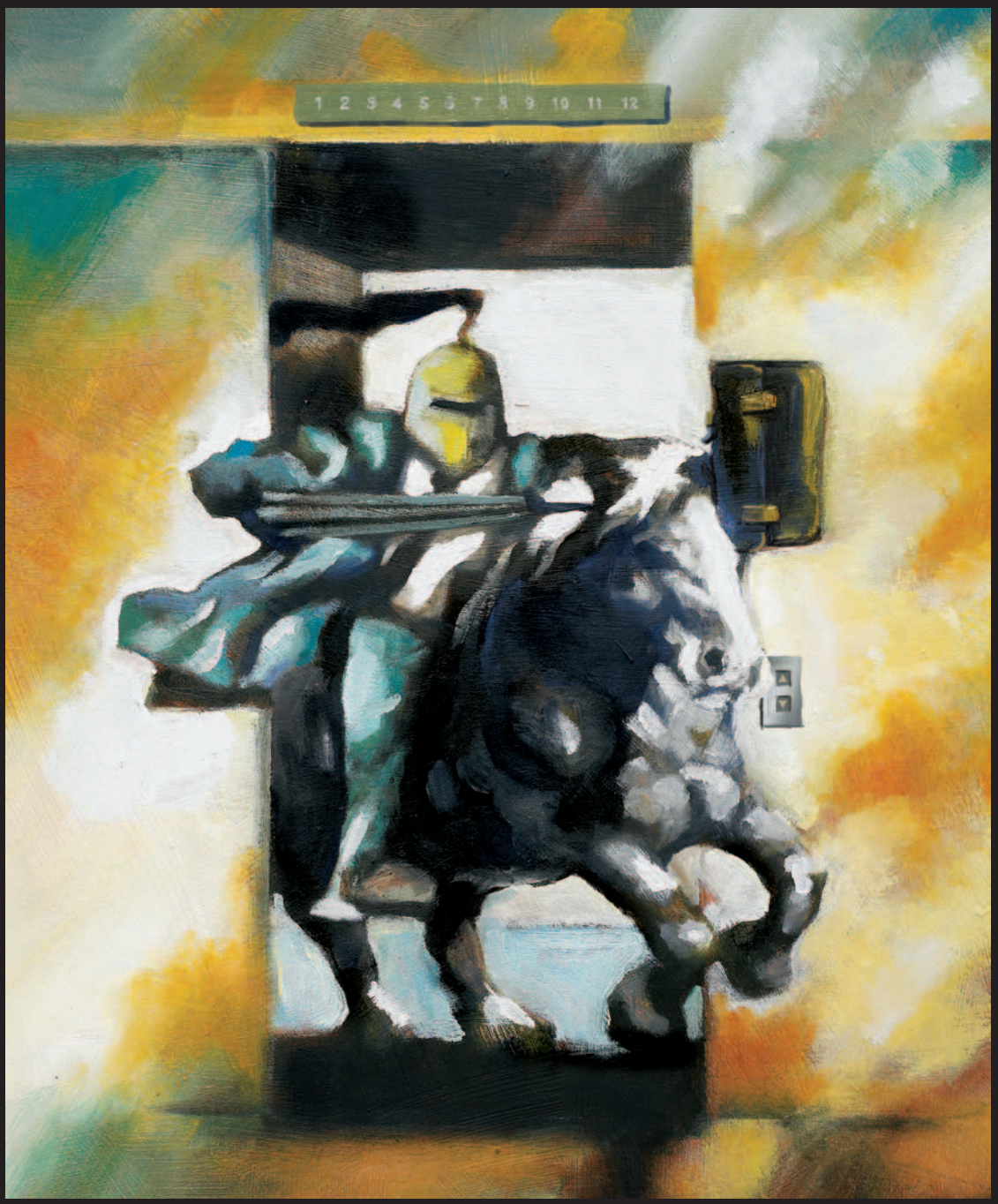


ket is in trouble if they too do not have an arsenal of patents they can cross-license in order to avoid a lawsuit.

So instead of preaching a culture of innovation in the U.S., we are promoting a culture of patent hoarding and lawsuits. This is obviously not in the best interest of consumers by any means and this problem should be addressed at the highest levels of our government.

Getting back to the Verizon/Vonage lawsuit, I believe the FCC should not have allowed as much telecom consolidation as it has. For the last 25 years or so I have been in this business, telecom companies have proven they are not good at innovating. Creating a handful of large telecom companies is very obviously not in the consumer's best interest if these companies use this power to sue smaller VoIP players into oblivion.

Vonage is responsible for a tremendous amount of innovation in the telecom market. We need to protect companies like Vonage to ensure more telecom innovations are launched in the market.

Sure we want a strong counterbalance to cable companies and this is a great reason to allow telecom consolidation, but potentially eliminating thousands of VoIP players overnight is a nightmare scenario for consumers worldwide!

Of course, this lawsuit may not amount to much, but at the end of the day, we need the FCC to weigh all options before allowing merger after merger. Using a patent portfolio to eliminate competition is a lose/lose for consumers. IT

Speaking of Development

The VoIP Developer show now in its fourth year has become the Communications Developer conference (http://www.tmcnet.com/voipdeveloper) to more accurately describe the scope of the event. As concepts like SOA, open source, SIP, IMS, and wireless evolve, there needs to be a single place for the world's telecom developers to congregate to learn how to develop applications and devices for the next generation of users.

Moreover, there will be more of an emphasis on learning about ecosystems, allowing developers to take advantage of strong partners such as Skype, Digium, and Avaya.

This show has been held in August for a few years and it has now moved to May 15-17, 2007 in Santa Clara, CA. If you are a developer in the communications space you must be there and, if you know of any communications developers, please alert them to this conference and the earlier-than-usual date.

A New Logo For A New Era

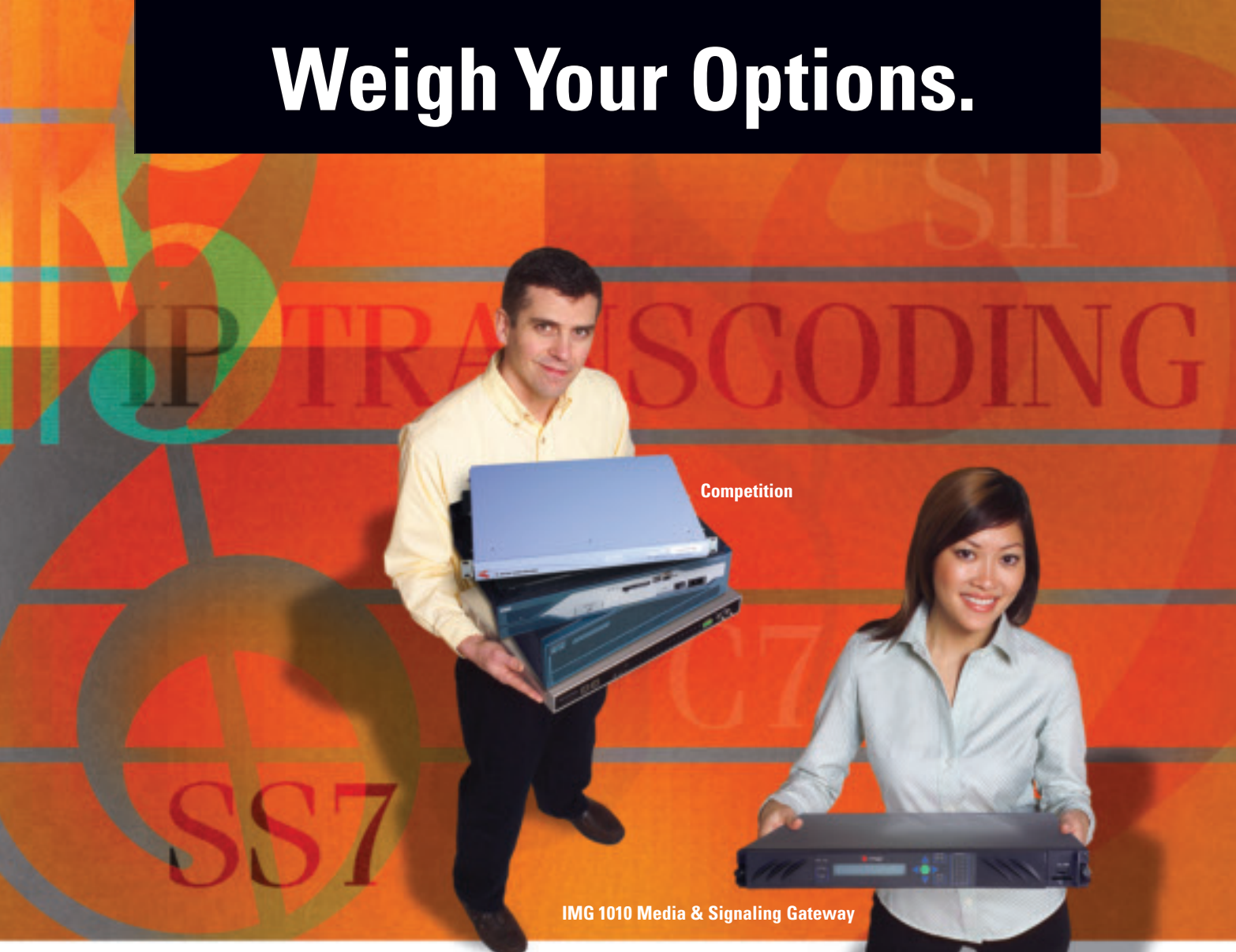
In October 2006, TMC and the *INTERNET TELEPHONY* team published with great pride the 100th issue of this magazine. Since our launch in 1998, the magazine has been the reliable voice of the evolving Internet telephony, then VoIP, and now IP communications market.

For our first nearly ten years of publishing *INTERNET TELEPHONY*, the magazine carried a similar look with the familiar yellow box logo atop each issue. I'm sure you noticed when this March issue arrived on your desk that the yellow box has been replaced by our new logo. We simply felt it was time for the look of the magazine and for the logo that represents it to mark the evolution of the publication.

We remain committed to helping enterprises, service providers, SMBs, resellers, and developers understand how best to take advantage of IP communications. Our editorial focus has expanded from topics of the late 1990s, like early interoperability trials, to emerging standards protocols such as SIP, to the first-generation IP PBXs to include new opportunities like IP video, IMS, and Quad Play. The market is changing, and *INTERNET TELEPHONY* magazine remains your best source of news and product analysis.

So, with this new image we continue our quest to issue #200 and beyond. Thanks for coming along for the ride.

Weigh Your Options.



The IMG 1010 media and signaling VoIP gateway is the only solution built to lighten your capital and operational expenses.

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Easy Scalability	✓	?
Worldwide Support	✓	?

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Having the Right "Touch" for Resellers

By Richard "Zippy" Grigonis

Allworx (http://www.allworx.com) and its feature-rich, fully integrated IP phone and data communication system have taken the SMB (Small and Medium Businesses) by storm. Each Allworx system includes a phone system that works in both IP and analog environments, and a network server. One reason this inexpensive yet highly advanced business communication system makes such an impact among SMBs lay in a remarkably innovative and successful reseller program: the Allworx Reseller Start Strong Program.

Sandra M. Gault, EVP of Marketing at Allworx, says, "Allworx prides itself on understanding the arduous process a reseller goes through to carry a manufacturer's product. That's why it's important that Allworx is there to support the reseller throughout the entire process of capturing and closing early sales."

"Many resellers are attracted to Allworx because of how well-designed our products are for the SMB market. The Allworx product line is ideal for replacing the millions of aging TDM systems and allowing the flexibility for the customer to easily integrate VoIP into their business. Once the reseller becomes a partner with Allworx, we have a specific Reseller "Start Strong Touch Point" program where the reseller gets 'touched' multiple times throughout their partnership with us. These "touch points" come from various parts of the company: from sales to system engineering, technical training, marketing, and even helping them with their business."

Gault continues: "First the reseller is offered an excellent price on a demo kit — usually getting an additional 40 — 50% in savings. For investing in a demo kit, the reseller can send two people to our four-day, comprehensive technical certification training class for free. We hold a class every week in various cities across the country. The training certifies them to install and service all of our products, including advanced troubleshooting, and gives them specific knowledge on managing and servicing multi-site installations, remote users, complicated configurations, and connecting with VoIP service providers."

"In parallel to our technical certification training classes, we immediately conduct sales training with the reseller", says Gault. "Our sales training is designed to quickly get the reseller successfully selling Allworx. The training helps focus the reseller on key markets, shows them how to leverage their current base, and what is needed to attract new customers. As part of our sales and marketing support, each reseller is given access to a private portal on the Allworx website where they'll find everything from extensive marketing and technical information, to sales tools. One of the more interesting components of the private portal is a live message board that allows the reseller to communicate directly with the Allworx team (e.g. tech support, product development, marketing, sales, and training) and to all other authorized Allworx resellers with portal access. Our partners share their stories, ask technical questions, discuss marketing concepts, and muse over ideas for future products. Allworx employees at our Rochester headquarters monitor these forums and respond in real time. The sales training and support, marketing programs and private reseller portal are just a few of the ways we focus on positively impacting the success of our resellers."

"In addition to sales training, technical training, the private portal, and extensive reseller tools, each department within Allworx contacts the reseller and introduces him or herself and welcomes them into the Allworx family," says Gault. "In fact, we provide a 'Welcome Kit' to every reseller that contains a number of items: brochures, marketing materials, Allworx premiums, and, more importantly, detailed information about what activities we will do with them to jump start their business in the next 90 days. For example, we offer free telemarketing if they provide us with a list of end users, and we have a process that makes it very easy for them to create and submit such a list. Our salespeople make calls on their behalf, acquire leads and make joint calls to help them close deals. As the reseller begins to close deals, our customer support team and in-field System Engineers ensure they are well prepared for a smooth cut-over. If needed, we'll be on site, to help assist the reseller with their first few installs. We realize that a smooth and quick install directly translates into a satisfied end user and profitable account for the reseller. But our support continues after the install. We offer free case study development. We'll do a full case study, which usually includes four pages with topology diagrams and examines such things as the expected ROI for a customer, the advantages of the system, and so forth. We also highlight the reseller that installed the particular unit within the case study. There are many fascinating stories out there as to how customers are using Allworx voice-over-IP systems and a reseller can effectively use these stories to sell more units."

"Additional sales support comes in the form of assistance in customer proposals and quotes" says Gault. "If a reseller requires help with the topology diagrams, call-flows, or pricing, Allworx can help work on their

quotes. In the near future, we'll be providing an easy-to-use quoting tool. A reseller merely plugs in the numbers, customer information and the pricing for hardware, software, services and maintenance. The tool automatically will calculate a breakeven analysis and produce a proposal printed with their logo."

"Probably of most interest to new resellers is our 'Start Strong' promotion," says Gault. "The 'Start Strong' promotion is designed to help a reseller become successful in selling Allworx within the first 90 days after they have completed their Allworx technical certification class. The program allows a reseller to get a *free* Allworx 6x system (MSRP of $1800) after they have successfully sold and installed two Allworx systems (6x, 10x, or 24x) within their first 90 days. We know that if the reseller quickly closes sales and experiences smooth installation for the first three or four installs, they make Allworx their premier product line for the SMB market. The results from a recent poll we conducted with over 420 Allworx resellers revealed that 6-8 percent of those resellers decided to drop all other product lines and are now solely selling Allworx systems. The other 92-94 percent sell other systems for their enterprise customers, but Allworx is their main product line for the SMB marketplace."

Although we feel we provide extraordinary support to our partners, each quarter we do a survey wherein we review sales and query all our resellers to rank us on how we're doing and what we can do better," says Gault. "Additionally, our annual reseller council brings a group of resellers together so that our senior management team can hear firsthand from our partners. This annual meeting is so popular we have a hard time accommodating everybody who wants to attend. As a result, we're contemplating holding regional reseller councils so that more partners can participate in this important annual event."

"Our philosophy is that our resellers are partners and that we are both going after the same customer — the one that buys," says Gault. "We want them to get those customers and Allworx is dedicated to making our resellers successful in this endeavor."

Although already a hit with resellers, Allworx continues to take reseller relations to new levels of innovation. IT

Richard Grigonis is the Executive Editor of

Allworx Expanded Features — Perfect for SMB Market

By Sandra Gault, EVP of Marketing, Allworx

To maintain our leadership position as the premier and award-winning communication IP-PBX/Key phone and data system provider, we are continually expanding the functionality of our systems. These improvements are based on direct feedback from Authorized Allworx resellers and valued Allworx customers.

Our strategy is simple. We will continuously build the most complete set of small business communication features combining traditional and VoIP capabilities, while adding features normally found only in enterprise class systems. These new features, when combined with our unique key-system capabilities and our industry-leading price points, strengthen our strategy to replace the millions of aging TDM phone systems with Allworx versatile solutions.

Listed below are highlights of the new features:

1. Call Assistant 2.0 — This Windows PC-based tool, fully integrated with Allworx VoIP phones and designed to bring ease and efficiency to the operator/receptionist task, has been strongly enhanced with new views of the company directory, AA status, parked calls, and call queues. New transfer and dialing capabilities have also been added. This is perfect for a live attendant answer position.

2. New Multi Site Extensions — Setting up and using a convenient 3-digit dialing plan across Allworx systems in multiple sites (up to 100 sites) has never been easier! Allworx systems can now automatically discover and route extension plans. Excellent feature for seamless site-to-site calling.

3. Enhanced Conference Call Capabilities — Allworx introduces the most affordable enterprise-class conference bridge solution for the small business VoIP market. This user-friendly option includes full security, scheduling, and moderator features. The Allworx 24x supports four (4) — eight seat conference calls and the Allworx 6x supports one (1) — eight seat conference call.

4. Enhanced T1 Provisioning Capabilities — T1 voice services have been expanded with support for Robbed Bit Signaling (RBS)/CAS lines. Service providers now have maximum flexibility in building small business voice solutions with support for virtually all forms of T1 voice and fractional voice (PRI & CAS) trunks in addition to VoIP SIP trunks and traditional CO lines. Allworx is now a preferred Customer Premise Equipment (CPE) provider for several VoIP service providers.

5. IMAP4 Support — With Internet Message Access Protocol 4 (IMAP4) added to our existing POP3 support, users can easily access and synchronize their voicemails and emails across multiple inboxes on PCs, laptops and handheld email clients using popular email clients such as Microsoft Outlook, Outlook Express, Mozilla/Thunderbird, Opera, and Eudora.

6. User Phone Greeting — Unique voice mail greetings can be tied to each user's presence status — In Office, At a meeting, On Vacation, On Business Trip, At Home, Away and Busy. Now users can easily customize their phone to match their personal work environment.

Allworx's family of VoIP systems includes the award-winning Allworx 6x, 10x, & 24x voice and network systems, and the 9112 and 9102 VoIP phones. Key differentiators separating Allworx from other VoIP systems for the SMB market include: the industry's lowest installed cost of any full-featured VoIP PBX/Key-system; the richest SMB feature set available; the flexibility to enable SMBs to transition risk-free to VoIP at their own pace; and the industry's most straightforward installation procedures.

The New SBC For More Than VoIP

By Erik Linask

Traditionally, voice traffic across networks has been managed and controlled using standard session border controllers (SBCs) — like Covergence's (news - alert) Eclipse product — that were well-suited for enabling voice peering between relatively small numbers of users of known and trusted providers. But, as the IP communications world continues to grow at record rates, the number of providers and the number of users and endpoints both continue to increase at least as rapidly.

The "old" SBC simply is not equipped to handle such high traffic volumes of varied traffic and session types across new IMS-based multimedia networks. For that very reason, a new type of session management product is required in order to ensure performance of many of today's real-time services — something that can be deployed at the subscriber or access edge.

To accommodate this need, Covergence has adapted its Eclipse solution and has now released its new Eclipse aSBC (access edge SBC), which is specifically designed to scale, secure, and manage performance at the network access edge. The Eclipse aSBC has to process and manage registrations traffic, secure connections, provide protection from intrusion and attack, effectively enforce user policies, and encrypt and decipher content between millions of endpoints, without sacrificing session quality. Essentially, the aSBC ensures their services meet the quality thresholds defined by the most demanding business customers as they roll out increasingly more sophisticated services.

http://www.covergence.com

India Holds Great Promise for Telecom Growth

By Rich Tehrani

Last year, the U.S. Department of Commerce engineered the largest trade mission hoping to boost commerce with one of the world's fastest-growing economies in India — a total of 239 participants from 189 companies participated in the mission, which included a business summit in Bombay, followed by meetings in Kolkata, New Delhi, and other Indian cities. Companies represented on the mission include such well-known firms as GE, FedEx, and UPS, as well as smaller companies from sectors including health care, industrial machinery, and telecommunications.

During the past several years of the mission, only large multi-national companies participated, but this time, the U.S. Government recognized that many smaller companies, like EagleNet, which believes in a free trade market for services and products, are also making significant contributions to bilateral economic growth, and invited a number of them to participate.

India represents a significant opportunity for telecommunications vendors and investors — its 175-million line telephone network (fixed and cellular) is among the top five networks in the world and the second largest in emerging markets, trailing only China. It also has one of the fastest growing telecommunications segments in the world, with total connections growing at an average rate of more than 20 percent annually. The total subscriber base of cellular subscribers is currently at 130 million, and a number of subscribers added this year alone is more than 50 million — that is the highest growth rate in the world.

The industry is considered to have the highest potential for investment in India and the growth in demand for telecom services in India will be the highest in the cellular services, basic telecom service, national long distance, followed by international long distance. Based on the size and current growth of the market, EagleNet, (news - alert) for one, envisions significant opportunity for growth in India.

http://www.egl.net

MetaSwitch Brings IMS to the Great White North

By Erik Linask

As it continues to focus on bridging the gap between legacy TDM and next generation IP worlds, switching solution provider MetaSwitch (news - alert) has now also bridged a national divide, becoming the first non-Canadian softswitch provider to be selected by a Bell Canada affiliate.

Québec's Télébec has partnered with MetaSwitch as it seeks to deploy a new IMS infrastructure to launch new services, including VoIP. The multi-year partnership with MetaSwtich will ensure that Télébec is properly prepared to launch new unified communications services, including FMC and presence-based offerings, hosted solutions, and Web-based provisioning, which will enable it to upgrade its presence among business customers.

"Télébec is committed to delivering highly innovative IP-based services to our business and residential customers," said Sylvie Couture, Télébec's chief technology officer. "MetaSwitch is at the heart of this transition of our business. Thanks to its core technologies and deployment experience, we will have the service options and flexibility we need to build customer loyalty and stay ahead of potential competitors."

http://www.metaswitch.com

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Sylantro Expands IMS Partnerships

By Erik Linask

Sylantro Systems (news - alert) has announced two new partnership agreements to further support its claims that it is making significant strides in the market and is focusing heavily on enabling service providers globally to build out new IMS-based infrastructures.

The first is an extension of Sylantro's previously announced relationship with Swisscom, (news - alert) which is anticipating the launch of its new IMS network early next year. The new network will feature Sylantro's Synergy application feature server integrated into the infrastructure. With the services enabled by Sylantro, Swisscom will be able to roll out new enhanced services to its residential customers, including potential converged fixed and mobile (FMC) services.

In this deployment, Ericsson is the IMS infrastructure provider and will deploy and integrate Sylantro as part of its offer, which will give Sylantro a presence in the three service provider segments it views as being strategically important: Hosted VoIP, Mobility, and Application & Web Services.

Sylantro has also announced a key partnership with Korea Telecom, (news - alert) a project that has been underway for a year, having been launched because Korea Telecom was in search of an IMS-compliant feature server. Knowing that Sylantro had previously completed interoperability testing with several vendors, KT requested the Sylantro do the same with Samsung, the main IMS core provider for Korea Telecom's WiBro network.

Having successfully completed interoperability testing with Samsung, the Synergy feature server will become part of Korea Telecom's WiBro network offering, which is on schedule to deploy during Q2 2007. KT will offer an integrated Microsoft Hosted Messaging and Collaboration (HMC) solution with the Sylantro Synergy Application Feature Server running on the Samsung IMS platform.

http://www.sylantro.com
http://www.swisscom.com
http://www.koreatelecom.com

Dialogic Announces First PCIe Products

By Erik Linask

Media and signal processing technology developer Dialogic Corporation (news - alert) has announced its latest series of products — seven PCI Express compatible media boards. These latest boards are, essentially, sister products to the company's PCI universal boards in terms of features and functionality, but also provide for complete backwards compatibility enabling solution providers to integrate the new boards into their existing systems and applications with little modification.

The new PCIe boards will provider developers, OEMs, and integrators even greater choice of servers on which to build their communications solutions for service providers or enterprises, integrating the latest converged communications applications into those solutions.

The new 12-port analog and dual span T1/E1 Dialogic JCT series boards, as well as single span T1/E1 Dialogic Diva series boards are available now, and are designed to easily integrate with existing Dialogic PCI boards.

"While our main development focus is on media and signaling products that enable IP, wireless, and video communication solutions, we recognize the importance of keeping our existing media board products compatible with the latest platform technologies," said Jim Machi, vice president of product marketing at Dialogic.

Dialogic says it plans to introduce additional versions of its PCIe boards, also backwards compatible with its other existing boards, throughout the year.

http://www.dialogic.com

Avaya Enhances IP Office Suite for SMBs

By Johanne Torres

Wanting to target small and medium businesses, Avaya (quote - news - alert) announced new enhancements to its IP Office suite. The company added on a new software and modular hardware package, SIP trunking for reduced calling, and remote diagnostic tools. The company introduced two versions of enhanced software for the suite: one for very small businesses and serves up to 32 users; and the Professional edition which supports up to 270 users.

The company also expanded its current portfolio of servers by introducing the IP Office 500 communications server. The IP Office 500 features a more compact design. The new server supports telephony, voice messaging, and a customer service suite. In addition, Avaya also introduced a new set of remote diagnostic tools, which will allow resellers to proactively identify and resolve problems remotely.

"We built IP Office from the ground up for small businesses. That means it has the right entry-level price, 'big business' communications capabilities, and options for companies to add more capabilities, capacities or locations as their business grows," commented Geoffrey Baird, vice president and general manager, Appliances, Mobility and Small Systems Division, Avaya.

http://www.avaya.com

NEC Launching CX2600/200 Series Switches for Mobile Backhaul

By Patrick Barnard

NEC (news - alert) announced that it will soon be launching its new CX2600/200 series of Service Aggregation Switches designed for mobile backhaul. These new hybrid switches incorporate a single switching card which allows them to simultaneously provide packet switching for Ethernet/ATM traffic and low-latency circuit switching for TDM traffic. In addition, the new PWE (Pseudo Wire Emulation) function provides TDM/ATM emulation over IP networks.

The new series is designed to enable a smooth transition from TDM to all-IP. Carriers worldwide can carry out smooth mobile infrastructure backhaul area migration, as they gradually change over to an all-IP network. This is accomplished through a phased introduction of the IP changeover in existing TDM infrastructure. This is key for carriers seeking deploy 3G/3.5G services or who plan to introduce WiFi/WiMAX technologies (e.g., quadruple play services) in the near future, since there has been increased demand for mobile backhaul solutions that can realize both effective use of existing infrastructure facilities and upgradeability toward all-IP networks.

http://www.nec.com

Making Quad Play Services Work

By Erik Linask

Convergin, (news - alert) which provides fixed and mobile telecom operators with a service interaction/service continuity solution, is taking its offering to the next level, adding IPTV integration into its Accolade WCS Service Capability Interaction Management (SCIM) product. Essentially, this will enable wireless, wireline, and cable operators to integrate IPTV into their existing service offerings — effectively allowing them to offer the quad play of services — and, importantly, maintain control over the interaction between their different services to maximize the subscriber experience.

The Accolade WCS is a network node that sits between the session control and switching layer and the application and service layer. "Its main role is controlling the action of multiple applications and services for a single session according to the services each user is subscribed to and should be receiving," explained Tal Zoller, vice president of business development at Convergin.

What that means is the WCS manages the operator's various services and the way they interact with each other on their paths from various application servers — whether head end servers, SIP applications servers, IMS application servers, Web applications, or legacy infrastructures, any combination thereof.

Significantly, in addition to enabling the roll-out of IPTV and SIP- or IMS-based applications and services, Convergin's latest advance allows service providers to do so while still in the process of migrating to an IMS infrastructure. With the latest release of Accolade, they can continue their current migration path and not lose ground in the services game.

http://www.convergin.com

Cbeyond Offers New Combined Voicemail Box for Mobile and Landline Messages

By Divya Narain

Cbeyond (news - alert) has released its new Integrated Voicemail service that bundles up its mobile and landline voice messaging into one convenient voicemail box. The innovative service also has a unified messaging capability using that allows customers to access, save, forward, and back-up their voice messages from their email inbox. Among other utilities of the service are zero-out for assistance and real-time message notification. With the zero-out option, customers can let callers exit voicemail by dialing zero instead of having to leave a message. Moreover, the real-time message notification feature sends an email, SMS and/or IVR alert to the customer's mobile phone when a voicemail is left on the landline phone.

http://www.cbeyond.net

T-Mobile Picks Alcatel-Lucent to Enhance its GSM Net

By Johanne Torres

Alcatel-Lucent (quote - news - alert) has been picked by T-Mobile (the mobile business arm of Deutsche Telekom) to enhance its GSM network with GSM/EDGE technology in order to increase its speed. EDGE technology reportedly enables data rates of up to 220 kbit/s. The move will enable the mobile operator to offer its German subscribers with more advanced multimedia services and expand the availability of its "Web 'n' Walk" mobile Internet service.

Alcatel-Lucent expects the GSM/EDGE network to be upgraded and operational by the end of this year. Alcatel-Lucent has agreed to replace thousands of existing GSM base stations in T-Mobile's network with its latest 9100 Multi-standard Base Station product line. Under the agreement, Alcatel-Lucent will manage the project overall, including the integration of the network, the old equipment removal and the installation of the new equipment, as well as the management of all subcontractors.

http://www.alcatel-lucent.com

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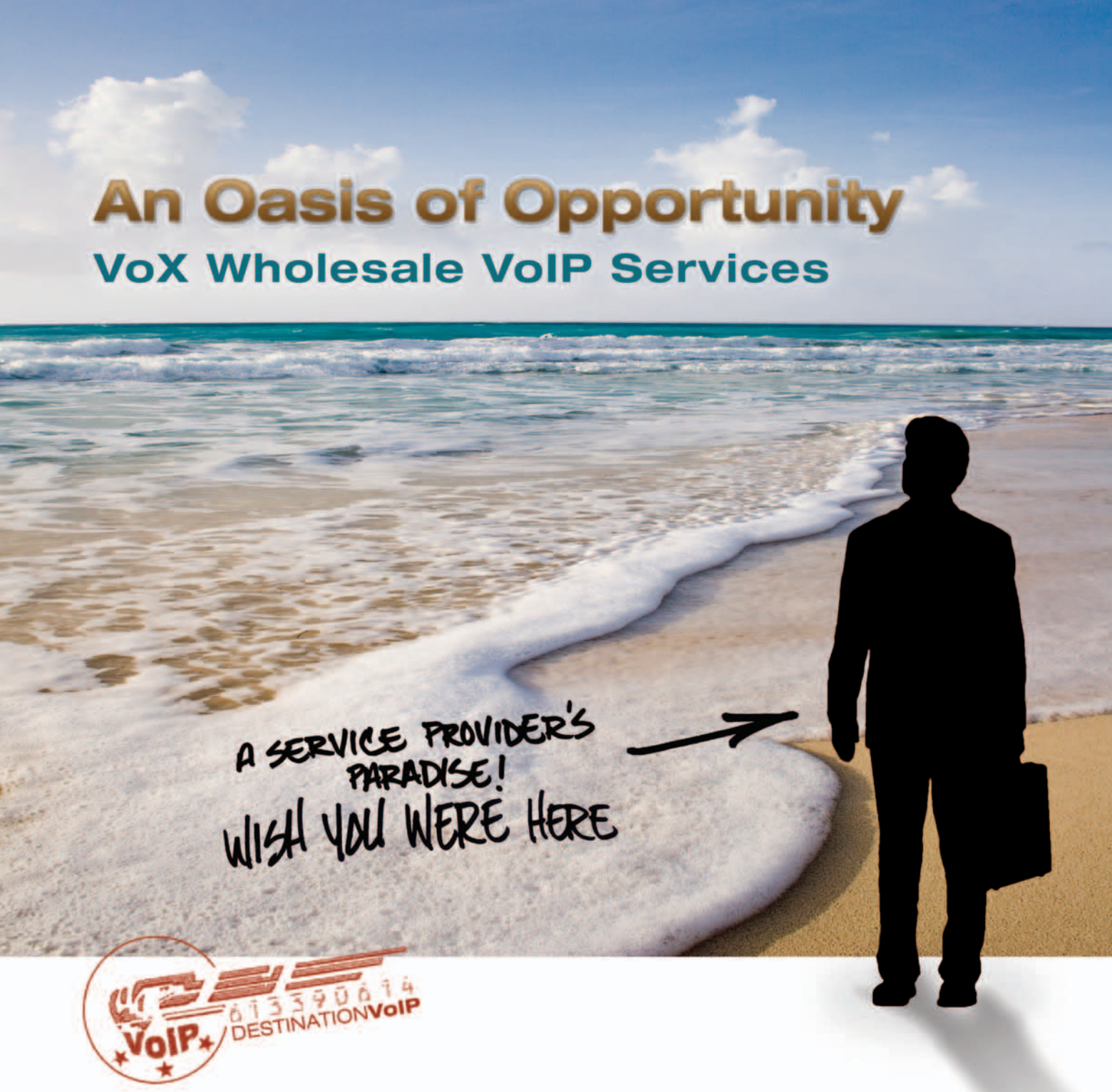

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Teltronics Launches Cerato VoIP Products for Small Enterprises

By Johanne Torres

Teltronics (news - alert) has launched Cerato SE, a new suite of VoIP products for small enterprises. The suite features an integrated automated attendant, voicemail, unified messaging, call recording, as well as voice compression for VoIP traffic. Cerato SE's features are comprised in an executive digital phone, or an executive VoIP phone — both models offer an optional Button Expansion Module (BEM). The suite features PC dialing, call routing, remote extensions, SIP trunking and remote maintenance.

The suite's Automated Attendant feature is capable of handling customer calls with interactive voice messages and menus. The offering features Secure Encryption Algorithm (AES) and comes pre-configured for an easier installation, utilizing a Web-based interface. Administrators can also make system changes, configuration modifications and extension programming from the Web-based interface.

http://www.teltronics.com

SIP-based VoIP Platform Enables Online Whiteboarding

By Erik Linask

SIP-based platforms and hardware are enabling a new era of communications, which are not only easier and more efficient, but also offer countless new features and functionality to enable colleagues, friends, and family members to communicate in a more collaborative fashion than ever before.

damaka (news - alert) is bringing many of those efficiencies to users by way of its patent pending SIP-based Personal Softswitch, which is revolutionary in that it brings the VoIP platform to the end user, meaning that anyone, whether in the office, at home, or in a hotel, can take advantage of the benefits of SIP-based communications, regardless of what other equipment is available.

Now, in addition to phone and video calling, including presence features and IM capabilities, and desktop sharing and file transfer, damaka is introducing a secure whiteboard feature. With it, users can draw freehand with online contact globally, just as they can speak, share files, and instant message, enabling real-time collaboration on technical projects, document editing, or anything else that can benefit from live mark-up capabilities, like distance learning facilities and designers.

http://www.damaka.com

ADTRAN Looks to Grow VoIP Sales with Enhanced Channel Program

By Erik Linask

ADTRAN, (news - alert) which supplies routers, switches, and VoIP equipment to the SMB and carrier markets, has expanded its North American channel sales program, through which it addresses the SMB market (it has a direct sales forces that handles the carrier accounts).

With the addition of a new mid-tier partnership level, ADTRAN hopes to attract new partners, thereby expanding its own presence as well as providing those new partners with a reach into the SMB market — specifically, the 20 to 50 seat business, which it says is its sweet spot.

"The goal is to not only increase our presence in that segment, but to increase our partners' ability to win so that they can get incremental business by incorporating ADTRAN products into their solution," said ADTRAN's vice president of channel sales Ted Cole.

The most obvious enhancement is the addition of the new mid-tier partner level — to complement the ADvantage Plus and Registered partners. Combined, ADTRAN has more than 1,000 partners, more than 250 of which have been added during the last three months, including at least 85 Advantage partners, the new tier.

www.adtran.com

TalkSwitch Intros VoIP Phone System for Small Business

By Johanne Torres

TalkSwitch (news - alert) introduced the 244vs, a new VoIP-enabled phone system, which the company wants to target at small and multi-location businesses with up to four telephone users. The company says this system is the "most affordable hybrid telephone system on the market."

The new system is the latest addition to the TalkSwitch line of hybrid IP/PSTN PBXs. 244vs has room for two incoming phone company (CO) lines, offers four local extensions, and supports four VoIP trunks. The system is compatible with other TalkSwitch systems.

http://www.talkswitch.com

Vocalscape's VoIP Load Balancer Distributes Calls More Evenly

By Patrick Barnard

Vocalscape Networks, (news - alert) which provides VoIP telephony solutions and communications software for service providers, has introduced a load balancer for VoIP systems that includes a new algorithm that distributes calls more evenly.

The Vocalscape Load Balancer began as an open source project which was adopted by — and then improved upon — by Vocalscape. Specifically, it was made Asterisk compatible, plus the algorithm was revised to allow for more even call distribution between all available servers at all times, allowing for greater availability. The Load Balancer also has been endowed with new failover capabilities, so that calls can be routed around an unresponsive server.

http://www.vocalscape.com

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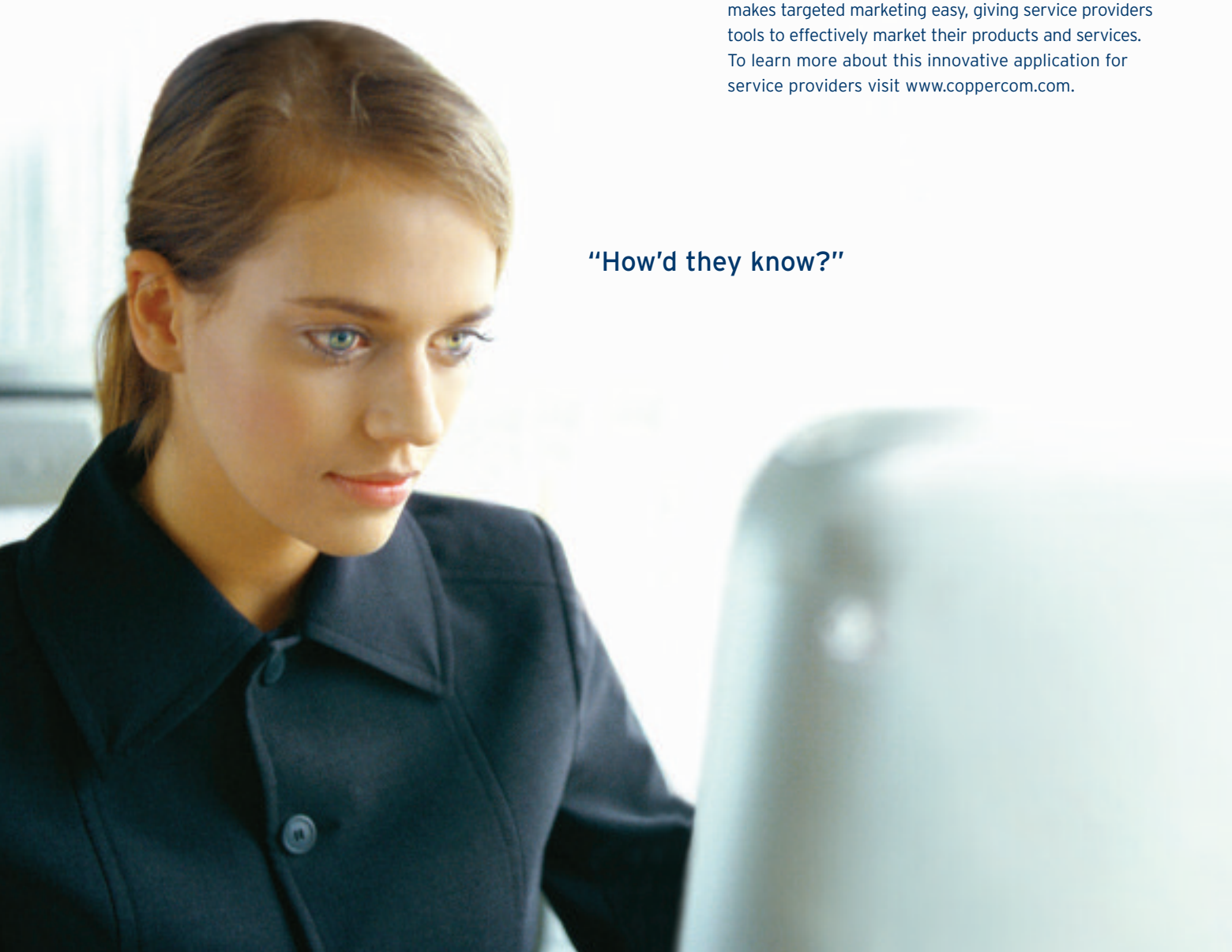

"How'd they know?"

How Voice Application Developers can Surmount Interoperability Problems

By Richard "Zippy" Grigonis

IP media server platforms have helped bring about the shift to IP infrastructure in the enterprise. IP media servers are a key component for delivering such pervasive applications as unified messaging, IVR, speech servers, contact centers and more. Such servers use SIP instead of TDM interfaces to connect these typically adjunct applications to the core real-time call control and switching system in the enterprise — the PBX.

But there are few perfect scenarios. As Jim Machi, VP of marketing for the Dialogic® Corporation, tells it, "Unfortunately, virtually all first-generation IP-PBXs relied on proprietary IP signaling stacks. Subsequently, as SIP was anointed as the signaling standard for VoIP, it has often been implemented by PBX manufacturers with proprietary extensions, or at best, disparate interpretations of RFC3261, particularly when functions beyond 'connect and disconnect' are required. Where does that leave voice applications developers seeking to deploy their applications on an IP media server platform? It leaves them suffering from IP, which in this case means 'Interoperability Problems'."

Machi's point is well made as is evident by Microsoft's (quote - news - alert) entry into the unified messaging space with Exchange Server 2007. Although Exchange Server 2007 utilizes SIP and RTP as the signaling and transport protocols, for all but one PBX integration Microsoft recommends IP media gateways such as those from Dialogic to translate SIP signaling into a language the PBX is sure to understand. The landscape for true SIP interoperability from the PBX manufacturers to IP media applications is one that is evolving, but to be sure, it doesn't 'just work'.

In order to make most applications interoperable with today's crop of IP-PBX and hybrid IP-PBX systems on the market or being deployed, Machi says that developers must do system-by-system SIP interoperability testing, which ultimately leads to necessary changes to the SIP signaling implementation on one side of the equation or the other.

"If you're Microsoft, making huge waves in the enterprise communications system space and partnering up with Nortel and others," says Machi, "you may stand a pretty good chance of influencing changes on the IP-PBX side of the SIP stack to make your stuff work. And in fact Microsoft and Nortel just announced Exchange Unified Messaging and CS1000 SIP interoperability as the first deliverable of their agreement to collaborate on unified communications. But for most ISVs and voice application developers, the task is daunting and you're not likely to get the big PBX players to make changes to accommodate your needs."

"Dialogic is the only enterprise gateway provider that cut its telephony teeth on adjunct voice applications and knows their needs and nuances inside out."

So is Machi slamming SIP and the way that IP-PBX manufacturers implemented it?

"Yes and no," replies Machi. "The deeper issue in integrating voice applications to switching infrastructure is related to the supplementary services. And they've always been a bit of a gotcha. Whether it's seemingly insignificant things like desktop message waiting indicator control for voice mail, or more important things like making transfers reliably and efficiently so you don't drop customer service calls, integrating voice applications reliably to PBX infrastructure has always been a challenge for the independent development community."

So what's a developer to do? Should voice application developers wait for SIP standards to evolve more fully? Should they wait for some 3rd party to figure out how to interop via SIP to all the IP-PBXs on the market and license that knowledge or the related SIP stacks? Is there still value in deploying an enterprise application on an IP media platform near term, or is it better to wait until SIP implementations really become normalized across vendors? And will that ever happen?

One solution is offered via IP media gateways, as Microsoft discovered. As Machi says, "Migrating an application to a pure IP platform has many benefits beyond direct IP interoperability with an IP-PBX. And certainly over time there is the opportunity to work through the SIP implementations of the various IP-PBX manufacturers, and starting with the market share leaders is the obvious approach, as Microsoft exhibited by going direct with Cisco, and now moving on to co-operate with Nortel. In advance of that process, and to interface back to all the legacy switches, an IP media gateway is the solution, providing the translation to TDM interfaces required to make the solution fly."

Unfortunately, most gateways have been designed for applications such as SIP trunking and other forms of toll bypass, so not all gateways have been designed or developed with a

media application in mind — again, not readily capable of handling the supplementary features and functions that a messaging, IVR or contact center application needs.

"However, Dialogic® IP Media Gateways are actually designed expressly for this purpose, on both sides of the network," says Machi. "Dialogic is the only enterprise gateway provider that cut its telephony teeth on adjunct voice applications and knows their needs and nuances inside out. So Dialogic started its gateway design process by borrowing technology from its market leading and unique PBX integration boards."

Such boards emulate digital PBX station equipment with separate digital audio and data paths, and whose proprietary signaling had been decoded for the major PBX and hybrid key system manufacturers over many years — sort of like working through today's SIP implementations. . .

"By interfacing to the PBX in this way," says Machi, "a tight signaling and audio path is established enabling fast and reliable transfers and data signaling, just the kind of thing you need for messaging and IVR applications. Dialogic used this technology to develop a series of IP media gateways to enable these applications."

"The Dialogic SIP implementation in the gateways takes the supplementary service information from the PBX port and translates it into a well documented SIP interface for the IP media application," says Machi. "And Dialogic has carried that through to its digital T1/E1 series of gateways as well, starting with a strong implementation of Q.SIG and other line side digital ISDN and CAS protocols, all translated to SIP."

"Most IP-PBX architectures on today's market are hybrid TDM — IP," says Machi, "so digital station ports and line side T1/E1 interfaces are still standard fare, even on newly deployed systems, providing the connectivity for Dialogic gateways to perform their translation magic. So while the landscape remains jagged with respect to SIP interoperability, especially for functions beyond basic make-call/disconnect-call functionality, Dialogic has delivered a transition solution for IP application providers enabling them to make the move with assurance."

It's like they are a little pill for IP, alleviating SIP interoperability problems. IT

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

Get Flexible with a Hybrid Media Server Platform

By Bud Walder, Enterprise Marketing Manager, Dialogic Corporation

Virtually all market research on enterprise communications systems will tell you that IP-PBX and IP station shipments have surpassed traditional PBX systems and traditional station equipment in the last year or so. Dig a layer deeper in the analysis, and it will show that the 'IP-PBX' market segment is split between two architectures, one that pushes all digital and analog connectivity to the perimeter via gateway devices, typically described as client / server and represented primarily by Cisco, and the other more dominant architecture which integrates IP, digital and analog telephony interfaces into a central server (or series of servers). The second architecture, known as a hybrid IP-PBX is a migratory architecture adopted by most traditional PBX players. By some research the hybrid IP-PBX accounts for about 70% of the IP-PBX market share in the past few years.

This mix of new system architectures and the existing installed base of traditional TDM PBX systems present a challenge to value added application providers. Now more than ever, platform flexibility is crucial for a company that bases its business on deploying adjunct media servers connected to the enterprise switching system. From one enterprise location to the next, you will find a range of connectivity requirements from basic analog interfaces through to well implemented and documented SIP interfaces. Your media server platform provider needs to give you all the flexibility to deal with this diverse connectivity landscape.

Enter Dialogic®. As a leader in media and signaling technology for enterprise media server platforms, Dialogic has developed a rich environment for developing and deploying hybrid and pure IP media servers into today's enterprise communications landscape. Dialogic® Host Media Processing (HMP) software, IP-Media Gateways, Diva SIPcontrol Software, and T1/E1 HMP Interface Boards provide developers with a way to migrate applications to an IP platform, while maintaining a full range of TDM network interface options to connect to any infrastructure encountered.

Market leading Dialogic (news - alert) HMP Software is well equipped as a technology for enterprise IP and hybrid media servers. Dialogic has ported all the traditional media functions to the host processor, and then some. Multi-media video resources now round out the suite of voice, conference, speech pre-processing, and fax resources. RTP, enhanced RTP and secure RTP are available transport options and Dialogic offers resource licenses for H.323 and SIP signaling stacks, or any 3rd party signaling stack can be used. And today's host processors can easily manage rich media applications at a range of densities suitable for enterprise deployments.

Once an application is developed on Dialogic HMP Software, it can be deployed as an IP media server with a direct SIP interface to the IP-PBX, or into a hybrid environment with a Dialogic® IP Media Gateway. Dialogic HMP Software also can be used to deploy cost efficient hybrid architectures in a single server using compatible T1/E1 interface boards, or with the upcoming release of Diva SIPcontrol software enabling Diva analog and BRI interface board support.

*For more information on getting flexible with IP and hybrid media server products, visit **http://www.dialogic.com**.*

By Tony Rybczynski

Business Convergence: The Path to Enterprise Transformation

Gartner estimates that over the next 5 years, enterprises worldwide will waste $100B by taking the easy road and following outdated networking design practices, as opposed to focusing IT investments on transforming the business by spending money where it matters most. Just because you can do something, should you? What matters most? In their survey of 400 CIOs, the four top CIO business priorities for 2006 were: improving business processes, lowering operating costs, attracting and growing customer relations and supporting competitive advantage. In short, what matters most is ensuring that IT's strategic plans align with the strategic plans of the business. Through Business Convergence, the enterprise is transformed by allowing the enterprise to accelerate decision-making and business processes, to rebalance operational expenses towards strategic initiatives, to enhance customer engagement, and to apply IT resources to strengthen competitive positioning.

Four Strategies for Business Convergence

There are four key strategies that can help CIOs execute on their priorities and move their enterprise towards business convergence.

Firstly, adopt Unified Communications. (news - alert) Your people are your key strength, but what percentage of the collective knowledge across your organization is being used? Your answer is very likely closer to 20% than to 80%. One of the major impediments is that communications has become ineffective across an increasingly mobile workforce, with multiple phone numbers, email addresses and inboxes. Unified Communications simplifies the end user experience by bringing these different communications modes together and enhancing them through presence and location services, multimedia conferencing and personalization. Unified Communications enhances customer service delivered through contact centers by allowing end customers to engage with the enterprise over their preferred self-serve or agent-assisted channel (web, telephony, email, chat, and video). Unified Communications allows knowledge workers to collaborate more effectively anytime, anywhere over any device; information workers to reach out to subject matter experts to accelerate decision making; and service workers to address issues more quickly. Unified Communications also unifies the supporting communications infrastructure onto a common software-based platform, which is easier to engineer to meet security, compliance and disaster recovery and business continuity requirements. Working with end user communities of knowledge, information and service workers, and with lines of business will ensure that these Unified Communications capabilities are embraced by end users for maximum business advantage.

Partnering is a key strategic step towards business convergence.

Secondly, communications enable your business processes. Are human delays slowing down your business processes, impacting customer service, ship dates, new product development, and problem resolution, and, in turn both top and bottom-lines? Communication-enabling your business processes is targeted at eliminating these delays. These processes can take the form of person and application-initiated interactions. In the first case, presence and directory information are embedded in the application allowing the user to initiate instant messaged, email, voice or multimedia session directly from the application. For example, a nurse using a clinical application could easily check the availability of a patient's doctor and initiate communication, eliminating lost time associated with voicemail tag and missed calls. In the second case, the application can initiate alerts and notifications, or schedule conference calls based on presence and calendar information. For example, a supply chain application, on detecting a shortfall in supply, could send notifications and relevant data to key stakeholders and even schedule collaboration for faster resolution. Working with key stakeholders (lines of business and enterprise-wide application owners) for both customer and employee-facing applications and adopting Service Oriented Architecture (SOA) frameworks will provide the required agility in meeting business needs.

Thirdly, deploy an application-aware network. This strategic imperative addresses this challenge, while recognizing that the underlying IT infrastructure must meet the need of three

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key stakeholders. Firstly, it must meet the implicit or explicit service level agreements for end user Quality of Experience (QoE). Secondly, it must meet the needs of CXOs in areas such as security, regulatory compliance including privacy and financial control, business continuity and disaster recovery, and performance needs of enterprise-wide applications (finance, HR, ERP). Thirdly, it needs to meet the needs of IT to optimize network performance while reducing the total cost of ownership. Broadly speaking, the keys to achieving these objectives are appropriately distributed application-awareness for consistent QoE and application performance optimization, and autonomic operation to dynamically adjust to changing traffic, threat and failure conditions. The result is overall simplification while meeting business needs, thus freeing up resources to address new strategic initiatives such as Unified Communications and communications-enabled business processes.

Fourthly, partner for success. Is your IT staff too busy maintaining your current network, server and storage environments to undertake new initiatives to move the business forward? Are you concerned about managing risk in your business? You are not alone. The above strategic imperatives require new skills that transcend voice, network and application skills. In addition, enterprises need to decide which areas are strategic and should be staffed internally and which could be out-sourced in the form of integration (design, deploy, support, evolve), managed and hosted services. Any risks associate with accelerating enterprise transformation to meet business needs can be minimized through judicious use of services from trusted partners. Partnering is a key strategic step towards business convergence.

Business convergence is a compelling vision, resulting in the alignment of IT and business priorities. These four strategic imperatives enable your enterprise to transform itself with low technology and business risk, to accelerate time to X across the enterprise- time to customer service, to problem solution, to revenue and more generally to meeting new business needs. IT

Tony Rybczynski is Director of Strategic Enterprise Technologies at Nortel. (quote - news - alert) He has over 20 years experience in the application of packet network technology. For more information, please visit http://www.nortel.com.

By Hunter Newby

Nature and Networks

PTC 2007 Conference in Hawaii has just ended and as usual it delivered a great learning experience about the laws of networks. The learning takes place in both a classroom style setting and in business suites all throughout the Hilton Hawaiian Village Resort. Various aspects of the networking world are analyzed and discussed ranging from how the networks are built and operated to how they are maximized and priced. One thing is very clear, not all networks are carrier networks in the business of selling services. There are many other types of networks with different economic models. The one common bond that they all share though is the need to be physically connected somewhere to each other.

The PTC is a tremendous event supported by a great organization with a history of being a proponent for change. The theme for PTC 2007 was "Beyond Telecom" and as Ken Zita, PTC Conference Chairman and Board of Governors Member put it, "The theme was spot on". It has been said that the only constant is change. Telecom as we all know it can now be referred to as telecom as we knew it.

The change was crystallized in the types of attendees that were present this year, including major search engines that have certain video interests and others from the once film industry now going through its own digital transformation. The "networks" carry much more than voice, or Internet traffic. It's not only telecom, but "everycom". All types of traffic are riding over various types of media with distances great and small, and the importance of underlying fiber and/or wireless networks has become very clear.

Because of a December 26, 2006 earthquake resulting in the failure of nine undersea cable systems off the coast of Taiwan, the importance of the underlying fiber and transport networks could not have been made any clearer. The cable outages were not primary topics of discussion at the conference since they happened only a few short weeks prior to the event and could not have been scheduled, but there was certainly talk of the situation in the halls and sitting areas of the Hilton Resort. The disruption of voice, VoIP and all sorts of IP applications caused instant packet rerouting and congestion and started a massive physical layer repair project for almost every major undersea cable operator in the region.

On the switched and routed side of IP the Any2 Exchange at 1 Wilshire Blvd. in Los Angeles experienced a tremendous spike in traffic immediately after the earthquake hit. As IP traffic looked for anyway around the cuts network operators had many inherently planned protection schemes go in to effect. The Any2 and several of its 84 members were able to use this peering point as a means to keep the applications up and networks running. As John Savageau, Managing Director CRG West said, "About 20% of the traffic on the exchange right now is VoIP and we saw a major increase in all traffic in a matter of 4 seconds."

Because of a December 26, 2006 earthquake... the importance of the underlying fiber and transport networks could not have been made any clearer.

Common Peering points with established connections are the key to seamless rerouting of course, but in every instance it is the physical layer that that comes first. Since many of the undersea cables were physically cut, or their network equipment damaged, what was required was a physical restoration plan of action to go in to effect. This did not happen as quickly as everyone would have liked. It seems that due to the lack of a defined, common, physical layer of interconnection points with a network critical mass representing those major cable systems, a manual restoration was not possible. Since the proximity that network meet points bring was not available or even in existence, there was no plan to immediately deal with this outage.

Even if there were a plan, it's not an easy task to execute, given that so many routing calculations need to be determined manually *versus* through the routing intelligence of software. That said, having fiber panels with cables terminated to them leading back to each of the wet and dry transport networks in and out of a region, along with a whole lot of fiber jumper cables, can help solve the problem. Having a lot of available capacity to quickly throw at an outage like this helps.

Getting to the point where there are defined, common meet points throughout the affected region will take a long time. It is a major construction and collaboration project that requires capital, and cooperation from network operators and governments. The political aspect will probably take the longest to sort out, but given the fallout from this disruption, the path to physical restoration preparedness may be on a fast track.

The Taiwan cable cuts and those parties they affected go well beyond telecom and into the realms of finance, education and commerce in general, and should be the impetus for a change in the way things have been built and operated in the region in the past. We would all be well advised to look at this example of a natural disaster and envision what a restoration project would look like on this scale around other parts of the world. History repeats itself, so learning from the past is the best way to prepare for the future.

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

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By Mary Bradshaw and Max Schroeder

The Ft. Lauderdale ECA Update

The Internet Telephony Conference & Expo Conference in Ft. Lauderdale this past January (January 23-26) was definitely a resounding success. The mix of conference sessions was well received and the exhibit floor handled even more traffic than in 2006. There was also a shift in the focus from previous IT Expos in that the attendees were not focused on "Is VoIP and converged IP right for my company?" but "What can we do to further enhance our converged deployment?".

One thing that remained the same was the close working relationship between TMC and the ECA. The Ft. Lauderdale event marked the third year in a row that the ECA has hosted Reseller Live and the second year co-hosting the Disaster and Business Continuity Workshop with TMC (see review in separate column in this issue).

The three hour Reseller Live session of January 24 delivered a full array of reseller training tools. Of key interest was the shift in focus of this session from previous years. The attendees were less interested in overcoming the challenge of customer objections to implementing VoIP and more focused on pure selling skills. This is definitely great news as resellers are the feet-on-the-street and their shift in focus demonstrates that end-users have finally accepted VoIP. (define - news -alert)

Panel participants were:

Moderator: Max Schroeder, Sr. VP FaxCore, Inc.

Panelists:

Wendell Black, Vice President Sales, Oracle

Bob Nicols, AXIOM Sales Force Development

Don Gant, VP Business Development/Channel Marketing, Iwatsu Voice Networks

Steven J. Johnson, President, Ingate Systems Inc.

The presentations were excellent, as demonstrated by the fact that the attendees stayed focused for the full 3 hours and continued to participate in the questions and answer period past the scheduled finish time. To review the presentations, visit the ECA site (http://www.encomm.org) or go to (http://www.tmcnet.com/339.1) to view them on the TMC site.

Several ECA member companies were exhibiting, participating in conference sessions and running workshops at the event. We would like to share some of their observations.

Todd Walker, Sales Vice President of Iwatsu stated "Good quality traffic. Everyone's interested in the value wheel that is where the technologies we offer can add value to their operations. It's a great time to be in the industry:

1. Technology can deliver more value than ever before.
2. There are lots of customers needing upgrades.
3. Users and VARs are seeking help as never before."

Todd's comments suggest to us that activities and energy at the show reinforce the view that there's lots of opportunity for new players with new energy.

Dialogic was back in a big way and we asked Maureen Tusim, Partner Marketing Manager, to share her views on the event. "It's been a great opportunity to re-introduce Dialogic's legacy customers and partners to the new depth and breadth of our offers with Eicon. We wanted to feature our partners here and we look forward to featuring our partners even more in coming events." Maureen rated traffic as "serious."

Cantata: Marc Costa, Program Manager OPS: "It's been a good show. We've seen NSPs, VARs, and users. The attendees have been of good quality. The response our SR140 FoIP product line and our integrated media and signaling gateway (IMG1010) received at the show was tremendous. This demonstrates the acceptance of FoIP as a necessary element of any VoIP rollout and the IMG1010 as a critical component of a converged IP deployment."

Another ECA show participant was Ingate Systems that ran a series of seminars throughout the week. The seminars were a huge success as demonstrated by several standing-room only sessions. Ingate also invited thought-leaders in the field, well-known IP-PBX vendors, SIP trunking service providers and even customers who shared their success stories and knowledge.

"These seminars were a compelling draw for IT EXPO attendees thanks to the participation of industry leaders in SIP trunking," noted Olle Westerberg, Chief Executive Officer, Ingate Systems. "For instance, Ericsson's and BandTel's perspectives on the Latin American market provided important, timely information. Our case study session with Sterling Bank offered the audience a first-hand look at a successful SIP trunk deployment." ShoreTel, another ECA member, participated and conducted workshop demonstrations.

The interest for SIP trunking is enormous. As Rich Shockey, Director and Distinguished Member of the Technical Staff of NeuStar, Inc. and ENUM IETF working group Founder and Co-Chair aptly said, "2007 is the year for SIP Trunking."

"Another factor that contributed to the success of these seminars was the partnership between Ingate and TMC," continued Westerberg. "TMC is an innovative media company that truly understands the importance of new technologies such as SIP trunking."

SIP trunking is new but already a proven solution. Also, most SIP trunking deployments pay for themselves in six months or less, so keep it on your radar screen.

As a closing note, the ECA would like to thank TMC for all their cooperation and support. They are a good partner in promoting industry growth and, together with the ECA, represent a strong voice for the enterprise. IT

Mary Bradshaw is Executive Director of the Enterprise Communications Association (http://www.encomm.org).

Max Schroeder is a board member of the ECA, Media Relations Committee Chairman, and liaison to TMC. He is also the Sr. Vice President of FaxCore, Inc. (http://www.faxcore.com).

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By John Cimko

Is This the Year for Broadband over Powerlines?

This is the year when everybody in America will have broadband service — that is, if government policymakers and the marketplace keep pace with the universal broadband goal set by President Bush.

When the President announced that goal in a June 2004 speech, he focused special attention on broadband over powerlines (BPL), saying that, since powerlines go everywhere, they provide a "great opportunity to spread broadband throughout America."

BPL has long been a promising technology that has never quite turned the corner. But the FCC has taken some aggressive actions aimed at spurring BPL deployment and turning BPL into a viable competitor against DSL and cable modems in broadband markets. Bringing a third competitor into the broadband field would be great news for consumers, and would also benefit VoIP service providers who, for example, would have the opportunity to partner with electric utilities to use BPL as a pipe for mass market delivery of VoIP.

BPL involves an overlay of equipment, software, and management services folded into the electric grid without altering physical electrical paths. A number of features make BPL a potentially attractive competitor. It supports "triple play" services (VoIP, high-speed Internet access, and video on demand) and other broadband services over existing powerlines. And BPL doesn't require any additional wiring at customer premises. Users can access the Internet and broadband services simply by plugging into any electrical outlet.

BPL runs as an Internet Protocol network, making the BPL systems robust, scalable, and flexible. IP makes the configuration of BPL networks easier, and bypasses expenses for large head-end or central office facilities. BPL currently provides end user speeds of between 1 Mbps and 4 Mbps (for both downloads and uploads), with some deployments reaching speeds up to 10 Mbps.

So — Why hasn't BPL taken off? And what has the FCC been doing to try to jump start the technology?

BPL has grappled with two main problems — solving interference with licensed spectrum users, and working out an economically feasible business plan.

Electric lines used for broadband, it turns out, act as huge antennas, because of their length and their height above ground. The lines radiate radio frequency energy over the airwaves, causing potential interference to licensed spectrum users at considerable distances.

The FCC acted three years ago to address interference issues by adopting operational and technical requirements for BPL aimed at avoiding harmful interference and resolving interference issues when they do occur. The requirements, which were affirmed by the FCC in an action taken last year, also include emission limits for BPL equipment. The FCC's actions have been viewed as a shot in the arm for BPL entrepreneurs, largely because the FCC concluded that its rules adequately protect licensed spectrum users from harmful interference. In addition, companies like Motorola have been designing BPL delivery systems that substantially reduce interference, and the American Radio Relay League has been working with utilities, equipment manufacturers, and regulators to address interference issues through cooperative problem-solving efforts.

The other problem has been coming up with a winning business plan. Several factors make it difficult for BPL to gain a foothold in the broadband market. The entrenched incumbent cable and telephone companies have a very strong market presence. Electric utilities lack expertise in running consumer telecommunications businesses, and the utilities have not often been inclined to embrace and invest in new technologies like BPL. So far, comprehensive, uniform standards and protocols have not been established for BPL systems. And, even though BPL makes use of existing infrastructure at customer premises, electric utilities still face equipment and labor costs in order to deploy BPL systems.

BPL involves an overlay of equipment, software, and management services folded into the electric grid without altering physical electrical paths.

But the picture may be getting brighter. The FCC adopted an Order in November 2006 classifying BPL as an interstate information service, rather than as a telecommunications service. This mirrors an action the FCC had taken in 2005 classifying DSL the same way, following a U.S. Supreme Court decision upholding an FCC ruling that cable modem services should be treated as information services. Information services are subject to less regulation than telecommunications services, so the FCC's action makes it easier for BPL to compete with DSL and cable modems in broadband markets. FCC Chairman Kevin Martin noted that classifying BPL as an information service will help foster the development of BPL and promote broadband com-

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petition, saying that "[b]y encouraging the development of new technologies, such as BPL, we can best achieve the President's goal of universal broadband by the end of 2007."

In addition, electric utilities are looking at approaches that would use broadband not only for Internet access and IP-based services, but also for "intelligent grid" applications like automatic meter reading, faster identification of electrical problems, and automatic distribution switching, which facilitates power restoration. The utilities are also considering partnering with companies having expertise in delivering consumer telecommunications products and services. This approach can involve a "landlord" model, where the utility rents the grid to an outside party for a percentage of profits the outside party obtains by providing BPL over the grid, or a "joint venture" approach, where the utility is more directly involved with Internet service providers in providing BPL.

The FCC deserves credit for trying to advance the prospects for BPL. As Chairman Martin has said, BPL "hold[s] great promise as a ubiquitous broadband solution that would offer a viable alternative to cable [and] digital subscriber line . . . ." And maybe 2007 will prove to be the year in which consumers, along with VoIP providers and other IP-based service providers, begin to reap the benefits of BPL in the broadband marketplace. IT

As Chairman Martin has said, BPL "hold[s] great promise as a ubiquitous broadband solution that would offer a viable alternative to cable [and] digital subscriber line . . . ."

John Cimko served for 15 years at the FCC, and currently practices law at Greenberg Traurig LLP. He can be reached at cimkoj@gtlaw.com.

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By Brough Turner

Telephony Web Services

Today, most major Internet applications provide public programming interfaces. Mapquest introduced an API in 2004. Then when Google introduced their Maps API in June 2005, there was an explosion in applications, called *Mashups*, integrating data from other sources into Google maps, or integrating Google maps into other web services. Today it's hard to surf the web without running into third party applications that leverage map services. But maps are just one highly visible example of the burgeoning field of mashups based on web services APIs. Amazon, Flickr, eBay, YouTube, Facebook — all offer APIs. These APIs benefit consumers by allowing entirely new services to be easily concocted while helping service providers grow their communities of users (and their ad revenue!).

But parallels in the telephony world are extremely limited. Indeed, using Google (quote - news - alert) to search for the phrase "telephony web services" finds only one of the companies discussed later in this article. This is a nascent field.

Traditional fixed and mobile operators still run highly constrained voice networks. Yes, you can have your computer place and receive calls, but if you want to overlay a private numbering scheme for use between phones in your far-flung offices (a voice VPN) — such services are only available from your operator. Likewise, if you want to integrate your customer care software with call center functionality, you start with PBX technology, as public networks are not open. Even access to your own call history requires scraping data from itemized bills.

Does the new world of VoIP do any better? Not much. Major VoIP operators, like Vonage, use VoIP to reproduce traditional fixed-line services — basically "digital POTS" — no open APIs there. Skype offers PC-based APIs for the Skype client and you could argue that's all that makes sense for a peer-to-peer service. There are no central services to expose through web service APIs. But the test is what can you do with their APIs and the answer is client extensions. Since Skype clients run as a single instance per PC, you can't easily implement a multi-channel back-to-back user agent (B2BUA) and a VPN.

Telephony Web Services Technology

The good news is a number of companies are developing telephony web services technology and a few offer hosted services directly or through partners. None of this is free and no service is widespread, but it's a sign of things to come.

LignUp Corporation, Abbeynet S.p.A., Ubiquity Software and Angel.com offer SIP-based VoIP service platforms that can be controlled via web services APIs and they each allow access at several levels including some fairly high-level functionality. For example, LignUp offers basic media server and call control functionality but also complete PBX and messaging systems that are configured and controllable via web APIs. Angel.com is more focused on call center applications while Ubiquity offers conferencing and a complete residential VoIP (define - news - alert) service package. Abbeynet also focuses on VoIP services, with an optional pre-paid billing platform and a presence server.

As an example of what's possible, LignUp did a mashup using their telephony services API and the popular hosted sales management system, Salesforce.com. A significant problem with any sales force automation system is getting field sales folks to actually input data. The Salesforce.com-telephony mashup took two days to implement and the result is slick, handling everything you'd expect, including, calling customers, capturing telephony information and filling in Salesforce.com forms for both incoming and outgoing calls.

Each of the platform vendors has companies providing hosted services on their platform. For example, Streamdoor Ltd. provides hosted contact center services on a LignUp platform. It's configured and controlled via web service APIs, but the work is principally by Streamdoor on a customer-specific basis.

The closest I've found to customers doing their own mashups is with hosted service provider M1 Global. They focus on business process automation for enterprise customer care, i.e. the intersection of business policies and procedures with call centers and front line employees, and they provide not only web service APIs, but a set of business process modeling and application development tools based on the Eclipse open source development platform.

Prospects

Telephony web services technology is in place today. What's lacking is the widespread low cost access that web services from Google or Amazon offer. The problem is business models — PSTN calls still involve per-minute charges. But that won't last. Costs are falling and other funding models will appear. Then we can expect telephony to join the word of web services mashups, with an accompanying burst of services innovation. IT

Brough Turner is Senior VP of Technology, CTO and Co-Founder of NMS Communications. (news - alert) For more information, please visit the company online at http://www.nmscommunications.com.

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By Rich Tehrani & Max Schroeder

Florida — Disaster Preparedness and Business Continuity Planning Workshop

The first official Disaster Preparedness Communications Forum (DPCF) meeting was held one year ago at ITExpo East 2006. This was followed in October with our first West Coast meeting in San Diego at ITExpo West. The second East Coast meeting and workshop was held in Ft. Lauderdale on February 25, 2007. During the past year, the DPCF has evolved into a much larger group and our participating workshop panelists reflect this growth of both numbers and diversity. TMC's Greg Galitzine also hosted a separate panel session on January 24th which demonstrates the high interest in business continuity.

The speakers for the January 25th session were:
Moderators
- Max Schroeder, Senior VP — FaxCore, Inc.
- Richard "Zippy" Grigonis, Executive Editor, TMC IP Communications Group

Panelists
- Mike Emerson Senior Manager Security & Business Continuity Services, Citrix
- Wendell Black, VP Sales, Oracle
- Howard Lubert, Safehatch
- Joe Gaughan, Product Manager, Iwatsu Voice Networks
- Craig Tony, Cantata
- Camilo Garcia, Telefonica
- Bernardo Schneiderman, Telematics Bus. Consultants
- Tim Himes, Arise Virtual Solutions, Inc. (formerly WillowCSN, Incorporated)

All of the session presentations are posted on the Enterprise Communications Association (ECA — http://www.encomm.org) or at (http://www.tmcnet.com/339.1) on the TMC site. Some workshop highlights:

Mike Emerson of Citrix (news - alert) opened his session with this quote by Albert Einstein "By failing to plan, you are planning to fail". Another key point he made was "When planning for Business Continuity always plan for the worst and the unexpected — Anything less becomes a subset." Mike also outlined a 5-step business continuity plan as listed below. Please visit one of the above sites for full details.

Phase 1 Project Initiation
Phase 2 Business Impact Analysis
Phase 3 Continuity Strategies
Phase 4 Plan Development
Phase 5 Maintenance, Testing and Audit

Howard Lubert of SafeHatch and DirectorForce covered Software-as-a-Service (SaaS) and positioned SasS as the ultimate disaster avoidance model. He also reviewed how SaaS functions well as a security and compliance tool and is currently the darling of the private equity marketplace.

Howard shared some impressive information that he obtained on the Interned and compiled by Gartner:
- Software as a Service will be the business model of choice by 2008
- The North American on-demand market will grow from (estimated) $7.5B in 2003 to $41B by 2008, a 41% CAGR
- One third of all new software will be delivered on-demand by 2010

Wendell Black of Oracle (quote - news - alert) opened his presentation with this definition of business continuity: "The discipline of managing an enterprise under adverse conditions. This is done by implementing resilience strategies, recovery objectives, and crisis management plans as a key component of an integrated risk management initiative." Source: The Business Continuity Institute. A key subject of Wendell's presentation was call/contact centers as a hosted or managed service. Two factors he emphasized were 1) "How much data can you afford to lose?" 2) "How long can you afford to be down?" He then outlined some questions to ask vendors that are seeking a hosted solution. You definitely need to review the full presentation if your company is looking to employ hosted or managed services.

An interesting addition to Wendell's presentation was a brief overview of the operations of Arise by Tim Himes. The home-based sales, customer service and technical support concepts have become some of the fastest-growing business segments in America. The phrases Homeshoring... Virtual Call Center... Work From Home... all describe a professional yet unique suite of Arise services using home-based professionals. The fact that these people are also spread over a wide geographic area provides for a built-in business continuity model. Arise's operations are based on Oracle's contact center application and they one of the largest operations of it's type in the USA.

Joe Gaughan of Iwatsu Voice Networks (news - alert) offered excellent guidance on just what defines a "crisis" as opposed to a "disaster" and provided these examples:
- Crisis — A crucial or decisive point or situation; a turning point.
  - Lose your T1/PRI/Power
  - Hackers

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  - Server/Equipment failure
- Disaster — An occurrence causing widespread destruction and distress; a catastrophe
  - Flood
  - Terrorism
  - Pandemic

Later in his presentation Joe emphasized that it is "More likely that risk will come from someone *inside* your company!" When putting your plan together you need to carefully review your internal controls, policies and procedures to be fully protected.

Craig Tony of Cantata presented a short questions and answer scenario to dispel some myths regarding IP and circuit switched communication. For example, for the question "Is IP or circuit switched communications technology perceived as a better network architecture for failover?" 70% of the respondents selected circuit switched when, in fact, VoIP is more reliable given that:

- Internet Protocol / "IP" has "survivability" designed into it
- IP Networks for VoIP are designed with load balanced nodes to avoid cascading failures resulting from partial failures
- Success is dependent upon best network design practices — which should be a part of the strategy regardless

Bernardo Schneiderman provided us with a brief overview of the Global VSAT Forum. VSAT is an acronym for Very Small Aperture Terminal, but more simply put it describes a small satellite terminal that can be used for one-way and/or interactive communications via satellite. Combined with wireless communications, you have the ultimate business continuity communications network. Bernardo's presentation outlines the two types of Satcom that are available and the various operators.

Lastly, Camilo Garcia of Telefonica provided an overview of the global and Latin American markets with respect to business continuity and disaster preparedness.

As evidenced from the above, the workshop covered a wide range of topics but all roads pointed back to IP and mobile solutions. Please visit the sites listed above for full details on the presentation. IT

Max Schroeder is a board member of theECA, media relations committee chairman, and liaison to TMC. He is also the Sr. Vice President of FaxCore, Inc. (http://www.faxcore.com)

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

By Kelly Anderson

IPDR — What a Difference a Year Makes

It was one year ago that IPDR.org set out to tackle accounting challenges for IPTV with an open meeting in San Jose. We had over 50 companies represented at that meeting drawing around 90 representatives. It was quite an impressive meeting. We were able to define issues and subsequently create an aggressive work plan that would be done by the end of the year. After extensive reviews from multiple organizations, we released in December of this past year, Service Specifications and modifications to our Streaming Protocol to support any type of content accounting and metrics management requirement.

Not only did this mark a significant capability in making IPTV services operational as well as profitable, it has also marked a significant increase in industry-wide adoption.

Late January, the Internet Protocol Detail Record Organization (IPDR.org) announced that CableLabs® adopted IPDR.org technologies into its OpenCable™ Application Platform (OCAP™) Version 1.1 initiative. Specifically, the set-top box (STB) API for metrics gathering — a critical function of the OCAP 1.1 release — will be an application of JSR 190, the Java Community Process (JCP) specification of an API for metrics gathering. IPDR.org technologies are embedded in JSR 190; they will be the specification for encoding metrics messages and transporting them to a collection point. This means all OCAP 1.1 set-top boxes will have integrated into them the IPDR.org technologies. This new development is not just exciting for the adoption of IPDR specifications, but it addresses the major issue of monitoring the home network that has plagued service providers for decades.

As with all customer-related trouble reporting issues, nothing is more frustrating than being on hold with a customer service representative that cannot duplicate your specific issue. I know my breath is held the whole time hoping not to hear the words that will end the phone call, "It's your phone, outlet, house wiring, etc. . . ." that gives you no resolution to your last 50 minutes on the line. Imagine that being a customer with IPTV. Unlike the phone where calls are placed to repair *after* the call and trouble, calls will be placed while the trouble is happening. If a service provider does not have access to necessary information that could explain or fix the problem, the customer is going to be dissatisfied. Add in the information gleaned from viewing habits, recorded and live television, remote functions and the like, and monitoring the home network is set up to be a crucial part of a successful IPTV launch.

The IPDR.org technologies included in the CableLabs specifications are the IPDR/Streaming Protocol (IPDR/SP) transport and the IPDR/XDR encoding specifications incorporated by reference, along with a full open source code implementation of production-ready development tools to integrate the technology into vendor solutions. This availability of code will quicken the industry adoption and usability of this solution to near-term IPTV launches. This is incredible news for a competitive industry that requires quick marketplace integration.

I am excited about the developments over the past year. With so many standards efforts going unnoticed and unused today; I am thrilled to be part of efforts that will enable big changes for the marketplace and big dollars for its adopters. IT

All OCAP 1.1 set-top boxes will have integrated into them the IPDR.org technologies... it addresses the major issue of monitoring the home network that has plagued service providers for decades.

Kelly Anderson is President and COO of IPDR.org, a collaborative industry consortium focused on developing and driving the adoption of next-gen service usage exchange standards worldwide.

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By Richard "Zippy" Grigonis

Bus & Board 2007

I've said it many times: of all the expos, conferences, seminars, and assorted mass-gatherings the Zipster has encountered over the years, his Number One favorite — aside from TMC's own ITEXPOs, of course! — remains the yearly Bus & Board Conference.

It's a show that's not too big (350 attendees and about 45 sponsors) but not too small either. All of the right experts and analysts show up every year, along with just about every vendor I've written about over the years who makes high availability systems for telecom (and other markets) and the components that are used to build them, such as backplanes and boards.

I've attended every Bus & Board Conference since the first one was held in 1999 in San Jose, California. Interestingly, the latest Bus & Board, held January 15-16, 2007 in Long Beach, California, is the last of its kind. The show is changing its name to "Critical Embedded Systems". It will still be run under the auspices of the VME International Trade Association (VITA) led by the inimitable Ray Alderman. The new Critical Embedded Systems show will be an amalgam of Bus and Board and two other VITA-sponsored events: Military Embedded Electronics and Computing Conference and CoolCON, which is devoted to the liquid cooling of electronics.

At this latest show, some interesting hardware appeared. . . .

ACT/Technico — (news - alert) This well-known supplier of embedded products and CompactPCI (cPCI) and VMEbus solutions had on display their rugged, 3U high cPCI Gigabit Ethernet switch that enables full management via an on-board processor. The 661x series of switches is suited for various embedded network switching applications, including ground mobile, shipboard, airborne and homeland security. (http://www.acttechnico.com)

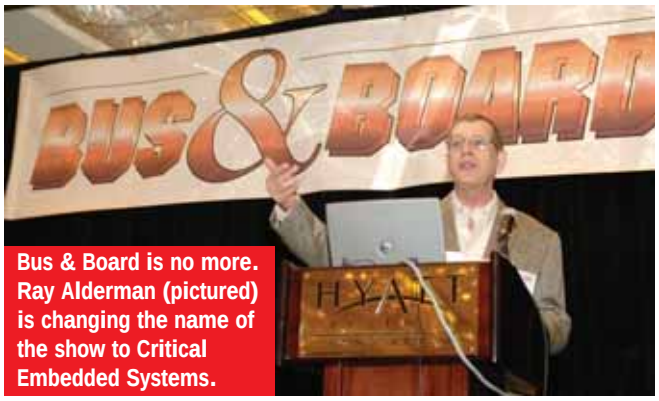
Aitech Defense Systems — (news - alert) These guys usually develop products for harsh environments, particularly defense, aerospace and astronautics applications. Their products can also function in other mission critical areas, of course. At B&B they announced many new items, including an environmentally sealed, 2-slot 3U high CompactPCI enclosure with a modular and removable power supply. They also announced a high density PMC (PCI Mezzanine Card) that provides up to 64 GB of NAND Flash memory in two banks with DMAC. Called the enhanced M222, its new FPGA-based DMA controllers can sustain data transfer rates of over 45 MBps as well as a power consumption of less than 7 Watts. (http://www.rugged.com)

Elma Bustronic Corporation — (news - alert) This major force in high performance backplanes announced a new 14-slot Dual Star MicroTCA backplane, featuring 10 AMC slots, and dual redundant power module and MicroTCA Controller Hub (MCH) slots in a 14-slot backplane. (http://www.ElmaBustronic.com)

Elma Electronic, Inc. — (news - alert) They announced a new 5U MicroTCA shelf, featuring pluggable fan trays and an air filter. It comes with the 14-slot Dual Star backplane. Elma also announced a new AdvancedTCA handle that incorporates a slide-motion button to latch the handle shut and to activate an optional micro-switch. The ergonomics of this latching feature reduce the amount of force required to disengage the handle. The user also gets an audible confirmation that the latch is closed and that the PCB is fully inserted. (http://www.elma.com)

Emerson Network Power — (news - alert) Their new Embedded Computing business, formerly Artesyn Communication Products, announced a new high-speed switched fabric interface for its KAT4000 AdvancedTCA (ATCA) telecom blade. The enhanced interface provides dual 10-Gigabit Ethernet channels for accessing the ATCA High-Speed Fabric, and the blade ccan accommodate up to four AdvancedMC modules. To maximize system throughput and flexibility, the KAT4000 provides separate control/management and data planes, each with its own independent switching capability and ATCA fabric connection. (http://www.artesyncp.com)

GE Fanuc Embedded Systems — (news - alert) These guys acquired Radstone Embedded Computing, announced three new 3U high VPX boards and at the show announced the 3U VPX MAGIC1 Rugged Display Processor. MAGIC 1 is a ruggedized integrated subsystem consisting of the 2.0 GHz Intel Core Dual processor-based SBC340 single board computer and GRA110 graphics processor. (http://www.gefanucembedded.com)



Bus & Board is no more. Ray Alderman (pictured) is changing the name of the show to Critical Embedded Systems.

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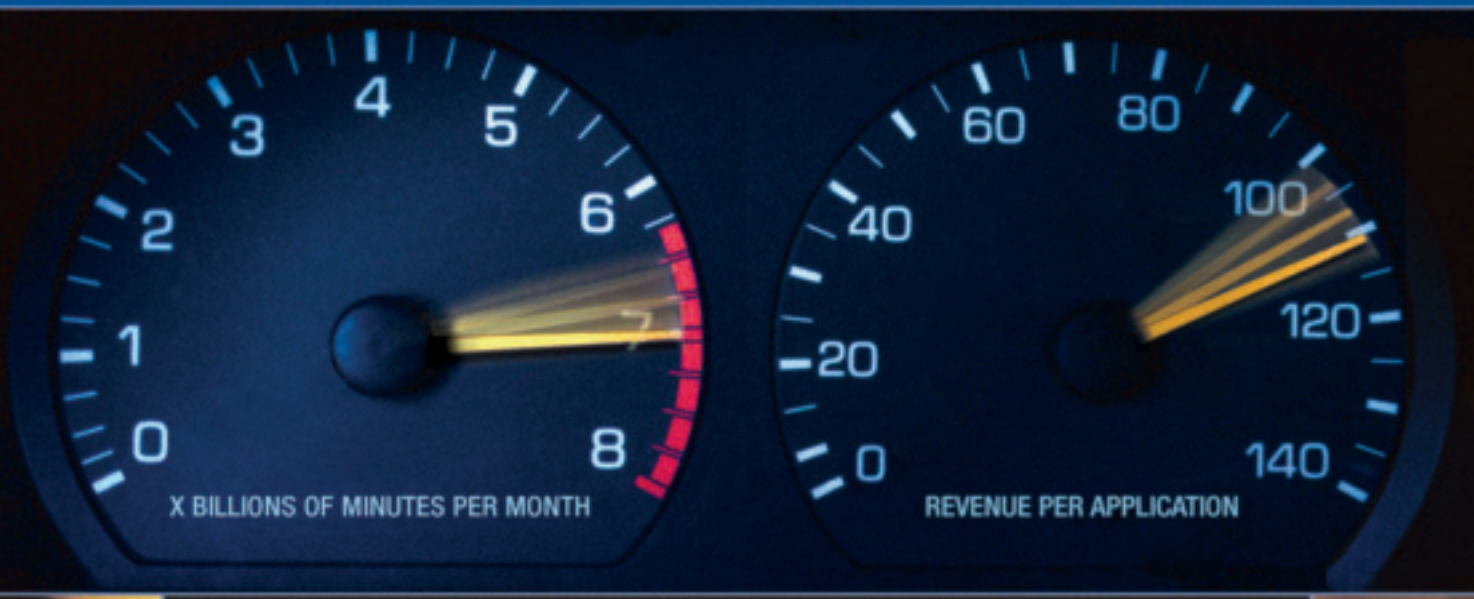
Service Providers – why rev limit your IP voice services business?



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Making IP Voice Services a Carrier Reality

Hybricon Corporation — (news - alert) The masters of computer modeling and simulation of signal integrity to the backplane design and manufacturing industry announced that it would become a member of the Motorola Communications Server Alliance, "an ecosystem of technology, service and solution providers aligned to provide standards-based solution elements for Motorola's communications servers". As an Alliance participant, Hybricon will receive access to Motorola embedded communications computing product roadmaps, development systems, and participate in marketing activities with Motorola. (http://www.hybricon.com)

Kontron — (news - alert) One of the largest embedded computing companies, was displaying four new AdvancedMC (Advanced Mezzanine Card) modules for security, processing, I/O and storage configurations of pre-integrated open modular equipment designed for a multitude of IMS (IP Multimedia Subsystem), 3G and wireline network applications. Two of the four new AdvancedMC units — the Kontron AM4330 IPSec module and the Kontron AM4301 Quad GbE module — are based on the new Mid-Size (4HP) form-factor, recently introduced by the PICMG (PCI Industrial Computing Manufacturers Group) as a flexible and complementary option to the existing Full-Size and Compact sizes. Mid-Size AdvancedMC modules (4HP) are intended to accommodate the design of a wider range of modules that match both AdvancedTCA and MicroTCA system solutions. The new Kontron AdvancedMC modules are as follows: (1) the Kontron AM4330 IPsec Module (Mid-Size), designed to dynamically handle both IPsec and SSL VPN processing applications deployed within mobile communications infrastructure systems, including Media Gateways, Radio Network Controllers, and Serving GPRS Support Nodes. The AM4330 may be integrated with AdvancedTCA carrier boards and CPU Nodes, as well as in MicroTCA-based systems. (2) the Kontron AM4520 SAS Storage Module (Full-Size) which offers up to 73GB storage capacity. It has a MTBF of 1.4 million hours. (3) Kontron AM4002 Processor Module (Full-Size/Mid-Size) is equipped with the latest Intel Pentium M technology for high performance computing within a small footprint. The core component of the AM4002 is an Intel Pentium M processor available at 1.4 and 1.8 GHz with a high-performance Intel E7320 chip set. It supports up to 4GB of DDR-II memory (PC400) as well as AMC.1 (PCIe), AMC.2 (Gigabit Ethernet), AMC.3 (Serial ATA) and ComPort connections. (4) the Kontron AM4301 Quad GbE Module (Mid-Size) is an AdvancedMC unit for network applications demanding multiple ports directly from an AdvancedTCA processor blade. Based on the Intel 82571EB Gibabit Controller, the AM4301 features 4 x 10Base-T/100Base-Tx/1000Base-T ports and supports PCI-E x8, x4 and x1 link and remote management via IPMI v1.5. When offered in combination with AdvancedTCA platforms, TEM (Telecom Equipment Manufacturers) clients literally conserve valuable system slots, as the AM4301 maximizes communications I/O for Gigabit Ethernet and Fast Ethernet networks with four independent 10/100/1000 ports from a single slot. (http://www.kontron.com)

MEN Micro — (news - alert) They had on display their D6, a 6U high CompactPCI single board computer for embedded systems demanding high performance. The D6 can be used for Windows or Linux applications in a wide range of telecom and datacom equipment. The single-slot D6 is a 64-bit, 66 MHz system board based on a Pentium M processor with up to 2 MB of L2 cache, up to 533 MHz front-side bus frequency and up to 2 GHz clock frequency. MEN Micro also offers a single-slot 3U cPCI wireless LAN interface plug-in board (called the F209L) for safe wireless communication in harsh and mobile environments. It supports 802.11b, which includes 40 or 128-bit WEP encryption and data rates of up to 11 Mbps with auto-fallback and an output power of 20 dBm. (http://www.menmicro.com)

Optima EPS — (news - alert) An Elma company, announced at the show what's said to be the industry's first MicroTCA cabinet enclosure. The 19-inch wide cabinet accepts 10 MicroTCA single-width subracks, accepting 120 full-size modules or 240 compact modules plus power modules dissipating a total of about 6KW in a closed loop heat exchanger system. (http://www.elma.com)

Pentek — (news - alert) For those of you VMEbus fans out there, Pentek released at the show its new Model 7141-703 PMC/XMC module. It features two 14-bit, 125 MHz A/Ds and a Xilinx Virtex-II Pro FPGA. It is configured as a ruggedized module and is fully compatible with both cPCI and VME baseboards. (http://www.pentek.com)

PLX Technology — (news - alert) a global supplier of PCI Express (PCIe) solutions, introduced 3 new switches at the show. Shipping today, the PLX ExpressLane PEX 8525 (24 lanes, 5 ports), PEX 8533 (32 lanes, 6 ports), and PEX 8547 (48 lanes, 3 ports) joint the recently introduced PEX 8548 (48 lanes, 9 ports) as next-gen PCI Express switches, based on PLX' "Cut-Thru" architecture, which drops latency down to a mere 110ns in both host centric and peer-to-peer modes, thereby increasing throughput. (http://www.plx.com)

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

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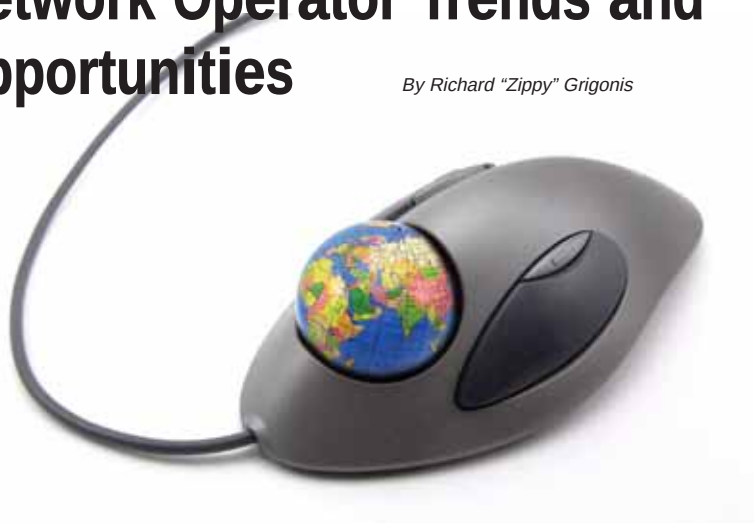
Network Operator Trends and Opportunities

By Richard "Zippy" Grigonis



Service providers, Mobile carriers and other broadband network operators continually search for new and exciting services to attract and hold subscribers. Since 1991, CommuniGate Systems (news - alert) (http://www.communigate.com) of Mill Valley, California, has been the acknowledged leader of developing scalable, feature-laden solutions for the Internet Communications industry.

CommuniGate's VP of Business Development, Jon R. Doyle, says that his company's expertise is based on its long experience dealing with network operators around the globe that demand services which create revenue with a new idea of combining Internet Communications technology with traditional business operational services."

"We encounter and work with all kinds of operators in Japan, Brazil, Sweden, Turkey, Russia, Netherlands, you name it," says Doyle. "We've gathered and shared a wealth of information about the market as a whole. It's almost as if we're a market research company. And this in turn enables us to leverage innovative ideas for applications which carriers need to build up their portfolios and what the operators can do to cope with market changes."

"For example, the growing trend toward commoditization network access and toll-based business models can be found everywhere in this industry," says Doyle. "Let's take a provider or carrier such as AT&T, but it could be KDDI, or Tele2. They used to be a telephone company, then they became a DSL-and-telephone company. They do $85 billion in business a year, with the lion's share of that money coming from 'minutes' or "toll-based" traffic — billing for how long people talk on the phone to some "location". But once DSL is installed in your home and mine, we can talk together over the Internet because we've paid for that DSL connection to the "network" for a flat fee. That's a big dilemma for a big carrier such as AT&T, where most of their revenue isn't coming from the DSL connection, but from the minutes spent by people talking on their house phones. Adding to that, AT&T and others also have the same dilemma on their "wireless network" for mobile phones, as those fees for traffic become flat. So, what will happen over time, as AT&T has 100 million subscribers, nearly 1/3 of the U.S. population, and begins to use the new "Unity" service? Seems per minute fees will become less and less a part of a carriers' business model but new services or Rich Media Internet Communications will drive revenues on the consumer side, and value-add services like scheduling and mobility for the business subscribers."

"What does this mean for the future?" asks Doyle. "Everything is just racing to a price of near zero for toll and location-based services like voice calls. My hypothesis is that big carriers will have to start delivering rich applications attractive to consumers like you and me, as well as businesses. That's why we at CommuniGate Systems develop Rich Media Applications for providers, as we know that infrastructure and connectivity-based services will become a commodity far more quickly than what happened to email."

"There are two different types of customers," says Doyle. "To start with, let's say you and I are customers of AT&T and we're consumers. There are things that you and I can pay for on that network above and beyond the DSL connection, such as ring tones, sharing music files, movie files, and in particular pay per view [PPV], because the connectivity will be fast enough so that movies can be streamed to you at home. Then there are community-based games where people on the network can share and use the game together — that will be a new revenue stream in the future as broadband itself becomes commoditized."

"On the business side, if you're buying broadband from a provider, what are the applications that you would be willing to pay for?" asks Doyle. "Our argument is that such applications must be very tailored applications for the business environment or processes. We've done a lot of research on four distinct enterprise segments: medical offices, dental offices, law firms and architectural/graphic arts studios. We sampled around San Francisco and Los Angeles and talked to these businesses and asked them, 'What are some of the things that would be beneficial to you VoIP-wise?' As it happens, it definitely wasn't cheap phone calls or tossing their PBX out the window. They told us they needed applications that fit into their business model or their business practice. Two examples: Law firms generally bill clients for phone time spent on their behalf. Thus, they want applications that tie the VoIP system into their billing applications. When a lawyer talks to someone, the system must look at the Caller ID, automatically register how many minutes have gone by and put that information into some kind of database Legal Industry-specific application so the client can be billed."

Doyle continues: "When we asked the medical offices about VoIP, they said it sounded nice to have free and/or cheap phone calls but they were very skeptical. They thought it would be disruptive, necessitating them getting rid of their PBX, installing other stuff, and doing it all without a big IT department. They didn't see a

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lot of business value in it. The application they really found interesting was patient scheduling. Smaller medical practice offices spend a lot of time scheduling appointments with patients, who often forget about their appointments, so the schedule has to be redone and/or the patient must be found. It's a headache. So we designed an application for them where patients can go to a website and self-service themselves. They can find available appointment times and create their own appointments with the medical office. We also integrated the application with VoIP, so that application will see all of tomorrow's appointments and it can place reminder phone calls for those appointments. It'll play a prompt over the phone such as, 'Jessica, you have an appointment tomorrow morning at 9 a.m. Press 1 to keep it, press 2 to cancel it, or press 3 to speak to a representative'."

"The medical people saw immediate value in it," says Doyle. "It turned the whole conversation around from, 'VoIP doesn't seem so interesting to us,' to 'Wow, that's a powerful application that can fit into my business process'."

"We have also developed Rich Media applications for mobile operators," says Doyle. "Whether you're a consumer or a business subscriber, you're going to want the same content and rich media capabilities in your handset when you walk away from your desktop. Again, these telecom companies are evolving from just being connectivity providers — selling you a connection and charging you for minutes using it — to become communications providers and application providers. We help providers by placing our application server platform in their data center and then they package it and sell it for a set fee into their subscriber base. It's basically like a channel relationship. We're a software company, we don't host the hardware ourselves. Our subscription models make it much easier for ISPs and carriers to deploy these services, because they don't need a lot of capital or expenditures up front. As they sell the service to their subscribers, they can pay us a royalty or monthly fee." IT

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

Mobile Rich Media Internet Communications Drives Customer Loyalty and Subscriber Base Expansion

By Jon R. Doyle, VP of Business Development, CommuniGate Systems

As IDC stated in a recent article (http://vendor.tekrati.com/research/news.asp?id=8331), mobile services, applications and devices continue to be one of the most rapidly evolving areas of communications, content, entertainment, and enterprise connectivity. We already see mobile handsets with SIP clients and WiFi transceivers for VoIP and IM. A great example of this is in the Nokia handsets for business users, but also in the Danger devices which are the rage for consumer populations in the age group of 15-23 years. Mobility will simply be what we grow into over the next decade in technology but also in devices. So does the carrier sell technology or applications? Making the life of the subscriber easier is the answer.

First, the whole notion of Internet Communications speaks to Mobility and portability. Think about how DNS and email works, and apply that principle to voice communications. The address space of Internet Communications is user@domain, and it has no distinction or concept of toll or location like telephony has. In telephony, my phone number is based on some city or town, and where I call is calculated based on their number to derive a toll, or "cost per minute". All of that goes away in Internet Communications, because where I am, and what device I have, is irrelevant, as is the person or device with which I am calling or communicating. The devices simply register, and can be mobile all the time or sometimes. An example to visualize this: I have a home computer running with my server, in this case CommuniGate Pro. It is configured with my domain, and I have a phone, a Polycom, "registered" to it, which actually is physically located in my sister's house in Burbank. I also have a laptop, on which I have a softclient also registered to that same server. When my sister calls me, my laptop could be anyplace. I also have an apartment in Sao Paulo; there I have a Sipura box and my cordless phone, also registered to this server located here. So, when people call me, that line also rings, or when I am there and call my sister here in California, they have no idea, unless I tell them, where I might be calling from.

So, mobility is already built into Internet Communications, with the DNS address space. In my example above, my address is user@domain, and communications for me are IM, VoIP, email or presence info. Now, devices also will become much more flexible as we add IPv6, and mobile handsets will register no matter where they are or on what network. Think about paying one fee, as you do for DSL or other types of broadband; you get some devices, hard phones, softphones, mobile handsets, and no matter where you are or who you call, it is all built into that one fee. Sounds far-fetched? Well, think about how email works today!

At CommuniGate Systems we are pushing with contributions to various associations for open standards and true mobile Internet Communications to empower the worldwide 2 billion email accounts to full IP Communications with email, Instant Messaging, VoIP, collaboration and freedom of devices. Our Flash-based client Pronto! enables users with mobility for all such today. A free copy of CommuniGate Pro Community Edition can be downloaded at http://www.communigate.com.

PowerNet Global's Bernie Stevens

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

The growth in the telecom industry in general, and in IP Communications, specifically, has prompted many traditional landline service providers to throw their stake in the ground and enter the VoIP market — a reasonable move, as it is widely acknowledged that IP-based communications will soon replace the PSTN altogether.

But there is heavy competition in the IP space, and companies are hard pressed to differentiate themselves from their competition. Rich recently had the opportunity to speak to PowerNet Global's (news - alert) president and CEO Bernie Stevens about what PNG is seeing in this space as it continues to deploy wireless networks. Here is an abbreviated version of the interview. Please visit TMCnet online at http://www.tmcnet.com/457.1 to read the interview in its entirety.

RT: Can you give a brief overview on your company and your product line and where you see that going in the next few years?

BS: We started a transition a few years ago from basically being a reseller of long distance to IP-based facilities, and we've been in that transition phase for four years now. Our two most important things are trying to control the last mile, which is broadband wireless for us, moving into the IP world for voice. We're starting to put more and more dollars into the new business, which is the IP world and wireless, and fewer into our old traditional businesses that are phasing out.

RT: What standard are you currently using for wireless?

BS: We're using mostly Strix wireless gear with 802.11,until WiMAX (define - news - alert) is available, which will be this year sometime. Some of our installs have been city-wide, but we usually do hot spots, which will be in the range of a quarter-mile, and where we have mesh networks, it could be several square miles.

RT: What are the limitations in terms of interference?

BS: It's really quite good. We have very few problems, but we're anticipating that, as more and more people start using it, there will be a few problems, and it will require more sophisticated gear. But I think the manufacturers are already anticipating that.

RT: What will be the major advantage of going to WiMAX? Will it just be range?

BS: First range, then throughput. The throughput will be higher and the range will be longer.

RT: Will consumers need different gear on their end to be able to tap into the network.

BS: For 802.16, it will be basically laptops, and I think that we'll probably start seeing 802.16 built into laptops, like 802.11 was. So you probably won't see much need to change equipment from what consumers already have. There may be a little NIC card for people that have a couple year old notebooks, but I think there will be a big change when people start using WiMAX, getting rid of their old laptops for new ones. Then we will probably see people buy external antennas for their homes, which was something we haven't seen much of for 802.11.

RT: What do you think the growth prospects are for the consumer market versus the small business?

BS: The consumer market has the biggest potential for rapid adoption when they see a real advantage. It's difficult in the high tech industry, because as soon as people see something that's more desirable than what they currently have, the adoption rate scales incredibly. So, as soon as they see an advantage to WiMAX over a wireline broadband, I think the adoption rate will rise. Until then, it's going to be slower there than it is in the business world.

RT: What are you seeing in the market from Vonage and Skype? Are they helping or hurting the market?

BS: The consumer world gets quite fickle quite easily. Any time somebody sees an advantage, particularly a cost advantage, they'll take advantage of it, which is why Skype has tremendous appeal. Vonage's acquisition costs are still pretty high to do much, and they're still very dependent on somebody else's last mile, so that's always going to hurt.

Ultimately, I don't know that they really help or hurt at this point. Vonage, even at a million subscribers or so, is still pretty small compared to the consumer universe. Skype, of course, because it's global has a broader appeal, and that only reinforces that the new IP world is a lower priced world than the old TDM world.

So, from that aspect, I think it helps everybody in the IP space to justify that they have a lower cost product. If they improve the quality of voice connections for voice, it will help raise adoption in the business space too.

RT: Will the market see growth in additional benefits and services?

BS: We anticipate that not only will services serve as differentiators, but they will also allow providers to make money. The rest will become commoditized. The kinds of services you can provide a consumer and/or a business and the platforms that you can provide for them are going to differentiate you and make you successful. IT

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Rich Tehrani's Executive Suite™

Natural Convergence's David Cork

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

Service providers and hardware vendors have traditionally focused heavily on the enterprise and consumer spaces, believing those to present the greatest opportunity. Recently, however, there has been an clear trend where those with service providers and vendors have investing heavily an underserved SMB market, seeing that as a greener pasture, especially for managed services offerings. One of those companies is Ottawa-based Natural Convergence, which offers offers a hosted VoIP key system for the small business market.

Rich recently spoke with Natural Convergence's CEO David Cork about the small business opportunity and how Natural Convergence (news - alert) is taking advantage of that opportunity and differentiating itself in that space. Here is an abbreviated version of the interview. Please visit TMCnet online at http://www.tmcnet.com/458.1 to read the interview in its entirety.

RT: Can you give an overview of your position at Natural Convergence and the company's market focus?

DC: I am the original founder and CEO for Natural Convergence. Our company was started with the idea that service providers would be looking for broadband applications without having to sink a lot of money into the broadband infrastructure. In particular, we went looking for underserved markets, which has been our consistent theme from day one.

The small business marketplace — those businesses with fewer than 50 employees — is generally the last one to be serviced and yet, it's a huge market. We know there are 32 million key system lines out there, and a lot of them are aged — as old as 12 to 14 years. So, we saw a huge opportunity, as those systems were being replaced, for service providers to bring out a service bundle to replace them.

We created a product called Silhouette, which allows a service provider to deliver a hosted key system service that can be delivered over any broadband connection. That concept has been well established in the marketplace in the consumer side, and it's now coming into the small business marketplace and getting the attention, just at the time when we are hitting our stride as well.

RT: Tell me a little bit about Silhouette.

DC: We chose to model Silhouette on the key system model using multi-line key phones with all of the feature buttons there readily available and don't need any training, because that is what those companies are used to. If you are delivering a hosted service, if you can deliver the key system functionality they are used to, you have a huge head start. One of the key characteristics of Silhouette was to make sure that it met those needs.

The second thing, which is certainly something that seems obvious in hindsight, is that the profitability of service providers is directly related to their operational expense. So, if you are going to be servicing a market like small business, which is very price sensitive, you have to have a good handle on operational expenses.

Our product is designed for what we call zero-touch deployment — there are no truck rolls and no service technicians required. The end user does all the configuration through a Web page. This gives us the lowest deployment costs in the industry. Also, the ongoing support costs are dramatically reduced from anything they have had in the past.

So, the combination of those three things — a very simple product that's simple to sell, simple to deploy, and inexpensive to support — drives the profitability for our customers, and allows them to make money.

RT: Tell me about your competitors and how Natural Convergence differentiates itself from them.

DC: I think the competition comes from three different camps. The first is the traditional key system CPE vendor, which is what a lot of small businesses are used to. They are used to buying their phone system from a dealer and then getting their local access lines from the phone company. They then buy long distance and their Internet access. In general, they tend to buy from five or six different vendors. So, we can differentiate against them because they can get all of these services bundled from a single vendor and for a lower total cost. It actually competes extremely well with the traditional key system vendors.

The second camp is the network equipment providers who typically provide softswitches for the larger service providers, who have started to add features for residential services, and then for the SOHO market. They are coming up into the small business market from the bottom, so we compete directly with those types of solutions.

The third group is the hosted applications group, primarily coming out of the Centrex market. The difference here is that they have built products for the medium to large enterprise and are trying to slim them down, and come up with a "Centrex light" approach for the small business market. It just doesn't suit the channels. They have round pegs they are trying to fit into a square hole.

RT: What is the biggest problem in terms of adoption of your technology?

DC: I think there are two things. Our industry really does go after the big markets first, so there are huge numbers in the consumer market and very large customer opportunities in the enterprise market. Small business tends to wait for technology to trickle down to them, and that has always a challenge because the technology that develops for another market doesn't always fit the small business channels.

In the small business market, the challenge is not technology. Rather, it is all around the channel. Those channels that can be successful and can do it repeatedly do it because they make money. You have to get the economics right and then you have to help them a great deal. But the real challenge is, clearly, making sure that the product you have meets that channel's needs and fits their skills. Then good things happen. If the product is too complex or too costly, the channel tends to fail. IT

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Siemens Communications' Harald Braun

Each year, new trends present themselves in the communications environment. At one time, it was the adoption of VoIP, which is now commonplace, as is wireless networking and mobile communications. The question, then, is what are the next driving forces as the world continues to harness the power of IP?

Rich recently took time to speak with Harald Braun, president of Siemens' Communications Network Division. (news - alert) Harald laid out several trends he sees gaining momentum in the coming months, from greater expansion of mobile IP to the proliferation of IMS infrastructures and more. Here are parts of that conversation. Be sure to visit TMCnet at http://www.tmcnet.com/459.1 for all of Harald's predictions.

RT: What trends are you seeing from the large telecom companies?

HB: The number one trend is very self explanatory and maybe a little bit obvious — but on the other side, maybe not. Last year, a lot of people were talking about IP endpoints and what they see coming into the marketplace, and in the last couple of months, we have seen a huge jump into what I call IP telephony, especially non-traditional IP-enabled endpoints, like PDAs, laptops, game stations, and dual mode handsets.

There is also very strong growth in machine-to-machine interaction. Last year, I had a business unit, which we have now put into a different organization, which had small wireless models, like the little wireless models in cell phones. You could put them into meters, into utility sets at home, into water meters, voltage meters, cars, really in anything you want to track remotely. That's what we're seeing and I think in 2007 will bring event greater numbers of these new devices to market.

Rich: It's already started, hasn't it?

HB: Yes. For instance, at this year's CES show, there were countless new IP-enabled devices, which is good. TDM, on the other hand, brings me to number two, which is ENUM and IP peering, with IP Peering being a kind of disruptive technology. On the ENUM side, there is a TDM system legacy out there — end of story. There is no investment any more from the big players in TDM, but it is still around and it will be around for the next five to ten years.

What we see very clearly in all the RFPs and all the interactions with the big players is ENUM. They're all looking at how to get TDM to work together with IP. We're seeing ENUM requirements everywhere. In fact, there are no RFPs anymore without an ENUM requirement. So, of course, that is what we need to accomplish with our end-to-end solution, and that is a commitment we have made as a company.

The second portion of that is a little bit more disruptive — IP peering. I don't know whether anyone has figured out how to do IP peering profitably. And it is disruptive when machines directly talk to each other without routing engines in between and without a secure telephone network, but this is absolutely a trend. Everybody is thinking about it and I think everybody is thinking about how to make it work, and also about what the business case underneath it is. In other words, can people make money with it?

RT: How will peering moving from being an obscure phenomenon to a widespread initiative effect you?

HB: The scary part, in a way, will be if advisors in the future begin talking to each other without using a secure telecommunications network, doing the handling and everything else. That's when I'll start thinking I've cannibalized my own business.

Enterprises also will be trying to figure out IP peering. We actually have a program within the company running an IP peering project. So, while peering might jeopardize one side of the business, on the other side, I need to figure out how to help so that I can be a part of it.

So, it is very important for to focus on that, and, like I said, we have some of that technology in-house and in our technology labs already. We also some ongoing IP peering projects with customers — one of the lead projects is in Europe. I'm definitely seeing it as another trend and it will continue in 2007 with increased intelligence and more projects. But, I'm still interested in how we can make the business case work.

RT: What other trends do you see?

HB: The third is one of my favorite topics. I did everything here within the company to make every product IMS-ready to ensure we have that architecture in place and that whatever we do is IMS-compliant. That way, on the application side, we can work on how quickly and easily we can we bring new applications to market.

We need to have all the components for IMS, and they need to be standardized. I'm pushing for an IMS standard, which is already a major effort because the 3GPP people have one thing in mind and U.S. providers have their own specific requirements. But, in the last year, we have seen them all talking to each other, even to the extent of asking, "What is really common for all of us and should we create one standard that is applicable for all of us and then we can take off into the different network directions?"

So, standardization is a very important concern. For me, 2007 is a year of deployment. There is a lot of talk within the industry about whether it is ready and whether it is too big, or even why do we need IMS. For me, the answer is it's the best architecture to consolidate platforms. We have the components and we are ready to deploy. We've undergone a lot of lab trials as well as some field trials with cable companies and telecommunications companies. In 2007, I definitely see IMS deployment — maybe not huge deployment, but there will be deployments.

The number one application is seamless handover between different networks... TDM to WiFi or WiMAX networks, or PSTN to GSM or CDMA handovers. We will see that, technology-wise we are there. We can do it. We showed that this year. I think it is very important to see that all the players, the cablecos, and the traditional telcos, are all going in this direction. IT

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WiFi Phones

Voice over IP technology is no longer new, as evidenced by the increased rate of adoption in both business and consumer markets. Service providers of all sorts are rushing to add voice to their offerings, and hardware vendors are steadily growing their product lines.

The latest obsession has become mobility, which comes in many flavors, and productivity demands and improved wireless networking solutions have created a need for VoIP technology to also be extended to the wireless world. Being untethered from their desktops enables workers to be more effective, and the ability to access corporate wireless networks can dramatically decrease cellular calling costs, which has prompted many phone manufacturers to develop WiFi-enabled handsets. On the consumer side, the Skype phenomenon has also caused vendors to make similar products available for home and SOHO use, many of which have been specifically designed for user with Skype. Some of the handsets are relatively basic, while others offer SIP compatibility and many of the features users have come to enjoy — even demand — from their cellular devices.

With that in mind, this month's product round-up features a selection of WiFi-enabled phones. These represent many of the products available to businesses and consumers, and we encourage you to use this list as a starting point for selecting the WiFi handset that is best suited to your specific needs and budget. There is also a selection of cellular/WiFi dual mode handsets available already, as the fixed/mobile convergence (FMC) movement gains traction. Those products will likely be covered in a later issue.

Belkin

http://www.belkin.com/skype

The Belkin (news - alert) WiFi Phone for Skype doesn't require a PC and will work anywhere in the world where users have secured or open access to a WiFi network. Any home, office, cafe, or municipal wireless access point that does not require browser-based authentication will do. The phone comes ready to use, pre-loaded with Skype software and featuring the same Skype interface with which users have become familiar. It is easy to use — to make a call, users simply use the intuitive on-screen color menu to locate contacts and view their online availability.

The WiFi Phone is Skype certified, which means that it adheres to all Skype's requirements to ensure that users' WiFi Phone experience is just like it would be on a PC.

Cisco

http://www.cisco.com

Cisco (define - news - alert) extends advanced voice and unified communications capabilities across the enterprise with a powerful and innovative converged wireless solution based on an intelligent wireless infrastructure. The Cisco Unified Wireless IP Phone 7920 is an easy to use IEEE 802.11b wireless IP phone that provides comprehensive voice communications in conjunction with Cisco Unified CallManager and the Cisco Aironet 1200, 1100, 350, and 340 series of WiFi (IEEE 802.11b) access points. As an integral component of the Cisco Unified Communications Wireless solution, the Cisco Unified Wireless IP Phone 7920 transparently delivers intelligent services such as security, mobility, quality of service (QoS) and management across an end-to-end Cisco network.

Clipcomm

http://www.clipcomm.co.kr

(news - alert) Clipcomm's CWP-100, is a WiFi portable terminal with handy and sleek design, compatible with IEEE 802.11b standard and interoperable with major SIP/H.323 call servers, IP PBXs, and various terminals. The CWP-100 is easy to use and efficiently managed thanks to its integrated provisioning system.

Together with VoIP/PSTN dual mode IP Phone with lifeline function, residential FXS/FXO gateways and embedded IP-PBX for SMEs, CWP-100 completes Clipcomm's VoIP solution lineup and can be an attractive alternative to ITSPs and IP PBX solution providers. As a VoIP terminal, CWP-100 offers many essential features, such as easy-to-use auto-provisioning, dynamic jitter buffer, and firewall/NAT traversal.

Through its power management scheme optimized for its platform as well as the standard IEEE 802.11b power saving mechanism and highly optimized DSP software, the CWP-100 has exceptional performance for its power consumption.

D-Link

http://www.dlink.com

D-Link's (news - alert) DPH-541 provides the freedom of wireless connectivity and the benefits of VoIP in a sleek, portable, flip-style phone. By utilizing the WiFi Phone with a VoIP service plan, both home and business users have the potential to dramatically reduce local and long distance telephone charges compared to a standard telephone service. It is a standalone device that does not require a computer

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— just an 802.11g or 802.11b wireless network with high-speed Internet access to make and receive calls. Users can make and receive calls just about anywhere there is a wireless connection available.

The DPH-541 uses SIP and is ready to be used with a VoIP service plan. For accessing secure wireless networks, it supports WEP, WPA, and WPA2 encryption, and with features like echo cancellation, packet delay compensation, and lost packet recovery, users can expect the voice quality from the WiFi phone to be similar to traditional PSTN phone calls.

The phone sports a large, bright color LCD screen that displays call information, such as call history, address book entries, and caller ID numbers, and supports several other convenient calling features including redial, mute, and hold.

Hitachi Cable

http://www.hitachi-cable.co.jp/en/index.html

(news - alert) Hitachi Cable invites a new communications environment using SIP and IEEE 802.11b in its WirelessIP5000, which provides unrivaled scalability capable of supporting all types of system environments and telephony requirements. From an office primarily using analog phones to a leading-edge office that has introduced an IP PBX and migrated largely to VoIP, the Hitachi WirelessIP5000 flexibly supports a wide range of user environments to create a truly ubiquitous network for all your business situations.

This wireless IP phone is 802.11b-compliant, allowing users to leverage their existing wireless LANs. The WirelessIP5000 automatically roams to the most suitable access point based on the electromagnetic wave strength and communication error state from the access point. The roaming conditions can be flexibly changed to match the access point.

A built-in site scan feature enables users to measure signal strength to find the best access point and plan access-point layouts. A ping feature is provided in order to enable users to check whether they can connect to a given person's network or terminal. The WirelessIP5000's presence feature allows users to quickly ascertain the availability of others without calling to find out. Support for instant messaging is also available.

NEC Unified Solutions

http://www.necunifiedsolutions.com

The (news - alert) NEC MH110 and MH120 Wireless Telephones are designed for a broad range of enterprise applications, from general office to industrial. These compact handsets offer a rich set of features including a high-resolution graphic display, menu-driven functions, and messaging capability, all within a light, ergonomic design. Push-to-talk functionality is available in the industrial-grade NEC MH120 Wireless Telephone for broadcast communication between employees, eliminating the need for two-way radios or walkie-talkies.

The NEC MH110 Wireless Telephone was designed specifically for busy office environments. This compact handset offers features and accessories that address the needs of a variety of businesses. The NEC MH120 Wireless Telephone was designed to meet the most demanding environmental requirements, and includes exclusive push-to-talk functionality. The handset is small enough to be highly mobile, yet rugged enough for heavy usage.

Netgear

http://www.netgear.com

(news - alert) NETGEAR's SPH101 Skype WiFi Phone allows users to make free calls to other Skype users anywhere in the world, anytime they have WiFi access, without a PC. Users' contacts (up to 200) are shown right on the phone's color display so they will know exactly who is online. They will also be more available for your friends to call, because they no longer have to be on a PC to be connected. They can even make SkypeOut calls. Users can use any WiFi network to which they have access to talk with anyone else who's also on Skype, anywhere in the world. The phone also enables features like call forwarding to mobile or landline numbers or other Skype accounts.

Samsung

http://www.samsung.com

The new (news - alert) Samsung OfficeServ SMT-W5100E Handset, communicating with SMT-R2000 Dual Band Wireless Access Points, bring a new definition of what power really means to wireless voice and data users.

With the W5100E, users gain greater control over productivity, beginning simply with the new trim design. A longer lasting battery source and added calling features users have come the expect from their cellular phones make the handset a business asset. The power is extended to an unlimited number of access points, supporting a wider coverage area. Together, these features allow users to experience a difference that's real, real-time, and real-world.

Professionals will enjoy the latest 802.11g technology, which brings improved performance and call quality. The handset is SIP-compliant, making it compatible with many hardware solutions. The color display is easy to read and the speakerphone enables hands-free conversation, increasing productivity.

Spectralink

http://www.spectralink.com

Spectralink's (news - alert) NetLink WiFi telephones support a broad range of enterprise applications, from general office to industrial environments. These compact handsets offer a rich set of features and accessories to suit users in a wide variety of applications. The NetLink 8020 is designed for users across a wide range of industries. With a lightweight yet rugged design and extensive feature support, it meets the needs of general office and management staff while also providing a reliable option for front-line personnel in high-use environments.

The NetLink 8030 extends the capabilities of the 8000 Series handsets by adding SpectraLink's push-to-talk (PTT) feature along with improvements to the industrial design and handset ergonomics. The NetLink 8030 PTT capability allows instantaneous communication between employees independent of the PBX system, eliminating the need for two-way radios. The larger earpiece seals out background noise and provides comfort for frequent or lengthy calls. The 8030 is ideal for distributed work teams that require frequent communication.

UTStarcom

http://www.utstar.com

UTStarcom's (news - alert) residential F3000 WiFi handset is a revolutionary device that expands the reach of VoIP communications. It provides consumers a new cost effective way to communicate, with great features such as three-way calling, call waiting, call transfer and many other popular features.

It features a clamshell design that supports 802.11b/g, SIP, SDP, RTP, DHCP, and TFTP and incorporates Adaptive jitter buffer, Echo suppression, Handover/Roaming between different APs and SSIDs, as well as many other technical aspects to ensure high quality calls over WiFi networks.

Viper Networks vPhone

http://www.vipernetworks.com

The Viper Networks (news - alert) WiFi vPhone is a next generation intelligent IP Communications device that combines SIP-based VoIP communications together with WiFi. The vPhone is an ideal option for branch offices as well as the SOHO market, enabling inexpensive VoIP calling from any location with 802.11b access over Vipers Global network. The vPhone's scan feature functions as a wireless "Hot Spot" finder, and there is no need to be connected to a PC in order to place or receive calls.

Zyxel

http://www.zyxel.com

(news - alert) The SIP-based P-2000W is interoperable with major SIP-based call servers, IP PBXs, and other standard SIP-based client devices. The P-2000W_v2 is compliant with the IEEE 802.11b standard and interoperates with any existing 802.11b or 802.11g wireless AP and gateway, and can be used as a cordless handset for residential users or for business users in an office environment. The small form factor of the handset is easy to transport and allows users to place VoIP phone calls in public 802.11-based environment.

The P-2000W_v2 is capable of tagging features that support a service provider's QoS planning, such as ToS (Type of Service), and allows gateways or central side equipment to identify and prioritize voice and data traffic. By supporting G.711 and G.729 voice compression technology, the P-2000W_v2 effectively reduces bandwidth consumption caused by voice traffic.

By configuring a remote IP address in the built-in phone book, the P-2000W_v2 provides a direct IP-to-IP call feature when there is no intermediate SIP proxy server available in the network. The P-2000W_v2 can also establish an 802.11 ad-hoc network, which allows users to use the handsets as wireless intercoms. IT

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IPTV in Carrier Ethernet Networks

By Peter Lunk

The increased service flexibility and economic advantages of Ethernet have driven carriers to steadily replace circuit-switched equipment throughout the network. Continued advancements in Ethernet technology through advanced quality of service (QoS) capabilities, scalability enhancements, and service resiliency now enable Ethernet networks to deliver bundled residential triple-play voice, video, and data services. Service providers can attract new customers with attractively priced service bundles, while relying on Ethernet to increase bandwidth and reduce network costs.

Hierarchical QoS

With triple-play services, QoS must be guaranteed not just at the subscriber level but also for the individual services being offered. Hierarchical QoS provides three tiers of QoS support — port, subscriber, and application — allowing service providers to support real time services over high-speed connections carrying tens of thousands of diverse flows. This eliminates the need for distinct overlay networks such as a residential DSL data network and a separate cable or satellite TV network.

Three tier hierarchical QoS enables service providers to set both a committed and peak rate for each outgoing port (Tier 1) with individual committed and peak rates for each subscriber on the port (Tier 2), as well as up to eight QoS levels per subscriber (Tier 3) to support individual triple-play services. In order to simplify provisioning, residential subscribers typically choose from a set of pre-defined service profiles. An example would be a residential subscriber selecting a triple play package of two IPTV channels, one of which supports HD, two VoIP lines, and 2Mbps peak download data service.

New hardware based hierarchical QoS capabilities are just now being deployed in service provider networks. These enable scaling up to 40 times larger than traditional implementations with the ability to set SLAs (Service Level Agreements) down to the individual flows. For example, at a larger central office a single switch may aggregate 20 independent 1GE ports each feeding a DSLAM that aggregates 300 and 500 subscribers, with two 10GE ports providing a redundant network uplink. Such a switch will have on the order of 6-10 thousand incoming subscribers. Without a scalable QoS implementation, switches must group traffic by service class, overprovision bandwidth, and hope for the best. A hardware-based, three tier hierarchical QoS capability enables an elegant and deterministic triple play network deployment.

Scaling Through MAC-in-MAC

Existing technologies, such as the IEEE 802.1ad Q-in-Q standard, provide isolated tunneling of VLANs, enabling service providers to separate subscriber traffic while providing different levels of QoS. This is an effective solution for smaller deployments, but is insufficient for use in large Metro networks because of VLAN ID space limitations. The recent introduction of the IEEE 802.1ah standard (also known as MAC-in-MAC) builds upon existing Q-in-Q technology to overcome Ethernet scaling limitations. By inserting a provider MAC address into each frame that is transparent to customer data, MAC-in-MAC economically scales to millions of service VLANs, more than 4,000 times the number supported by traditional VLAN and Q-in-Q deployments. MAC-in-MAC also offers seamless interoperability with Q-in-Q networks without the complexity or expense of a Layer 3 MPLS deployment. Additionally, further standards work is under way by the IEEE that will build upon MAC-in-MAC technology to further improve traffic engineering capabilities.

Service Resiliency

Subscribers like the idea of consolidating three bills — TV, phone, and

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Internet — into a single bill. Carriers like consolidation because subscribers are less likely to switch service providers due to the hassle involved in moving multiple services. Unfortunately, the same triple-play capabilities that attract subscribers can also make it easier to drive them away.

With data services, it's not always clear when a connection is experiencing an outage. Even if a service disruption was a network problem all along, subscribers often perceive that they have fixed the problem by rebooting the computer or modem and conclude that somehow the problem had been on their end. IPTV services are much more likely to impact subscriber churn as it becomes quite clear when the network is experiencing an outage. Subscribers are able to more accurately evaluate the quality of the services they are receiving, making it crucial for service providers to maintain the overall resiliency of their network.

Resiliency for triple-play networks must be maintained at the hardware, software and network levels. Hardware resiliency achieved through equipment redundancy is a fairly well-understood issue. However, this is the level at which many service providers stop thinking about resiliency. Maintaining the highest quality of service and availability requires not just a focus on hardware resiliency but rather a perspective that includes service availability. Just because a connection is up and successfully rerouted, there is still a possibility that there is a disruption to the service being offered over the connection.

With the increased role of software in the network, software-based outages have become more prevalent. The problem is exacerbated by the increasing aggregation of links in high-speed networks since a single application failure can tie up limited processing and memory resources, bringing down other processes and spreading the outage across all aggregated connections.

Achieving software resiliency requires failover mechanisms that mirror hardware redundancy through modularity. The operating system must be broken into modules that can be operated independently. In this way, when a process does fail, the failure can be contained to prevent the outage from spreading to other processes. The operating system also needs to manage the separate processes so that the system can automatically terminate a failed application or process and start a new instance.

The third level of service resiliency is network resiliency. Traditional Ethernet networks do not have the inherent resiliency of circuit-switched networks. In order to increase Ethernet network resiliency, technologies such as Ethernet Automatic Protection Switching (EAPS) are now widely deployed. EAPS is a service-aware, ring-based protection protocol that utilizes a standard Ethernet MAC and provides a carrier-class failover response of less than 50ms. Ring connectivity is verified continuously through the exchange of "heartbeat" messages between neighboring switches.

EAPS offers a number of advanced resiliency features to networks, including primary/backup path designation on a per-VLAN basis, dual-attached and subtended rings, and support of multiple domains of protected VLANs on the same ring, enabling carriers to create highly available platforms that are able to continue service delivery even during near-catastrophic outage conditions. Additionally, because EAPS addresses failures at Layers 1 and 2, recovery often occurs before higher layer protection mechanisms need to kick in, giving the experience of uninterrupted service to subscribers.

The new Ethernet technologies such as hierarchical QoS, MAC-in-MAC and service resiliency bring carrier-class performance and scalability to service provider networks and allow network operators to provide reliable IPTV and other triple-play services while simplifying overall network design. When coupled with the economic benefits and complete control over priority for subscriber applications, it is clear why Ethernet is poised to dominate service provider networks as it has enterprise networks. IT

Peter Lunk is the Director of Service Provider Marketing for Extreme Networks. (news - alert) For more information, visit the company online at http://www.extremenetworks.com.

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By Ben Guderian

Meeting the Challenges of WiFi Telephony

WiFi telephony has been around since 1999, but now there's more interest (and hype) than ever before. The frenzy around using WiFi for mobile enterprise telephony is being fueled by the promise of more dual-mode WiFi-enabled devices hitting the market. Along with that come great expectations for how these devices will drive enterprise users to hop on the corporate WiFi network and take advantage of the cost savings and additional functionality provided through integration with business IP telephony systems. Infonetics Research recently forecasted a compound annual growth rate of nearly 200 percent between 2006 and 2010 for dual-mode handsets. At the surface it may seem like all the pieces are finally coming together for enterprise WiFi telephony to go mainstream. But there are still significant challenges to meet enterprise users' requirements for voice quality and functionality, plus the enterprise IT managers' requirements for reliability, scalability, interoperability and security.

The Challenges

When deploying WiFi telephony in the enterprise, all of the requirements listed above need to be adequately addressed. Nonetheless, the challenges for enterprise deployment should not be viewed as roadblocks, but merely as speed bumps in the road to widespread adoption.

The challenges for enterprise WiFi telephony exist on both the network and terminal ends of the application. Enterprise WiFi network technology has come a long way in the last few years, but there are still unique issues and considerations for supporting enterprise-grade voice applications that can't be ignored. Enterprise-grade WiFi telephone devices have also been available for some time with adoption primarily in vertical markets such as healthcare, retail stores and manufacturing plants. But with the recent proliferation of WiFi-enabled devices — primarily high-end dual-mode cellular phones and PDAs — many of the concerns over WiFi telephony have resurfaced.

WiFi Network Challenges

Voice over IP (VoIP) applications present certain challenges even on wired networks, but today's IP telephony solutions have pretty well addressed those. A well-designed IP network can support voice applications with security, voice quality, capacity and reliability that are for practical purposes every bit as good as circuit-switched PBXs. But running voice applications on WiFi networks adds a whole other dimension with unique issues and solutions. Wireless networks don't offer the same bandwidth as wired networks, and the mobility aspect of wireless devices create some additional complications.

Bandwidth isn't an issue in wired IP telephony. Enterprise networks have standardized on switched Ethernet with at least 10 Mbps of dedicated bandwidth for each terminal device — plenty of bandwidth for a single IP telephone set. But WiFi connections are shared by however many wireless terminals happen to be in range of an access point (AP). WiFi APs can operate at data rates as low as 1 Mbps, although most enterprise deployments are designed to operate between 11 and 54 Mbps. That's more than sufficient for a single VoIP session, but remember, an AP may have dozens of devices including WiFi telephones and laptop computers that are simultaneously sharing bandwidth, making it critical to have some kind of quality of service (QoS) mechanism to provide preferential treatment to real-time applications like voice. A simple prioritization scheme like the WiFi Alliance's Wireless Multimedia (WMM) specification is a good first step toward giving voice a fighting chance on a shared WiFi network. But for enterprise WiFi telephony, it takes more than just prioritization. So WMM extensions are in the works to improve bandwidth utilization (WMM Power Save) and AP capacity (WMM Admission Control). The ultimate QoS solution for enterprise WiFi telephony is some kind of scheduling mechanism to tightly control access to the wireless medium. Proprietary QoS solutions, such as SpectraLink Voice Priority (SVP), have been available to address these needs and allowed the WiFi telephony market to grow while standards continue to be developed.

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The most obvious difference between wired IP telephony and WiFi telephony is the roaming aspect. Roaming isn't an issue for most home networks, but enterprise WiFi telephone users need to be able to maintain a telephone call as they move throughout the workplace. Wired IP telephones don't move, at least not in the middle of a telephone call, but WiFi telephones can move at any time.

WiFi protocols allow data streams to be handed off from one AP to another as the mobile device moves in and out of range of each AP. These handoffs can cause a noticeable interruption to the data stream depending on how quickly the device and AP initiate the handoff and complete whatever negotiations are necessary to start sending data again. This is where wireless security mechanisms can wreak havoc on real-time, isochronous applications like IP telephony. Fortunately, there are workable solutions available today to maintain good voice quality without compromising security, and additional standards are in the works to specifically address this issue.

There's no real question today whether WiFi networks can support voice applications. But a voice-optimized wireless network requires the right enterprise-grade equipment and implementation following well-established best practices for WiFi telephony. WiFi network infrastructure vendors continue to innovate and bring products to market that are specifically designed with telephony applications in mind, so today's enterprise WiFi deployments are more than likely to be designed and deployed as voice-ready.

WiFi Device Challenges

Having a voice-ready network is only half the battle. The other half deals with WiFi mobile devices and their unique challenges with supporting WiFi telephony. Just as with the network side, mobile devices have to deal with roaming issues. But there are also unique implications of WiFi telephony on device design that affect battery life — thereby also affecting device size and weight — as well as voice quality and functionality.

Starting with roaming, there is a wide discrepancy in how WiFi devices are designed to deal with mobility. At one end of the spectrum are data-specific devices like laptop computers. Laptop users aren't expected to be highly mobile, at least not while in the middle of using a real-time application. Laptop computers can be totally reactive in handing off to another AP by waiting until the WiFi signal degrades enough to be unusable and only then searching for another AP.

At the other extreme are purpose-built WiFi telephones, which proactively search for alternative APs even while the existing signal level is at acceptable levels. Proactive roaming minimizes interruption in the data stream and allows for AP handoffs that aren't even perceptible to the user. Unfortunately, not all WiFi devices offer proactive roaming, including many that are primarily voice devices. WiFi-enabled cellular telephones and PDAs are typically designed with the expectation that the WiFi radio will only be used for broadband data applications — primarily for Internet access over home or hotspot WiFi networks. Following the laptop computer paradigm, AP roaming is usually only reactive and unacceptable for enterprise WiFi telephony applications.

The next big device challenge for WiFi telephony is battery life. Cellular telephones have gone through many generations of improvements in radio efficiency to deliver at least several hours of talk time, and in many cases, ten hours or more. But WiFi radio technology is less mature and hasn't been optimized to the same degree as cellular. So many WiFi-enabled devices suffer from significantly reduced battery life when the WiFi radio is turned on. WiFi QoS solutions improve battery life by giving the device more control over when the WiFi radio is turned on and off. But again, purpose-build WiFi telephones take advantage of these power-saving mechanisms, while most dual-mode cellular phones and PDAs do not. It's likely that, over time, we'll see more support for power-saving schemes in dual-mode cellular phones and other WiFi-enabled devices, particularly as support for standards like WMM Power Save become ubiquitous in WiFi radio chipsets.

There are other device challenges that aren't necessarily technical issues, but tied to the actual device design and usage expectations. Since WiFi in a dual-mode cellular phone is usually targeted at web-surfing applications, many devices have poor integration (if any) between the WiFi radio and voice resources like codecs, microphones and speakers. Some dual-mode handsets have the telephony buttons — the off-hook and on-hook keys — tied directly to the cellphone application which requires a WiFi softphone application to deal with a less-intuitive user interface. And many softphone applications that are designed for non-mobile laptop computer use aren't capable of running on a mobile device operating system or with the limited processor power and memory of a handheld dual-mode device.

Challenges or Opportunities?

This may appear to paint a bleak picture for the real future of enterprise WiFi telephony based on where we are today. But the reality is that enterprise-grade WiFi telephony has been around and worked well for years in a variety of mission-critical applications.

Fortunately, the developers of WiFi networks and chipsets, along with handset developers, are well-aware of these shortcomings and are working on solutions to deal with them and make WiFi telephony as viable as wired IP telephony is today. There's no question that dual-mode devices will be a significant catalyst to drive growth in enterprise WiFi telephony. But in the meantime, single-mode WiFi telephony has delivered enterprises the benefits of increased employee mobility, responsiveness and productivity while meeting their requirements within the workplace. And as standards evolve, voice will become just another application on a WiFi network, just as it has with wired networks. IT

Ben Guderian is the VP of Marketing at SpectraLink (news - alert)(which in the process of being acquired by Polycom (news - alert). For more information, visit the company online at http://www.spectralink.com and http://www.polycom.com.

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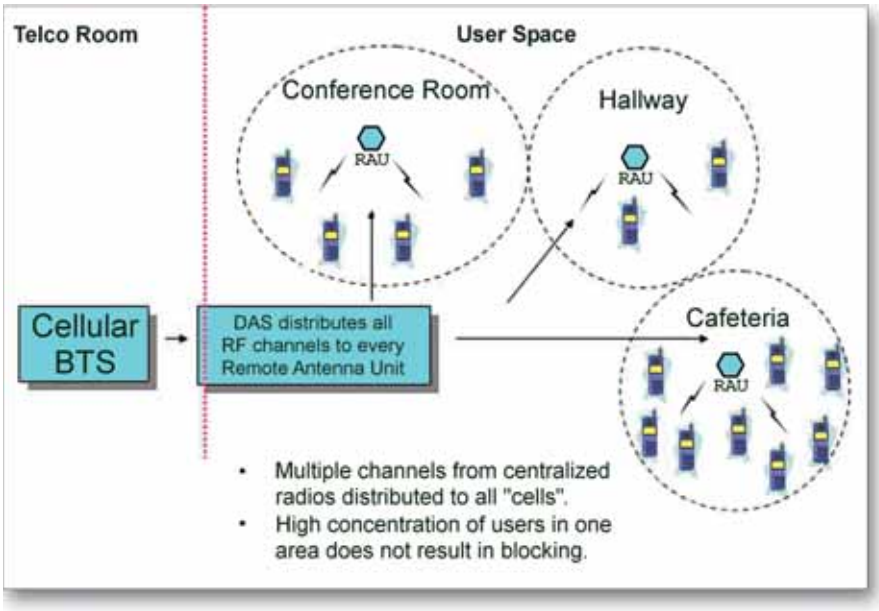
Architectural Options for Converged Cellular and WiFi Services

Enterprises, hospitals, manufacturing plants, and other large organizations are increasingly moving to deploy WiFi and in-building cellular services, and there is a natural inclination to converge the two systems as much as possible. Distributed antenna systems (DAS) have been the prevailing method of deploying in-building cellular systems for many years, and it is tempting to centralize WiFi APs in one location and deliver WiFi services with the distributed antenna architecture provided by the DAS. But while central radios and DAS may work well for cellular, using the same method for WiFi service can reduce performance, capacity, and deployment flexibility; especially as newer WiFi technologies such as 802.11n become standardized.

Figure 1. Standard multi-AP deployment.



Typical WiFi and DAS Deployments

WiFi and DAS technologies support different types of services, so it's no surprise that there are big differences between typical deployments. WiFi supports Ethernet traffic, and was initially developed with the idea that one radio (access point or AP) would be sufficient to support a given deployment. In larger spaces like enterprise offices, multiple APs are used to create adjacent cells that provide the required radio coverage.

Companies also use multiple APs to re-use frequency, scaling capacity as they scale coverage. In the 802.11b/g deployments, for example, there are three non-overlapping channels: 1, 6, and 11. APs alternate channels to minimize interference between cells using the same channel (See Figure 1).

Within each cell, users have full access to the bandwidth (11 or 54 Mbps) from its AP. A large deployment may provide capacity via Channel 6 several times, for example, since the same channel can be used in different areas of the facility. Using discrete radios in this manner also allows for significant coverage and service flexibility, since APs can be individually added, moved, or upgraded to support changing requirements.

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By John Spindler

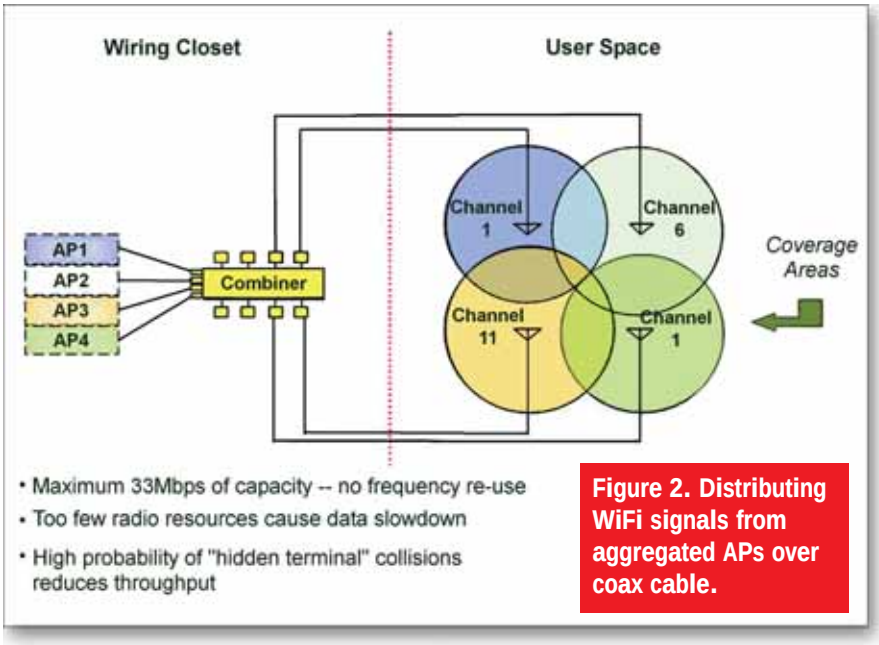


Figure 2. Distributing WiFi signals from aggregated APs over coax cable.

In contrast, DAS systems deliver cellular services using just one central radio (typically a micro base station located in the data center), whose signal is driven through a system of hubs and remote antennas. Depending on the specific service(s) being offered through the DAS (i.e., CDMA, GSM, EV-DO, HSDPA, etc.) there are from several to over a hundred different channels available, and any of them may be broadcast from any antenna (Figure 2). In this way, the DAS provides ample capacity for any number of users and eliminates channel interference among cells.

Making WiFi More like DAS: Promise and Reality

In new construction or large infrastructure reconstruction projects, it makes sense to deploy WiFi and DAS systems at the same time to minimize disruption and reduce costs. With enterprises increasingly deploying both WLAN and cellular voice/data systems, some vendors are suggesting that both infrastructures can be consolidated — that a single system of coaxial cables can function as a common path for WLAN and cellular traffic. The idea is to aggregate APs in the same wiring closets as DAS hubs, and then distribute both WiFi and cellular signals over the same set of distributed antennas (Figure 2).

On the surface, this approach seems to be an attractive way to reduce capital expenses and maintenance costs. Vendors point to several benefits:

• Aggregating APs and using the DAS to distribute their signals saves money because it uses fewer APs — by linking a group of APs to a DAS, one AP can deliver a signal to several coverage cells.

• APs are more secure in a locked wiring closet than they are in ceilings or walls near users' desks, and there is less likelihood of damage to them.

• Configuration, maintenance, and replacements are easier because there's no need to tear into ceilings when servicing the APs.

Unfortunately, these benefits are outweighed by significant drawbacks. Let's look at some important issues.

Reduced capacity and throughput — When APs are aggregated and their channels must be shared across the entire antenna system, it is impossible to reuse channels to maximize throughput. For example, when a building has nine separate 802.11g APs placed properly in a traditional deployment, each of the three available channels would be reused three times, enabling 172Mbps of total capacity per channel, or 516Mbps through the system. But in an aggregated AP deployment, each channel can be used only once, reducing throughput per channel to 54Mbps. As companies and users increasingly demand more bandwidth for mobile applications such as video and IP voice, WLANs will need all the bandwidth they can get.

Reduced output power — Connecting antennas to aggregated APs with coax cabling significantly reduces the output power at each antenna. In fact, Cisco specifically cautions against long coax cable runs between APs and antennas, because the cable introduces losses in the antenna system on both the transmitter and the receiver. As the length of cable increases, so does the amount of loss introduced. The problem is worse with 802.11a or 802.11n installations, because the 5GHz frequency attenuates much more quickly. Essentially, users would get a signal, but not one with the strength needed to transmit large files or support quality IP voice for even a medium-sized user community.

Multipath distortion and collisions — In every AP deployment, there is a potential for multipath interference. An AP may receive signals from a wireless user via two different paths (due to interference from walls, furniture, etc.), so one signal arrives later than the other. When this happens, the AP treats the mismatched data as an error and doesn't acknowledge it, forcing the sending device to retransmit. Typically, 802.11g and 802.11a APs handle this problem by using two or more antennas on each AP to provide diversity. The collision problem is handled via software that essentially recognizes only the signal from the antenna with the strongest signal. But when APs are aggregated and their signals are distributed through many antennas in a DAS, multipath interference becomes a much bigger problem: there are far more antennas linked to a given AP and the traditional diversity scheme is violated. As the system is loaded up with users, the number of collisions becomes unmanageable, and service quality drops well below optimum levels.

Poor/nonexistent 802.11a/n support — The 802.11n standard delivers higher throughput for advanced applications, but it works by bonding two of the available WiFi channels. While 802.11n works on the 2.4GHz band (802.11 b/g), using it at this frequency means that only one bonded connection is available, which limits user capacity. 802.11n performs far better in the 5GHz (802.11a) band, because there are 11 non-overlapping channels, so there are several ways to bond two of them and provide a lot of capacity. Unfortunately, the high attenuation caused by the coax DAS system and distortion issues created by aggregating APs makes it difficult or impossible to provide even marginally acceptable 802.11a or 802.11n capacity.

Questionable integration — While moving APs into a wiring closet does make them easier to maintain, the IT staff must still deal with two entirely different networks — an IP network from the WLAN that backhauls through the LAN, and a cellular network that backhauls through carrier micro-cells.

Questionable economics — AP aggregation does reduce costs by reducing the AP count. However, access point prices continue to decline into the low hundreds of dollars, so this is a small savings in an enterprise-class deployment. In reality, cable installation and IT configuration labor costs far outweigh the capital cost of APs.

In short, anyone considering the aggregated AP method should recognize that Cisco, Symbol, and other leading WLAN equipment providers have consciously chosen to create the WLAN with distributed Access Points and specifically warn against non-standard deployments because the 802.11 standard is designed to provide optimal capacity with a very specific antenna topology. Aggregating APs and using distributed passive antennas sounds great on paper, but unfortunately it violates several of the technical requirements for optimal WLAN functionality.

Optimizing Service with Reduced Costs

Nevertheless, it is possible to reduce deployment costs without compromising either WLAN or cellular performance by addressing the largest cost factor in these deployments. More than half the cost of deploying wireless systems is in cabling installation. By using a DAS that leverages the same type of standard cabling as the WLAN, IT managers can deploy both sets of cabling at the same time (Figure 3.). In terms of labor, it costs no more to pull two cables than it does to pull one.

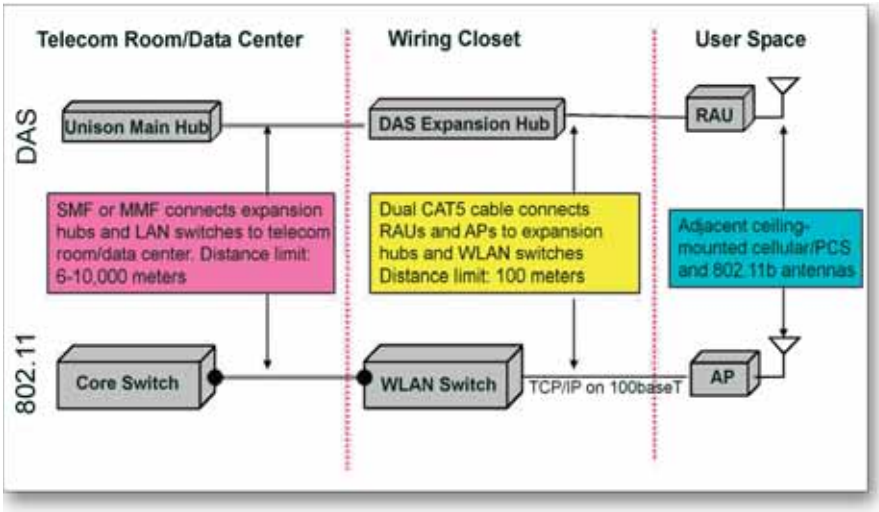
By using a DAS that leverages the same type of standard cabling as the WLAN, IT managers can deploy both sets of cabling at the same time.

In most cases, it will be possible to place APs and remote DAS antennas in the same locations because each technology has similar coverage areas: a remote cellular antenna covers a radius of from 80 to 200 feet, while an AP covers a radius of from 60 to 225 feet. In addition, both cellular antennas and APs can use power-over-Ethernet to eliminate the need for AC power at each location.

The advantage of this technique is that it minimizes installation costs without compromising performance and flexibility. If it ever becomes necessary to add capacity by adding APs, or to upgrade to a new standard such as WiMAX, changing the system is relatively straightforward. In an aggregated AP deployment, on the other hand, such changes would require a complete re-engineering and re-installation of the distributed antenna system and cabling as well.

By deploying DAS with an Ethernet-like architecture based on intelligent hubs, fiber, and Cat-5 cabling, IT directors can hold costs to a minimum without compromising either WiFi or DAS performance. As tempting as integration may seem, it's best to let WiFi be WiFi and deploy it the way it was intended. IT

Figure 3. DAS and WiFi deployments with same Ethernet cable run.



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IP Contact Centers and the Open Source IP PBX

Open source solutions have been available to enterprises for years, but have recently begun to grow in popularity, including the new open source IP PBX options. Should your contact center forego a traditional private branch exchange (PBX) system and evaluate this new Internet protocol (IP) technology?

Companies that are adopting open source in the contact center are being drawn by the low cost, as well as the greater control and flexibility that open source telephony offers. However, as with any new technology, it is important to examine the functional requirements of the contact center to determine if open source makes sense for your company.

Why Open Source?

As VoIP (define - news - alert) adoption rates continue to grow, businesses are seeing open source as a more viable option in the contact center. Open source IP PBX solutions are feature rich, offering capabilities such as voicemail, conference bridging, call detail recording, call routing, and provides all of the features — and in fact more — than a closed source PBX offers.

The open source IP PBX community is very well supported with hundreds of contributors who have collectively added hundreds of thousands of lines of code. Open source also benefits from hundreds of individuals testing and documenting its development, adding to its stability and the ability of users to quickly get information on the solution. This allows for an elevated level of security, flexibility and control that enables companies to quickly enable new features and functionality with an open source solution, rather than relying on a closed source PBX vendor to make the changes. Open source IP PBXs are architected to be as reliable and scalable as any closed source IP PBX, offering these benefits:

• Customizable — While typical open source IP PBXs offer more than 100 standard features, including all the expected capabilities, the number and scope of possibilities are infinite. Since the source code is readily available, companies can control and add an unlimited range of features and functionality to meet their unique and evolving needs, instead of spending on and waiting for customized features to be developed by an outside vendor.

• Cost-effective — An open source IP PBX can be fully implemented for one-third to one-half the price of proprietary systems that are on the market today. There are no associated software costs as it can be downloaded for free and low cost SIP phones are readily available. There are minimal expenses relating to installation, depending on the expertise of your IT staff.

• Vendor neutral — Using SIP and other telephony standards, open source IP PBXs can be easily integrated with applications from multiple vendors, as well as existing TDM infrastructure to ensure seamless interoperability with the contact centers throughout your organization, whether they are open source or proprietary systems. These IP PBXs are specifically designed to help companies avoid being “locked-in” to specific vendors or products, resulting in better pricing and greater choice and flexibility.

• Stable and secure — While it is not possible for any software to be entirely secure, open source enables constant peer review, which results in rapid identification of security breaches. Because a large community of users has access to the code, multiple people can be simultaneously developing bug fixes at no cost. And because open source is open in terms of both code and philosophy, there is no motivation for hackers to try to ‘crack the code’.

• Rapidly developed — Open source telephony is powered by a large community of programmers. A multitude of users with collaborative development,

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By Gary Barnett

real-world experience and vested interests means that new capabilities can be quickly added and brought to market, and upgrades are timely.

Addressing Open Source Concerns

Open source solutions, like Asterisk, have definitely been gaining traction in the contact center recently. It has been implemented in more than 250,000 sites and is downloaded 1,000 times each day. Using session initiation protocol (SIP) and standards-based technology for interoperability, open source has become an increasingly viable option for contact centers.

However, many organizations are hesitant to jump on the open source bandwagon and adopt the technology because of the lack of support and maintenance. These companies don't necessarily have the internal experts and resources to maintain an open source solution. And in the contact center, the lack of support and maintenance is especially a concern, particularly when mission-critical contact center operations could be at risk.

To address these concerns, several vendors are offering open source solutions that include support and maintenance. This has enabled companies to rethink the possibility of using open source, and has paved the way for increased adoption. For example, when the Linux operating system was first introduced, people were skeptical about the value of an open source solution, but once IBM and other large software companies offered support and maintenance behind the solution, open source was viewed as a well-established, fully-capable solution. Red Hat is another company that distributes a packaged version of Linux, and in October 2006, Oracle announced they would provide full support for Red Hat customers. This is another proof-point that major technology vendors are using open source solutions to drive their businesses, further underscoring the viability of open source offerings

Is It Right for Your Company?

Open source is particularly appealing to companies with dynamic business processes and practices that need to make adds, moves, changes quite frequently to meet strategic objectives. Outsourcers are a great example of a dynamic business. Open source offers an elevated level of flexibility and control that enables the business to quickly manage or add new features rather than relying on a proprietary vendor to make the changes. These contact centers can dictate their own PBX product roadmap instead of relying on a vendor to update the product.

But of course, it's not limited to just companies with dynamic business processes — any company that wants to save money and increase the flexibility of its infrastructure can implement an open source solution. In addition to outsourcers, companies that could reap the benefits of an open source IP PBX would include collections contact centers, those with a dispersed workforce, global customer service, help desk, multi-campus environments, mobile workforce, companies requiring seasonal workforce increase/reduction and companies looking to introduce new products/services in pilot markets.

Many companies that are interested in open source also require simple, seamless integrations with more reliable and proven contact center applications. These businesses are looking for a low-cost infrastructure that can be easily customized, but they also have the option of adding more reliable, proven products to the contact center. This can often be accomplished when an open source IP PBX is packaged with full support through a larger vendor.

Contact centers are constantly looking to meet consumer demands, while balancing those with the realities of the bottom line. An open source IP PBX gives them a quick and inexpensive way to achieve their business objectives while increasing choice, flexibility and control. As the industry learns more about this technology and recognizes the benefits that Voice over Internet Protocol (VoIP) brings to a dynamic contact center and the enterprise, adoption rates will continue to grow like wildfire. In an industry where needs are ever-changing and dynamic, the right open source solution could be the spark your business needs to lower costs, increase revenue and ultimately separate your company from the competition. IT

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Beyond Triple Play

In Quadruple Play, Delivering Exceptional Customer Service is More Critical (and Difficult) Than Ever

The key to increasing stickiness with bundled services is to ensure the customer has a positive brand experience despite technological complexity.

While the success of the "Triple Play" — video, high-speed internet/data, and premise-based voice convergence — has been making headlines, it's the "Quadruple Play" and "Quad-Play Plus" that are promising to move the needle even more dramatically for increased customer value, retention and improved revenue streams. By adding mobility and focused content to the mix of the three current services, service providers have the compelling ingredient that will lure yet more customers away from single or dual services to a bundled solution of three, four, or more integrated offerings.

Now for the bad news: competition is fierce for the higher-value, bundled services customer and it's coming from everywhere — traditional providers and many new competitive sources. With bundled services, technological innovations and industry deregulation, the traditional lines of demarcation are being moved or eliminated; resulting in mergers, consolidations, partnerships, and other business model-shifting trends.

The deciding factor that determines which companies will succeed will ultimately come down to customers' brand experience, the majority of which is formed through customer support interactions. This article focuses on what service providers should know about the unique support challenges companies face in offering triple/quadruple service bundles and how they need to prepare to ensure the highest level of contact center service to these valuable customers.

Quad Play Takes Off with Consumers...

There's no question that the quadruple play — with the addition of mobility — is going to be a boon for service providers and consumers alike. For customers, it's one-stop shopping, billing simplicity, and the prospect of a lower total monthly outlay. For service providers, it offers increased customer loyalty, competitive advantage, and a higher value set of customers.

This win-win proposition is gaining steam in the market. According to research from Parks Associates, by 2010 more than one-half of broadband households will subscribe to a triple or quadruple play bundled service. IDC is forecasting a significant drop-off of double-play service over the next five years, falling to 42% of total subscriptions by 2010.

. . .While Service Providers Enjoy Increased Stickiness

Service providers already offering triple and quad play service offerings are beginning to reap the financial benefits of the multi-play strategy. One area where companies are seeing dramatic results is customer "stickiness" — or loyalty. According to Frost & Sullivan/Stratecast, in the North American cable market, a three-product subscriber is as much as 50% to 60% less likely to churn than a single product subscriber.

However, Success Requires Major Operational Changes

Whether through partnerships, acquisitions, or creating new business models, delivering a successful triple or quad play bundle will require operational changes and strategies that ensure a smooth rollout and seamless customer experience throughout. New higher-value customers represent not only increased revenues, but increased risk and expense; particularly in cases of customer churn. Therefore, getting the service delivery, operational and customer care aspects right is essential to ensure the excellent brand experience that will separate the market winners from the losers.

With technology hurdles and rapid introduction of new and changing services, the onus will fall to customer support to ensure customer satisfaction

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By Michael Roy

while hiding the complexity of delivering disparate services from the customer. In this high-stakes environment, customer support will need to surmount several major hurdles in order to deliver a brand experience that exceeds expectations:

- Uneven quality of services
- Integration of multiple systems and products for one bill/one voice
- Overcoming technological complexity

Quality of Services — Only as Strong as the Weakest Link

Customers purchasing bundled services will expect a high level of support, as well as consistent, high-quality experiences. In fact, each service must be uniformly good quality or it jeopardizes the entire bundle. Unfortunately, providing all the services within a bundle can be a disjointed process given the fact that products may originate from a variety of sources thanks to inherent technologies, sub-contracts, joint ventures, acquired companies, and other business models. Customer support must develop ways to shield the customer from these issues, yet deliver a coordinated view of the subscriber, and a well-orchestrated experience to questions, billing and service problems.

One Bill/One Voice — Fulfilling the One-Stop Shopping Expectation

While quad play means one-stop to customers, in reality many vendors have multiple systems across multiple service offerings making customer care anything but seamless. Regardless of where the service is ultimately originating, the customer will expect one company to support all the services provided. Care agents, business processes, and support systems will be required to integrate and align as never before.

Technological Complexity — Shielding the Customer

Customer care agents will be expected to provide support and resolutions at a higher level, across a larger matrix of products and services. Rather than the tactical challenges of a phone connection being down, cable TV being out, or DSL not working, multi-play support issues can present any combination of these issues at varying levels of complexity. Those providers that can keep the frustration of complex technology delivery invisible to the end user will be the ones most likely to succeed.

According to IDC analyst Brian Bingham, Global Director, CRM Services and F&A BPO Research, the role of the customer service representative (CSR) has evolved, especially in the communications/cable industries.

"Not only does the CSR need to understand the basic voice service offerings," said Mr. Bingham, "but now with the introduction of quad-plus play services (voice, video, broadband, mobile, and media/content) they need to trouble-shoot complex service outage questions, understand ever-changing regulations, and a whole host of other technical processes and systems. That is why we are seeing an up-tick of traditional wireline, wireless and major cable companies gravitate towards outsourcing providers to deliver bottom line savings."

Addressing the Customer Service Challenges of Multi-Play

The challenges of quad play require service providers to work toward customer support solutions that provide high levels of first call resolution, care agents that are multi-skilled across multiple offerings, and agents that can provide information about and processing of additional, value-added services. At the same time, intense competition for wallet share means that service providers must also ensure a cost-effective infrastructure to protect their profit margins while growing their customer base.

Companies can choose to handle the customer care function in-house, addressing the above-mentioned challenges of complexity, one voice, and quality of service through increased staffing, extensive agent training, new systems, and updated technology. Cost control can then become an issue and often results in either less than adequate staffing for call volume peaks or overcapacity, which translates into cost overruns. When the center is understaffed, call abandonment rates and call wait times escalate, payroll costs increase due to overtime hours, agents experience fatigue and burnout, processes break down, and customer satisfaction declines.

The Value of Outsourcing Some or All of Multi-Play Customer Support

When faced with the choice between internal or outsourced fulfillment of the complex customer care requirements of triple or quad+ play strategies, many companies are seeing the value of identifying and sourcing services and strategy with a trusted partner.

A proven outsourcer's standardized processes and flexible staffing allow it to leverage experience, infrastructure and capacity, eliminating the service provider's need to over-invest in resources. The right outsourcing partner can offer experienced management, well-trained agents and systems for the varied types of services being offered in the new bundles, ensuring superior first call resolution and customer satisfaction.

However, companies leveraging outsourcing as a cost-effective solution to the support challenges of multiplay strategies need to research and hire a business and brand partner, not merely an outsource services provider. Organizations should seek out a collaborative partner with complementary resources and technology, and a focused common interest in not just handling a subscriber event, but meeting the strategic needs of the company.

You've Got to Play to Win

Seen as a win-win for both consumers and service providers, the quad play strategy also brings a number of challenges with it: new and upgraded technology, disparate services and sources of services, complexity of interrelated services, and integrating business processes to provide one-stop shopping and support to the customer. Managing the total customer experience throughout the customer lifecycle will be critical to success. Quality customer care becomes the lynchpin element to ensure a seamless and satisfying subscriber experience with the multi-play bundle. IT

Michael Roy is Director of StarTek Solutions, (news - alert) a leading provider of Business Process Optimization services for outsourced customer interactions. Roy has 20 years in marketing, consultative sales, strategy and solutions development supporting the Telecom, Cable/Satellite and Broadband, CPG and Travel industries for such companies as AT&T, Level 3, Convergys, Comcast and Time Warner Cable. (For information about StarTek's Quad Plus Play Services, contact StarTek today at 1-800-541-1130 or visit http://www.startek.com to read StarTek's Quad Play Services white paper.)

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The State of Session Border Control

Early on in the world of IP Communications, it became evident that VoIP (define - news - alert) calls were going to have trouble getting through firewalls and moving across and to differing networks and devices (e.g. SIP and H.323). This led to the first Session Border Controllers, or SBCs. SBCs have evolved since then to include functions other than simple border control, protocol and media interworking, signaling/media validation and SIP-aware NAT [Network Address Translation] traversal. Security and management functions became important, such as access control, call detail recording, Quality of Service [QoS] control, network topology hiding, and so forth. With the approach of IMS [IP Multimedia Subsystem] and fixed-mobile convergence (FMC), SBCs are evolving once more to meet the challenge.

For example, at the recent GSM World Congress in Barcelona, Acme Packet (news - alert) demonstrated IMS and an IMS-compliant decomposed session border controller (SBC) and how their Net-Net SBCs will work in a FMC solution, providing security, service reach maximization, service assurance, revenue and profit protection and regulatory compliance — for IP interactive communications over fixed or wireless IP networks.

Acme Packet's SBC can be ordered as a 'decomposed' SBC solution; their Net-Net Session Controller (SC) and Net-Net Border Gateway (BG) are software configurations that decompose session border control into separate signaling and media control systems for SIP sessions and are supported on both the Net-Net 4000 and 9000 series hardware platforms. Both the Net-Net SC and BG are ETSI TISPAN and 3GPP IMS compliant and deliver the Interconnect-Border Gateway Function (I-BGF) and Interconnect-Border Control Function (I-BCF) elements for interconnect networks and Proxy-Call Session Control Function (P-CSCF), Core Border Gateway Function (C-BGF) and Service-based Policy Decision Function (SPDF) elements for access networks.

SBCs are considered such an important network element that larger companies have acquired some SBC vendors. Emergent Network Solutions is now the Emergent Network Solutions group at Stratus Technologies in Maynard, Massachusetts. Emergent was attractive to Stratus, a well-known maker of fault tolerant computing platforms, since Stratus has a strategic business initiative involving VoIP, IMS, service mediation and fixed-mobile convergence (FMC), all of which rely to a great extent on SBC functionality.

Netrake, another venerable SBC vendor, was acquired by AudioCodes.

AudioCodes' VP of Marketing for the SBC Business Line, Menachem Honig, says, "AudioCodes recently acquired Netrake, a company that has focused on SBCs and security gateways for several years now. AudioCodes sees SBCs as a type of product complementary to its product lines. Until recently AudioCodes has focused on the connectivity between the PSTN and VoIP networks, but now we're seeing a lot of VoIP 'islands' forming both on the operator and enterprise side, so the connectivity between such networks is not so simple. From Layer 2 and up vendors and networks are using different schemes, so you need something that can guarantee the traversal between networks and through firewalls. Up to Layer 7, the networks are not necessarily signaling with the same protocol. Even the networks are using the same protocol, there can be slight differences, and you have to bridge between them. Accomplishing this is one of the traditional functions of an SBC. Now that the world is moving away from the PSTN to IP-to-IP voice networks, AudioCodes decided it should play a role in this game. Thus, the SBC is a

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By Richard "Zippy" Grigonis

very natural component or network element to have in our product portfolio."

"If we ignore IMS for a moment," says Honig, "and simply focus on a pure VoIP network, we will definitely find SBCs at the network edge, associated with the access functions and the hosting of residential services. SBCs are also in the core, where they are used to peer between two VoIP network operators."

"There is no doubt about the future of session border controllers," says Honig. "As long as VoIP exists, SBC functionality will be necessary."

"IMS has presented us with innovation as to how to compose the network," says Honig. "We think that we can easily move the needed IMS functionality into the SBC and then the SBC will play a role on the IMS networks as well. Both the functionalities of an SBC and a security gateway are going to merge into one AudioCodes product in 2007. As for IMS, we'll have one device with all this functionality of both devices on one platform and it will be optimized for IMS. With IMS you can compose a network differently, in which case the functionality of the SBC will be partitioned in a different way in the network. Still, we think our SBCs are flexible enough to provide a lot of functionality that is defined in the IMS architecture. This new device will work in conjunction with residential voice services, hosting VoIP, and in the core it will support trunk peering to other network operators."

John Smolucha, VP of Product Marketing at ENEA (news - alert) (http://www.enea.com), says: "There was a feeling early on in VoIP that everyone in the industry would settle on the same two or three voice codecs, and not a whole lot of interworking and transcoding would be necessary. As it turns out, more and more interworking and transcoding has been necessary to maintain the interoperability of networks and network devices, and SBCs fill the bill."

"The 'Session Border Controller' term caught on because it's a pretty accurate description of what they do," says Smolucha.

"Ultimately, at the end of the day, without session border controllers, IP networks aren't secure," says Smolucha. "Carriers must be in a position so that they're confident they can safely exchange traffic to access networks, and they'll be able to do that while hiding the topology of their network, especially when it comes to carrier-to-carrier peering. A lot of what the rapid acceleration of VoIP that we've seen is all about moving across carrier-to-carrier networks. If you look at what what's happening with the companies that are building SBCs, what would you say you see there? Are the companies going public? Are they getting bigger or smaller? Many are getting acquired by big companies, and you don't do an acquisition unless you're convinced it's a strategic move."

"As for ourselves," muses Smolucha, "we're probably the most important software company you've never heard of. We've been around for about 40 years. We're a public company headquartered in Sweden, with 500+ employees globally. The interesting thing about us is that our software technology is powering about 250 million mobile handsets — 2G and 3G — half of the world's 3G base stations, satellite gateways, media gateways, session border controllers, and more. Being that we don't make devices, we help our customers make better devices. We don't get the public recognition that really should go with what we do. The company had its origins building real-time operating systems for Ericsson, which is still one of our best customers after more than 30 years. We also work with names such as Nokia, Motorola, Sony Ericsson, Agere, Alcatel, Samsung and more. Our focus is really network software. When I say 'network', if you think of whatever you have in the palm of your hand as a mobile handset, being the termination or delivery point for that, then we're also into mobile handsets."

"ENEA is interesting is that we're one of the only companies I'm aware of that has a software platform and IP infrastructure that works equally well in mobile handsets or in high-end carrier-grade telecom equipment," says Smolucha.

"One basic function that SBCs fulfill is carrier-to-carrier network peering," says Smolucha. "As VoIP rolls out a bit more and the movement continues to try to achieve a coalesced IP network, session border controllers are still required to provide all of that interoperability to allow carriers to peer into each others' networks, but now with security and quality of service [QoS]. I don't see

that moving into routers, since routers aren't really 'stateful', they can't perform all of the key mediation functions and quality of service, transcoding and authorization. I don't see it being entirely integrated back into softswitches either, because a softswitch is only stateful at the core, not necessarily at the edge, which is where the security and quality of service mediation and traffic normalization happens. A softswitch can provide some of signaling and some media routing, but it can't do all of the real-time IP routing."

"So, in the cases of carrier-to-enterprise and carrier-to-carrier peering, says Smolucha, "SBCs will stay around for a while. Also, if you look at that market from who's out there and who's playing in it, the companies that are building SBCs tend to be specialized — the Acme Packets, MERAs, Netrakes, NexTones and Newports and the Sonuses. I haven't seen the big guys such as Nortel and Ericsson take on session border control as a strategy part of their product portfolios. In 2003 to 2004 timeframe, I recall there was a flood of venture capital money into that market, something on the order of $240-$250 million in funding. Having raised VC money on my own, I know that VCs don't put money into technologies or companies unless they're hoping to get a 10X return on their investment in a three-to-five year window. So somebody was expecting a $2.4 billion return with a good hunk of profitability."

"As carriers and operators send out RFPs, what are they asking for?" asks Smolucha. "If you believe guys like Frost & Sullivan and the other analysts that spend all of their time focused on this space, then there is a huge carrier demand for session border controllers, or at least SBC functionality, and it's not going away, especially with the dramatic increase over the last few years in real-time multimedia IP communications, which typically are based on SIP, H.323 or MGCP protocols. Multimedia content really must flow between IP networks, carrier-to-carrier networks, or services that go from carrier-to-access networks be they enterprise or residential. What else but a session border controller could provide such functionality?"

"Still, as we talk to our customers about convergence and migration to IMS networks," says Smolucha, "one of the things we see are folks asking themselves, 'How do I get to carrier-grade availability? How can I improve the engineering efficiency of my product development team, reduce the cost of ownership of this technology and build stuff that's going to last longer than three or four years in the network?' So we've still got some work to do."

The Hidden SBC

(news - alert) Rod Hodgman VP of Marketing for Covergence (http://www.covergence.com), says, "Many of the current SBC features are going to move into other network elements. That's beginning to happen today. SBCs will have to evolve to address not the connectivity issues that they deal with today, but higher-level application issues instead posed by customers — both providers and carriers deploying IMS as well as enterprises. You can categorize these around a broad class of issues related to making a service 'business grade'. The biggest market for a business grade service is of course businesses in the enterprise marketplace. Most service providers, other than the consumer VoIP pure plays, desperately want to attract and retain business customers because they can sell them higher value services and incremental services. But if you look at traditional SBCs today and how they stack up, in terms of several business-related categories, you can see that traditional SBCs are somewhat limited."

"For example, the security that SBCs provide today is essentially unusable," says Hodgman, "They don't provide the signaling or media security encryption necessary to pass security muster or the monitoring, logging, and alerting necessary to pass the compliance team. If you look at SBCs' ability to help service providers provision real-time services that go beyond VoIP, such as instant messaging, presence and other capabilities, SBCs do nothing — they're 'silent' on that topic. Then there's SBCs' lackluster ability to manage diverse endpoints in terms of handling registration and registration 'floods' and in terms of addressing the interoperability issues that we'll have at the edge because enterprises are going to use differing vendor handsets, softphones, Office Communicator clients, mobile devices, and so forth. In such an environment interoperability is not at all assured and needs to be addressed."

"Then there's the whole area of management tools," says Hodgman. "Networks are becoming really complicated and they require high-level applications layer tools to debug and fault-isolate problems on the network and ensure that the service doesn't get degraded by these faults."

"SBCs solved the first generation of problems," says Hodgman. "You couldn't make a VoIP call because it couldn't traverse the network firewalls. To that we added some things necessary for service providers, such as call admission control and media transcoding, basic authentication. Many SBCs have some features you'd expect of them such as protocol and media interworking, session routing, admission control and policing, auality monitoring and enforcement, signaling security, network address translation (NAT), authentication, authorization, and accounting (AAA), media transcoding and call detail recording, Network Topology Hiding. SBCs will increasingly move onto things such as blades that will be in routers and other network elements. SBCs will be involved with open source software and pretty widely available as we move through 2007. What's left to do with SBCs has nothing to do with connectivity issues, it really involves the harder, more interesting issues at the Application layer of how to provide a single point of policy-based control for real-time services and applications based on the SIP protocol."

"SBCs will need to shift focus to solving application-level security, control

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SBCs will need to shift focus to solving application-level security, control and management issues...

and management issues," says Hodgman. "Basic connectivity will migrate into network elements."

Hodgman elaborates: "This is why we developed the Eclipse, which not only has basic SBC features but also advanced application level security features, such as application-level security, cryptographic authentication, DOS attack protection, signaling encryption, media encryption, signaling and media validation, intrusion prevention, virus scanning, malicious URL filtering. The Eclipse also has advanced management and control features, such as application-aware session routing, web services management/control, distributed signaling/media processing, independent policy decision functions and much more."

Another SBC-in-the-machinery scenario is playing out over at Tekelec (news - alert) (http://www.tekelec.com) Sara Hughes, Director of Product Management for the P6000 VoIP Application Server at Tekelec, says: "From the standpoint of the switching realm — I'm in the switching business unit — we have three products in this area and I'm the director of product management for one of those products. For my product and one other, we've integrated SBC functionality. My product interfaces with CPE [Customer Premise Equipment] devices as well as SIP gateways, so we use my integrated session border controller in the Tekelec 6000 to interface not only CPE devices and control firewall traversal, NAT and PAT and all that, but also to handle peering to other SIP gateways and SIP functions in the network."

"The forward thinking of this is that we're debating whether we should sell the SBC part as a standalone device as well," says Hughes. "For the time being, the SBC is fully integrated with the product and is controlled by the product, which does yield a lot of benefits associated with an integrated platform. Not all of our competitors have that, and it does definitely give us an 'edge' that our customers see."

"One of our products actually does connect to a 3rd-party session border controller," says Hughes, "because the basic functionality that some customers need, such as session control, firewall traversal, and those sorts of functions, are needed and yet they didn't need a very expensive platform to do that. And so we found a very inexpensive solution. In fact, you'll find that a lot of routers and devices are implementing that approach, so SBCs are a kind of basic functionality, almost like having a photocopy machine in an office. Our other two products have SBC NAT traversal functionality integrated in them. My product takes SBC functionality to the point where it makes the implementation and deployment phases for our customers more seamless. In doing that, we've created a single solution. Both provisioning and billing is integrated. The control of that device is integrated, too. Statistics monitoring, and all of those types of functions are also fully integrated with the platform."

"If you go with a standalone SBC," says Hughes, "provisioning is separate; you've got another vendor to deal with, and the billing must traverse devices. You also have to deal with not only the integration of provisioning, but integrating the SIP call flow and any other protocol call flows between devices."

Meet the Universal Convergence Gateway (UCG)

Reef Point's Universal Convergence Gateway is the industry's first fixed-mobile convergence gateway product to publicly demonstrate security for multi-vendor mobile IMS networks and to concurrently provide security for mobile IMS and landline (or 'fixed') IMS networks. The Reef Point UCG was also the first gateway to publicly demonstrate IMS fixed- line and mobile network security and IMS Proxy-Call Session Control Function integrated in a single chassis system.

Aaron Sipper, Director of Product Marketing for Reef Point Systems (news - alert) (http://www.reefpoint.com), says, "Obviously, the network is changing. It's changing for a number of reasons, but mainly because the applications being pushed over the network are not just voice anymore. They're voice, data and video. Carriers are looking to deliver these things over a unified platform, or unified network, if you will. I think that VoIP has done a great service to the industry by paving the way in terms of showing how you can take something that wasn't necessarily and IP applications and have it run over IP. For that process to occur, a lot of things in the industry had to change. IP has become as a protocol suite. More and more applications appear and they have more and more capabilities. If you look at SIP alone, for instance, when it first appeared it was a simple session setup and teardown protocol; it is agnostic to specific applications and so it's suited to IMS."

"New networks are trying to deploy services that encompass all media," says Sipper. "When I say 'all media' I'm not just referring to multimedia, I mean *all* media: tech services, voice, data and video services that could be uniquely deployed on their own or they can be mixed in a number of ways. These services will be pushed over any network — any means the customer can use to access the services has to be available as a means to deliver those applications. It's no longer suitable to just have networks built specifically for a particular application or setup accessing technology."

"What Reef Point sees in the market is that there is a requirement now for a new kind of border element that must exist in the network," says Sipper. "An SBC is definitely a border element. Session border controllers are purpose-built devices that were really built for fixed-line VoIP signaling mediation for peering and access. They're used in a number ways in such things as access applications, everything from VoIP services that you have at home or in the

office to peering. Most of the traffic for voice today is obviously peering traffic or LD [Long Distance] so SBCs were designed to fix problems associated with two carriers or networks attempting to peer on a VoIP level, and really to handle signaling mediation — specifically, two separate domains can talk to each other without any problems, even if one domain is based on H.323 and the other is based on SIP."

"Our Universal Convergence Gateways [UCG], on the other hand, are built to provide security, quality of service [QoS] and policy enforcement," says Sipper. "In particular, they're designed not just for voice but for any application you want to push over it. The UCG is built for what's really occurring in the industry, and that's the fixed-mobile convergence [FMC] order that's occurring. So, whether a carrier is fixed line, cable, or a mobile operator really doesn't matter. There's almost always a mobile component to the strategies of carriers and network operators, and because of this, borders are definitely changing."

Sipper continues: "If you look at the SBC architecture foundation, as I said before, it started out as a mediation device for signaling. Most VoIP networking and devices of the past used the H.323-based control protocol. As the benefits of SIP became more apparent, carriers looked to evolve the network to SIP, but they had to maintain interoperability with the networks that actually were generating revenue at the time, and those were running H.323. It's still true to some extent today. The solution to this was the development a product that could translate between SIP and H.323, the SBC. The architecture is really based on back-to-back user agents and it's very software-centric, because SBCs are designed by nature to terminate a SIP session, understand or parse through the meaning of that session, and then regenerate or 're-originate' another session as need be. So, with an SBC you have to terminate, parse, and then re-originate."

"Obviously, over time, SBCs evolved to accommodate firewall traversal on the access side," says Sipper, "so if you're deploying VoIP services on the edge, and you had a network access translation function sitting at the residence or in the enterprise, you needed a way to perform a conversion there, and so SBCs were a prime candidate to do that, because they could act as a proxy, they had back-to-back user agent functionality, and by tacking on some additional capabilities SBCs could get VoIP traffic could actually get around firewalls by handling NAT [Net Address Translation]. As the world moved forward, NAT was one of the first introductions to security measures. The SBC industry at that point realized that there are other functions that the SBC could provide, things such as topology hiding, SIP Denial of Service [DoS] protection and to some extent, VoIP bandwidth management. They realized that, because the SBC is an endpoint user agent, they could actually glean what's really going on — for example, 'Since I [the SBC] am really parsing the SIP message, I can detect a malformed SIP message that someone can use in an attack on me, to take control of the servers or do something to assist them. Furthermore, since I can already see the SDP session descriptor, I can make some decisions on what to do with that flow. Shall I route it to a specific path, such as a voice or IP trunk for least cost?' So, security built into SBCs is designed for voice specifically and SIP, and centers on policy decisions. Typically, there's a requirement with some SBCs that if you want to control the media you have to use a separate, external media-firewall to handle RTP sessions. Not all SBCs are like that, of course, some of them do include a media component, but usually it's a separate function."

"SBCs, therefore, are really good at VoIP network peering applications," says Sipper. "At two VoIP borders — it really doesn't matter whose borders they are — you really need an SBC to ensure the interoperability of the networks and to provide some measure of security in terms of topology hiding and potentially doing some authentication functions. More importantly, there's other functionality that comes along with SBCs, such as doing number translation for ENUM ("Electronic Numbering") that's required at the border."

"Now that IMS is appearing, many vendors are focusing on TISPAN," says Sipper. "specifically the TISPAN as it addresses wireline players, and since many tend to be entrenched in the wireline space, it makes sense. SBCs are really positioned for VoIP fixed-line access and peering roles in the IMS network. So, vendors are starting to evolve their platforms to do more with it, along the lines of what they've done before, but now in an IMS context, so it includes such things as SIP protocol enhancement and as well as other protocols such as DIAMETER that's necessary to work with other IMS network components."

"Our universal convergence gateway, or UCG, starts life a bit differently than an SBC," says Sipper. "We have a legacy too, just like the SBCs. The UCG actually started out as a security gateway. From a security gateway perspective, one looks at borders a bit differently than an SBC does. First off, the type of functions that are needed deal with private networking, authentication, separating traffic, routing, packet switching, doing NAT — I'm not referring to firewall traversal yet, but just NAT, mapping one IP address to another from an enterprise or VPN perspective — and being able to mark flows and provide some measure of QoS, being able to do firewalls and filtering packets using deep packet inspection to examine the flows, providing intrusion detection and protection capabilities, and also encryptions. As a secure gateway product, we developed this generically. We said, 'Okay, there's media coming in. It could be anything, because it's encapsulated in IP. Given that, how do you safeguard that traffic and/or the network and in so doing, what are the functions we need to build into the system?' And so we did. The architecture is really based on network processors, FPGAs [Field-

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Programmable Gate Arrays] and ASICs [Application-Specific Integrated Circuits], that must handle all types of IP applications at wire speed."

"Why so? Their model of handling packets is completely different than SBCs," says Sipper. "Everything must be processed at wire speed, and to do that, you can't afford to terminate sessions. In other words, you can't terminate a flow, look at it, and then decide to ship it out somewhere once you know what to do with it. Doing that causes too much delay and too many performance losses. Plus you have different protocols that aren't necessarily suitable for termination. You can't say, 'Well, I'm going to terminate this type of session, parse it, look at it, then send it on its merry way.' You have to be able to look at all flows in a real-time, singular fashion. What UCGs do in general is to use deep packet inspection technology that examines the packets as they move through the system, and affects change as the packet streams traverse the box. Hence the hardware focus of the UCG concept."

"Over time, the UCG evolved to include things such as firewalls, NAT and you began to see more access-side specialization of functionality," says Sipper. "UCGs can handle SIP DoS, ALG, additional encryption methods, IP application bandwidth management and offer flexible policy control."

"UCGs are designed from the ground up for IP security, QoS, and policy enforcement and they operate on both signaling and media flows," says Sipper. "From an IMS perspective, they're focused on FMC access security, QoS, and policy enforcement for 3GPP, 3GPP2, TISPAN, and PacketCable-based networks. We expect that UCGs will be a major player in the IMS era."

SBCs and IMS: Made for each other?

Over at NexTone (news - alert) (http://www.nextone.com) VP of Product Marketing Nick Turner says, "Many people wonder how SBCs will work an IMS network. Will they be absorbed? Packaged? Minimized in value? I think the clear answer from the field perspective is quite to the contrary. IMS is an ideal architecture if not framework for building networks and creating applications. But everyone is discovering that the real world is somewhat more complicated than what IMS' creators anticipated in its design. The world is messy and has lots of complexity, and more and more the primary role of SBCs is to 'nomalize' that complexity into something that the core IMS networks can handle. IMS networks need to be fast, lightweight and inexpensive, so it's important that the SBCs take away all of the complexity from the core."

"SBCs are still important when it comes to certain kinds of network carrier-to-carrier peering, particularly dealing with H.323 which will be around for a while," says Turner. "There are specific business rules involved in carrier peering which need to be observed or handled by an SBC on behalf of an IMS network."

"For peering involving an enterprise, there are a different set of problems and complexities," says Turner. "There's the likelihood of more variances or difficulties of the IP realm. Then there are private IP addresses, public NAT devices, overlapping IPs, VLANs, 'realms', and all sorts of other nuances and complexities that softswitches and IMS networks don't have the 'plumbing' to handle. An SBCs job is to take care of and normalize these things into something it can understand and relate to, in addition to the commonly understood security aspects that we all know and love about SBCs."

"What differentiates NexTone is that we decided to go down the computing platform path from its inception," says Turner. "We're inherently portable to AdvancedTCA [ATCA] form factor computing platforms for high-end telecom applications. If you look at any major Tier-1 or mobile operator, they're looking at moving generically from a telecoms hardware 'kit' network to more of an IT-based platform, and ATCA was the common denominator. NextTone equipment is Intel-based, our boards can slot into ATCA chassis slots as and when needed."

"Bottom line, we see that SBCs were conceived of as a security device at the network boundary," says Turner. "That role will persist. As we see more and more production environments we start to understand that architectures or I guess frameworks such as IMS need more, they need help in dealing with all of the complexity that the real world has. Take 3GPP as an example. Many of the 3GPP assumptions and what the devices and network will look like just aren't real. Enterprises find themselves with IP PBXs from vendors that sometimes deviate slightly from established standards and the enterprise may want to preserve some private address space. 3GPP wasn't designed for that, so you need something at the network boundary to provide the adaptation."

As IMS gets going, people will be able to roam in a fixed-mobile communications environment from the desktop to WiFi to cellular or WiMAX with their services intact, the 'boundary' of the enterprise disappears. One would think that SBC functionality has to appear at every endpoint in the system, since the "edge" of the network will be everywhere.

"It may commoditize to that level over time," replies Turner, "but at the moment we see the need to 'repackage' SBCs to fit the right space. So carriers for network trunking need fewer but very large implementations. As you head toward the enterprise there are more possible sites and the hardware form factor tends to be smaller. We fully expect such repackaging to be necessary to be a competent vendor in this space. Again, since we're Intel-based we're easily portable in all those dimensions."

Whatever we call them — Session Border Controllers, Universal Convergence Gateways, or what-not — a certain group of features and functions associated with SBCs will not just persist in the future IMS network world, but will both flourish and be of immense importance. IT

Choosing Development Platforms

DIY Voice

As with any do-it-yourself project, using the right tools for the job is fundamental to its success. Today, there are a variety of application development environments (ADEs) and software development kits (SDKs) available to significantly reduce the time, cost and complexity of creating cutting edge voice solutions, such as interactive voice response (IVR), contact center and unified communications solutions.

In fact, at first glance there may be too many options. Each platform vendor provides one or more development options and every technology vendor offers their own proprietary SDK. Developers can narrow their choices, however, by considering the needs of their specific projects. Consider how much functionality, integration flexibility and application portability is required to achieve the goals of your specific project.

The Evolution of Cutting Edge Tools

In the beginning, there were individual SDKs created for each component of a voice solution. Developers had to write to one API to control telephony resource boards and to another to manage each speech resource. This was extremely time consuming and not cost-effective.

Then came the ADE which provided a layer of abstraction for multiple components in a single product. Developers could then create voice applications more quickly, but there was still a lot of programming to be done.

Next, graphical ADE arrived on the scene. It further sped development by providing a more intuitive interface that encompassed more solution elements such as database, email and Web integration. However, these development tools were tied to specific deployment platforms, and, in some instances, no longer provided low level resource control.

Next we saw the Internet/Telephony convergence revolution which ushered in a new breed of standards-based ADEs and more open communications development platforms. Today these ADEs are focused on the SIP, MRCP, CCXML and VoiceXML programming standards.

All of these development options remain viable today and offer varying benefits. SDKs offer the greatest level of control and have the lowest upfront costs. However, these projects tend to be more complex, have longer development cycles and require highly specialized skills to complete. Traditional ADEs are great for more programming oriented developers. They offer a layer of abstraction for multiple components while still providing a high level of resource control. And, they have lower licensing and deployment costs. Graphical ADEs are more suitable for groups looking to quickly solve business problems rather than to understand complex telephony issues. They offer the greater range of functionality and fastest time-to-market. Standards-based ADEs provide portability and integration advantages however, their scope is limited and additional application development work will have to be done to create a total solution. For both graphical and standards-based ADEs, there is a tremendous range in deployment costs from vendor to vendor. A careful price/performance examination is required.

Once you have decided what type of ADE you prefer, there are 10 top areas to consider during the selection process:

1. Functionality: There is as much diversity in ADE functionality as there is in different voice solution projects. Some offer a wide range of telephony protocols, some offer support for email and Web, some offer multiple integration options, some even offer new technologies such video support.

Understanding your own needs before evaluating your options will help. What telephony protocols, boards or infrastructure do you need to support? Is this a multi-channel solution? What are your preferred speech engines? Once you have a rough functional specification, you can more easily determine the solution that will work best for you.

2. Standards & Migration Protection: To ensure portability, look for application development environments that support the latest standards including VoiceXML, CCXML, MRCP, SIP and more.

Today, everyone is working in a state of constant change. Developers need to find a way to leverage prior investments in hardware, software and solution development, while providing a smooth migration path to the emerging standards and technologies that will be required in the future. Choosing an ADE with broad capabilities and a strong roadmap will help ensure that your projects will go smoothly today — and tomorrow.

3. Development Relevance: With most projects, the developers have a particular skill set and there is usually an

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By Sanjeev Sawai

ADE more suited for the job than others.

For example, telephony specialists will appreciate a development environment that enables them to create call flow charts and program the functionality into the individual blocks. Visual Studio and .NET developers benefit tremendously from an ADE offering Active X objects for embedding telephony functions into their programs. When evaluating your options, look for robust functionality with easy access to low-level technology features.

Web developers looking to voice-enable their applications should consider using a standards-based ADE for creating VoiceXML, a mark-up language that defines voice segments and enables access to the Internet via telephones and other voice-activated devices. When selecting a VoiceXML development solution, look for pre-built dialogs that feature best practice VUI design rules. However, the VoiceXML standard can be limited for applications that require advanced call control, extensive application integration or multi-channel capabilities. Look for a solution that allows you to generate pure VoiceXML code wherever possible and provides integrated development capabilities for program elements not covered by the standard.

4. Call Center Integration Capabilities: Determining how much integration with call center infrastructure elements is required will provide important insight for the ADE selection process. Does the application need to sit behind a softswitch or PBX? Does the application require advanced call data (ANI, DNIS, call length, transfer data, etc.) to work effectively? Does it require sophisticated routing schemes or integration with agent workstations? Do you need desktop call control or click-to-talk capabilities? In these cases, ADEs with CTI middleware are an ideal solution. Choose one that provides a standards-based methodology for communicating with a broad range of IP and traditional PBXs from leading vendors. Check for support for TAPI, JTAPI, CSTA and SIP. Along with cutting integration time, CTI middleware also protects your development work ensuring that it will proceed as written in many different — and evolving — call center environments.

5. Enterprise Software Integration Capabilities: Most developers today believe that the future of enterprise application integration resides in Web services. Some of today's ADEs already support these protocols. However, a Web service may not be available in all cases. Look for products that support a broad range of database and communications standards including ODBC, SQL, XML, WSDL, HTML, HTTP, TCP/IP, SNMP, LDAP, SS7, USSD, RADIUS, X.25, IMAP4, POP3, SMTP and more. By selecting a product with multiple integration options, you will have fewer headaches and a greater chance of success.

6. Code Flexibility: Look for products that allow you to leverage existing IT assets and call external applications, hosted scripts and DLLs written in C, C++, VB, Active X, JScript and VBScript.

7. Strong Code Management Capabilities: Integration with Visual Source Safe or CVS directly from the ADE will facilitate change management and version control in large, collaborative development projects.

8. Testing Tools: The application testing phase, while critical to the success of a project, is often squeezed to meet deployment deadlines. To help, look for products with strong debugging capabilities, including block-by-block code check, expression watches and script traces. Robust system and application logging capabilities are also important. The more simplified the deployment model, the smoother the testing process.

9. Deployment Models: There are a variety of voice solution deployment models available, however, your choice of ADE will dictate which you can utilize. Solutions developed with a vendor supplied ADE typically need to be deployed on their IVR platform. VoiceXML-based ADEs offer some platform flexibility as they can be deployed on any certified VoiceXML gateway connected to a J2EE compliant web

server. Lastly, some ADEs are designed for server-based solutions that utilize standard voice cards or HMP for telephony resources.

When considering your deployment options, look for a solution that provides the reliability and scalability you need. Check for advanced administrative tools that simplify both for day-to-day management and deployment of upgrades and code changes.

10. Pricing: Evaluating the relative costs of different ADEs is a rather complex issue. Naturally, there are licensing fees for the development software itself, but deployment plays a big part in the equation. Third party products not supplied by an IVR platform vendor will charge a per port runtime license fee. While that can be relatively straightforward in a server/board/HMP deployment model, it can get very expensive in the VoiceXML world. As with IVR platforms, there is a huge difference in the per port pricing for VoiceXML platforms. Additionally, some platforms have hidden costs in the form of telephony server charges and per port surcharges for speech and advanced functionality. These additional fees can add up quickly, especially for large-scale deployments. Evaluate deployment decisions on a price/performance basis to find the best scenario for your project.

With all the choices available, you can find a suitable ADE for your current and future needs. For example, custom designed solutions for known, controllable environments have different requirements than packaged applications that must fit into a wide range of unknown customer environments. Developers also need to determine how much work they want to be able to do within that application development environment — do they want to be able to design a complete solution or do they simply need to add some voice capabilities to an existing program. Service providers and VARs need to be more strategic in their decision making. Standardizing on a single ADE that offers a wide array of technologies, functions and communication protocols can generate tremendous efficiencies that translate into time-to-market and profitability advantages. IT

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Selecting the Right Tool for the Job can Pay Off in the End

When designing their VoiceOne Enhanced 911 service, VoIP Inc. wanted to offer an IVR self-service solution that would directly empower subscribers to continuously verify and update their location information — even while traveling. Their development team used Envox CT ADE to reduce a projected six to nine month development cycle to just three weeks.

"Developing with Envox CT ADE reduced our service creation time by more than 80%, which is vital in the highly competitive, evolving VoIP service market, where time-to-market is a critical success factor," said Shawn Lewis, CTO of VoIP, Inc. "Further, Envox CT ADE allows us to rapidly create new service prototypes to test customer acceptance, without overburdening our development resources, ensuring that we have the flexibility necessary to meet changing customer demands."

Dr. Alan Greenspan

Carrier Roundtable: Sanjiv Ahuja, CEO – Orange Group • Len Lauer, COO – Sprint Nextel Corporation • Stan Sigman, CEO – Cingular

Earvin "Magic" Johnson

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Location-Based Services

With the rise of mobile technology, it will only be a matter of time before various advanced Location-Based Services (LBSs) appear, mostly offered by mobile carriers to both provide one or more services and as an ingenious way of sending customized advertising to cell hone owners. The original applications in this area involved such weighty topics as finding your location for E911 purposes, but soon your search for the closest pizza parlor will be fulfilled and updated by your cell phone on a minute-by-minute basis.

This feat is made possible by two different technologies: First, the recent ability to shrink GPS functionality into a chip and embed it into a cell phone, which informs the carrier/service provider as to the phone's location. Second, non-GPS chip phones can be part of a system where special assistance servers can tap into radiolocation and trilateration methodologies (triangulation of signal angles or signal-strength measurements). The ability to deploy such services appeared in the 1990s. The services themselves haven't really taken off yet, but interest is growing. (The governments of the world are probably also interested, since they could conceivably track every subscriber's location and history of movement.)

In the days before handsets could participate in location-based services, the technology was still small enough to fit in automobiles. Thus began the hubbub over "telematics".

Indeed, the Heavy Reading Enterprise Group has just published a report, "Enterprise Telematics: Covering Your Assets" which analyzes the current state of telematics. Tim Kridel, a research analyst for *Unstrung Enterprise Insider* who wrote the report, says: "Telematics is a long-term commitment. Consumers tend to replace their cellphones every 18 to 24 months on average, while the turnover rate at enterprises is somewhat longer. Telematics modules, however, routinely stay in service for several years or longer. A module installed in a truck, for instance, might be in service for a decade or more. As a result, decisions such as vendor and network technology shouldn't be made lightly, because they determine the total cost of ownership and the ability to add applications over many years."

Key findings of the report include the following:

- Telematics is still primarily an aftermarket sector, but that's slowly changing.
- CDMA2000 telematics radio modules are pricier than GSM/GPRS units.
- Multi-technology telematics solutions are likely to become common by the end of this decade.
- The shutdown of analog cellular networks over the next two years is an issue for telematics applications that are used in remote areas of North America.
- Interoperability issues frequently limit telematics applications and the business case for them.

Most of us will probably encounter more location-based services tied to cell phones. Indeed, the concept can be scaled down for use in the enterprise, or industry, or healthcare.

Cisco's (quote - news - alert) Marketing Director of Wireless and Mobility, Ben Gibson, says, "Location-based services is a very important area that has a very distinct focus for our wireless network and business unit. Our vision for location-based services involves leveraging our WiFi architecture. We focus on location-based services that employ 802.11 WiFi (define - news - alert) technology. Our offering in the space is our Cisco unified wireless network. This is a combination of wireless LAN controllers with a location-based services appliance that then works in concert with a whole range of different WiFi access points that can be deployed in customer sites — primary indoors today, but increasingly we see moving to outdoor WiFi solutions as well."

"Our strategy is to develop location-based solutions integrated into the wireless network infrastructure," says Gibson. "That's the product platform we deliver, and then we take that integrated location-based capability that's part of the WiFi infrastructure and we build programming interfaces into 3rd party business applications that allow a customer to take advantage of the loca-

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By Richard "Zippy" Grigonis

tion information that's generated by the network, and then use that to satisfy a host of different needs."

"You may well ask what these different needs and business applications are," says Gibson. "We see our customer base split into two areas of interest: the first is the ability to track assets within an organization to improve organization insight in terms of what's going on with their assets across the business. That involves how you can utilize a WiFi network to track different IT assets. In a hospital it could be medical devices. In a retail or manufacturing floor it would relate to supply chain management, to be able to track inventories and the like. So we have many customers that use our integrated location system with their WiFi network to do just this."

Gibson beams: "A great example is Boeing, which has the constant need to be able to track aircraft parts on their manufacturing floors, whether it be a small engine piece or an entire wing. Boeing utilizes our location-based services with their WiFi network to be able to track all of these devices to know where they are and keep them catalogued."

"With the WiFi network the primary application is data mobility, real-time access ability," says Gibson. "Let's say you're on a laptop or you have a new voice device that talks over WiFi. There are many benefits to purely using that wireless network for mobility. But that same network can also be used to track various assets and devices, and that's when you get to build some really interesting business cases around location, which makes it a multipurpose network."

"Asset tracking can utilize active RFID tags," says Gibson, "and any WiFi-enabled device can be tracked with our location-based technology. That's one part of the puzzle. The other area that we look at is, how do we use location to provide more efficient methods of communication? I mean, let's say the network has knowledge of where I am on the Cisco campus. That information can be used and fed into say, a unified messaging application. And that messaging app can then determine 'Okay, I know that Ben is not in his office. He's over in the Customer Briefing Center. Therefore, the best way to reach him is by, say, cellular phone or instant messaging or gee, Ben has just returned to his office'."

"What we're also doing at Cisco is looking at how we can marry up location-based information and then tie that to different communications or messaging applications, to deliver the notion of presence-based applications," says Gibson.

Gibson drills down: "So, I'd categorize the two areas of focus for us as answering the following questions: How do we track people for the purpose of communication? And then how do we track devices in terms of streamlining business operations?"

"There's the potential of using this in a telematics environment," says Gibson, "of using it in automobiles in concentrated zones, if you will, where WiFi mesh networks are deployed. But the question arises as to how broadly mesh WiFi networks can be scaled up to do that over a much wider area than you would normally encounter. That would require a huge number of outdoor mesh access points to enable such an application. There are some possibilities for such an application, but I think when it first appears it will be confined to various 'zones' within cities or certain areas. It's feasible from a cost perspective to deploy a WiFi mesh in a zone where you have a high density of usage and/or a high development area."

"When you talk about broadband wireless technologies that can be used as a platform to deliver location-based services," says Gibson, "a critical notion is that you have to look at what's embedded in the client device itself. Today, one thing that WiFi enjoys is strong client ubiquity. It's not just laptop computers. Day by day, you're seeing new and different types of devices that are getting WiFi integrated into them. You need to have that unless you're attaching an RFID tag to that device to be able to track all of these things. From that standpoint, there's going to be a very clear play for WiFi-based location services for the foreseeable future."

"Could all of this be done with some newer longer range technology such as WiMAX 2?" asks Gibson. "Certainly that's a possibility. We're still a few years away from that, however. While the Mobile WiMAX standard is still maturing to standards ratification, the next step is that you need to see ubiquity in terms of WiMAX integrated down into dual mode phone devices or laptop computers. To get to that point you must ride the cost curve down to where it makes sense economically, and that's yet to happen."

In short, "location-based services" is one of those tantalizing futuristic concepts that takes a while to get going, but once it does, expect a flood of applications and users. IT

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

Fixed Mobile Entertainment:

The Evolution to Mobile IPTV

IPTV is rapidly gaining exposure as the most important application for breathing new life and revenues into fixed-line broadband networks. At the same time, mobile users are rapidly expanding beyond the basic services enabled by cell phones — voice, text messaging and voice mail — to digital media of all sorts, including video. Thus it seems only natural that as IPTV technology matures, IPTV services will be deployed over wireless broadband networks for viewing on mobile devices. But how will the evolution of IPTV from fixed to mobile networks occur? The answer, in a nutshell, is the next generation network (NGN) with a softswitch at its core.

Wireless is the fastest-growing communications technology and is evolving as people look for better ways to communicate. The NGN, which originally replaced Class 5 switches to provide call control for local and long-distance calls in the fixed-line infrastructure — and which also provides a basis for IP services — has now become part of the wireless infrastructure as well. With an NGN in place, operators can start thinking about the next step in services, and IPTV in the home looks interesting. But why stop there? Why not drive IPTV to the handset? That will require fixed mobile convergence (FMC), providing the best coverage wherever the subscriber is located, including spotty indoor locations.

This combination of FMC, wireless, and IPTV bundled together with the NGN at the network core will enable the evolution of a new concept called Fixed Mobile Entertainment (FME) — communications and multimedia access anywhere. The NGN is the hub, providing a common infrastructure for both wireless and fixed-wire infrastructures and both local and long-distance services. Once in place, the NGN also sets the foundation for IPTV, since it not only provides telecontrol but also enables the required back office functions such as billing support, office administration, and customer support — plus all the things that allow subscribers to interact with IPTV programming.

Getting IPTV to Subscribers

The NGN may provide a foundation for IPTV, but the question then becomes how to get IPTV out to wireless subscribers and provide them with the best coverage. Again the NGN is the solution; because it is a softswitch, it can communicate with IP users. These users may be on different networks, GSM or CDMA for example, but that poses no problem because carriers can use the NGN to peer into a wide variety of existing legacy networks — and now they can communicate IPTV or any other IP service anywhere. Tier 1 service providers can use the NGN to compete with cable companies, reduce churn, increase revenues, and pick up new subscribers by offering the triple play of phone service, high-speed Internet service, and IPTV to wireline customers.

The next step is to deliver rich IPTV, just like that available in the home, to wireless-enabled devices and handsets, which requires convergence. Ideally, a subscriber should be able to access IPTV and other applications and services at any time, from any place, regardless of whether the connection is wireless, broadband, wireline, or IP. And the IPTV service should be so simple that when you are watching your favorite TV show at home, the media should be able to follow you. If you have to leave the house, you should be able to transition the show from your home network to your handset (which is served by a GSM network) so you can watch it on the train to work. And you can still check your voice mail or email from the same device.

Access: Hard Decision or Easy Choice?

This all sounds great, but from the operator's perspective, implementing such a service does not appear to be straightforward. Multiple methods have

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By Brian Caskey

been proposed for delivering IPTV to mobile devices, including the ETSI Digital Video Broadcasting-Handheld (DVB-H) standard, MediaFLO technology, TD-CDMA, WCDMA, and WiMAX. Operators must weigh these choices against such factors as time-to-market considerations, equity in their existing network infrastructure, and cost of deployment before they make any decision.

Again, NGN comes to the rescue. NGN is access agnostic; UTStarcom's mSwitch® softswitch, for example, can provide a mix and match of voice, broadband, and video and can support any type of encoding technology. The NGN should be able to regard anything as simply payload going across the network. It is actually more important for operators to focus on the fact that they need a platform that will allow them to use any access method. Moving a favorite TV show from your WiFi network at home to a GSM-CDMA wireless network outdoors to another CDMA or WiFi network at the office requires a solution that crosses access transport boundaries seamlessly.

That requires NGN plus IP *plus* an FMC solution that enables transparent interconnection to both fixed-line and cellular networks and that eliminates the need for a major overhaul of existing infrastructure. But moving to FMC can be a tough decision for an operator that has already made an investment in NGN and offers some IP service, and has also invested in a GSM or CDMA network. No operator wants to pull the plug on its existing networks to invest in an entirely new infrastructure. This problem is solved with an NGN/FMC platform that can provide peering between an operator's disparate networks, enabling customers to transition seamlessly from one to another. And with an NGN/FMC platform, operators can enable IP call control across any platform. Now they have a foundation for delivering IPTV over any network, whether broadband, wireless, and even to the handset. An NGN/FMC platform also eliminates time-to-market considerations for a variety of services, because no matter what the operator offers, the platform can start to make FMC happen right away. In total, these steps define the transition to FME, at which point operators have a framework that allows them to do almost anything they want to.

But Can Operators Afford FME?

Some telephone companies are concerned that they will not be able to afford the capital expenditure associated with FME. However, operators with fixed and mobile networks will need to make the investment in peering in any case. In addition, once they have an NGN/FMC platform, they can immediately start generating revenue on the services they offer across the network. With an NGN core, operators can bundle traditional local and long distance services, wireless service, IPTV, and mobile entertainment and deliver them over a unified infrastructure. Operators no longer have one network over which they provide service; they have one network over which they provide multiple services — and the ROI of such a model is powerful. Depending on the subscriber base and the services invoked, achieving ROI can drop from the traditional 12-18 months to as little as three to six months.

Take the subscriber who receives a high-speed broadband data service for $30. Now the operator can overlay an IPTV service for $35 a month, and then overlay voice services, IP messaging, and other revenue-generating services. And that is just over broadband access. From there, operators can extend media services to all their other subscribers — wireless, local, and long distance. Suddenly the $35 a month customer is generating revenues of $150 a month — and the rich array of bundled, layered services will not only increase revenues but also help reduce churn. Seen from this perspective, FME is indeed affordable.

Stepping Up to Streaming Media

FMC also offers another bonus — it is the first step to true streaming media, which is essential to offering a full array of FME services. Today, video is streamed to and stored in a set-top box (STB) in the home, and users manipulate it by controlling the STB's hard drive. But users want more than that; they want on-demand broadcast and time-shift TV. Streaming-media-on-demand allows the consumer to engage with the media itself, to say "I want to watch this video, this TV broadcast, right now" — and do it. Streaming media also lets consumers manipulate live TV; they can pause, stop, fast forward, even stop for 24 hours and come back to the exact point where they left off.

Streaming media eliminates the need for the STB; instead, media can be sent

anywhere — to an Internet TV or a PC that has the right client software, or to a wireless device like the iPod or handset. Consumers have total control over what they want to see, when they want to see it, and the device they want to see it on. With FMC providing the connectivity, a subscriber watching a hockey game at home on a TV can seamlessly transition to a wireless device when he leaves home. Just key in a sequence of numbers and you have forced a change of IP address from the TV to the handset. With streaming media, we've arrived at the *ne plus ultra* of FME — mobile IPTV.

While mobile TV is not yet here, complete end-to-end IPTV systems are available now. For example, UTStarcom's RollingStream™, an end-to-end platform for fully interactive broadband TV and VOD, encompasses everything from an STB, to a media station streaming and storage server for CO deployment, a content engine that encodes and trans-codes live or stored media, authentication and DRM servers, an OSS, and a network management system. Such end-to-end IPTV solutions are very attractive to operators because developing an IPTV system is complex and difficult.

Operators need to think in terms of providing excellent service to hundreds of thousands or even millions of consumers. A UTStarcom customer in China has an IPTV platform that is serving about 200,000 customers now and has the capacity to support up to 500,000 users. The service, whether fixed or mobile, should provide a better, less expensive experience than the consumer has today. And operators need a solution that is highly scalable, offers simple and seamless growth, that lets them drive service to both fixed broadband and wireless customers, and does not require that they replace their infrastructure.

IP Everything

IP is behind the entire network evolution just described. All the individual elements of the evolution drive in one direction — the convergence of IP in all things, IPTV, broadband TV, IP mobile, streaming media, with much, much more to come. IT

Brian Caskey is the Vice President of Worldwide Marketing at UTStarcom, Inc. (news - alert) For more information, visit the company online at http://www.utstarcom.com.

Converged PC Softphones Provide Critical First Step toward Fixed Mobile Convergence

Fixed mobile convergence is a term that conjures up many definitions. Whether a mobile, integrated or cable service provider, each type of carrier usually defines FMC according to its own natural biases. For example, Mobile carriers hold a handset-centric view of FMC and usually speak in terms of dual-mode handsets. However, a large opportunity exists for linking PC-based Internet softphones to mobile services.

Increasingly, the PC is becoming a popular device for communications, regardless of whether it is email, messaging, voice, or video. Consumers and business users are finding its power, flexibility, form factor and access to increasingly ubiquitous broadband Internet provides a valuable addition to their choice of communication devices.

And for service providers looking to gain a foothold in fixed-mobile convergence, PC softphones provide a time to market and usability advantage relative to dual-mode handsets

What is a PC-based Softphone?

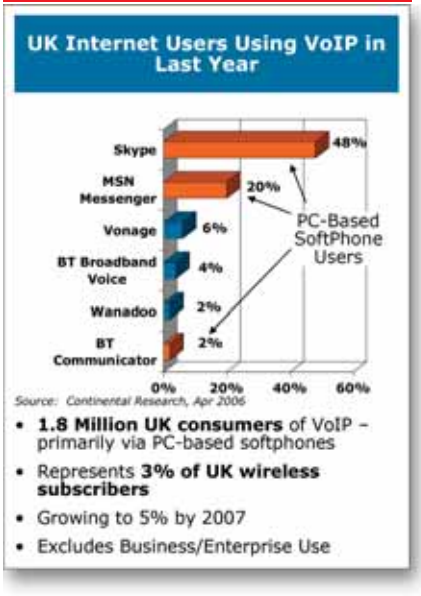
Most consumers have started to explore PC Softphones through their instant messaging communicators. These IM clients provide free calls between IM clients and cheap outbound VoIP calls to public telephony networks around the world. In addition, for a fee, inbound calls, voicemail, and outbound SMS are available.

How Large is the Market?

The growth of PC-based communications with soft phones has been explosive in the past few years.

According to Continental Research, a large percentage of UK Internet users have used VoIP via PC-based software in the last year (See Figure 1). The most popular of these is Skype. This study indicates that 1.8 million UK subscribers, or 3% of the entire UK mobile subscribers have used PC-based softphones. In addition, this trend will continue to grow to 5% in 2007.

Figure 1.



In the United States, according to In-Stat, roughly 50% of all households who have used VoIP have used PC softphones, as opposed to the facilities-based VoIP like Vonage. This equates to roughly 5% of households experimenting with PC softphones. Skype is the most popular of these used for Voice telephony.

Skype Shortcomings

Today, Skype and its current softphone competitors have excellent instant messaging capabilities, but they have several shortcomings relative to telephony and mobile services. For example, Skype:

- Requires yet another phone number for incoming calls
- Connects to the PSTN on only a best effort basis, frequently resulting in poor quality calls
- Works via non-standards based technology, therefore difficult to integrate with other networks
- Provides limited integration with mobile networks, resulting in expensive, uni-directional SMS

Mobile's Converged Softphone Opportunity

While Skype is currently a limited threat to mobile minutes, it does signify a preference by a growing segment of the market to use the PC as a commu-

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By Mike Mulica

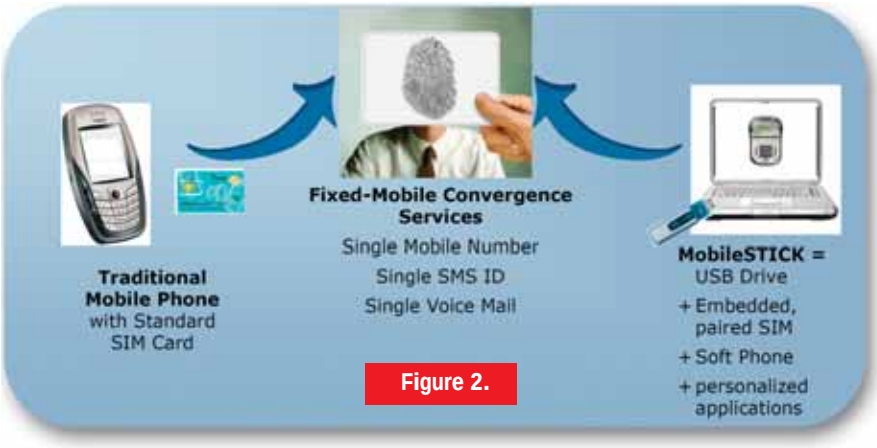

Figure 2.

nications device. Mobile providers have an opportunity to address this market, and do so in a differentiated and profitable way (See Figure 2).

With a converged softphone, mobile carriers can build on their existing mobile subscriber base and lead the charge into fixed-mobile converged services. Converged softphones do not face the same production hurdles as dual-mode handsets. Therefore, they can act as an early-market product that will prove the business case for a larger, later dual-mode handset solution.

Relative to Skype, a converged softphone would hold many advantages. It can:

- Extend the *existing* mobile number into the internet, thereby simplifying subscribers' communications and enhancing reachability via a single number identity
- Provide an easy-to-use, converged messaging platform that is consistent across SMS and IM
- Stimulate MMS usage by combining access to content stored on the PC with drag-and-drop simplicity
- Build on existing billing and customer service relationships
- Establish a secure platform for a multitude of compelling future convergent applications

One Approach: MobileSTICK

BridgePort Networks, a winner of the World Economic Forum's Technology Pioneers award, has a mobile-centric converged softphone solution called MobileSTICK. It address three elements that are key to a commercially viable converged softphone:

- A secure end-user softphone client,
- The convergence of Internet with circuit-switched mobile networks, and
- Integration and extension of existing and new mobile services.

A logical way to address security and network authentication issues is to use existing SIM card technology. For example, BridgePort Networks offers a SIP based client that automatically launches from a portable USB Key. The USB Key has a SIM card that authenticates back to the mobile network.

To carry authentication messages, other signaling, and bearer traffic over the Internet and interwork with the mobile network, a convergence gateway is required.

BridgePort Networks' NomadicONE Convergence Gateway performs this function, acting as a both a SIP registrar and a Serving Mobile Switching Center (S-MSC).

Finally, the convergence gateway must extend a subscriber's exiting mobile number and service seamlessly across mobile networks and the Internet. BridgePort Networks achieves this single number identity via interactions with the mobile networks' Home Location Register (HLR)

All of these capabilities come together in the MobileSTICK solution. The solution is designed to provide convergence mobile services across PC and handset, without requiring a second phone number or change to the existing handset.

Strategic Direction

For integrated carriers, a converged softphone is a natural addition to their bundling strategy. It provides a low-cost method to tie Mobile, DSL and VoIP together. It also establishes a platform for integrating emerging IP services (video, audio) that benefit from network authentication, quality of service, and digital right management.

Susbcribers recognize the growing relevance of this product category. Some projections point to over 50 million converged softphones by the end of 2008 worldwide. However, it is too soon to tell whether Mobile and Integrated carriers will seize this opportunity or cede the opportunity to disruptive players like Skype who are likely to start encroaching on Mobile markets. IT

[Softphones] act as an early-market product that will provide the business case for a larger, later dual-mode handset solution.

Mike Mulica is the President and CEO of BridgePort Networks (news - alert) (http://www.bridgeport-networks.com), a leader in mobile to Voice-over-IP roaming. With more than 20 years in the telecommunications industry, Mulica has built a reputation for opening global markets for innovative software solutions.

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By Greg Galitzine

Presenting The ITEXPO East 2007 Best of Show

What a show! Internet Telephony Conference & EXPO EAST, which took place in Ft. Lauderdale, FL, was by all accounts a successful show. The exhibit hall had a buzz about it, the likes of which I had not seen in quite some time, and the exhibitors who I spoke to were thrilled to be a part of it.

I spoke with Greg Lohrenz, CEO of AITech, (news - alert) a provider of Hosted PBX services, SIP trunking, and PRI replacement, and he was very pleased with the results of the show. "It's been a great show for us. We've been in business for 14 years, and in that time, this is probably the best show that we have attended."

There were many exhibitors who had similar comments as well, which as you can imagine is very gratifying for the team that organizes the events. Among the details of organizing the event, one of the items that falls under my purview is the selection of Best of Show winners. In the past this has been a wide open affair, with any number of companies qualifying for the honor, but never before have we categorized the winners.

This year we decided to try something new. The editorial team, which is made up of myself, Executive Editor Richard "Zippy" Grigonis, Associate Editor Erik Linask, Executive Technology Editor Tom Keating, and with significant contributions from our President and Editor-in-Chief Rich Tehrani, agreed to come up with a series of categories to aid in determining this year's Best of Show for ITEXPO East.

The editorial staff visited with the exhibiting companies, listened to what booth representatives had to say, and participated in demos, and took away with them the information that was later disseminated into the winners' list you have before you now.

The Best of Show awards are presented to companies that showcased impressive products and solutions on the ITEXPO show floor. And in a nod to the fact that there were so many impressive companies at the event, we've decided to make the winners two-deep in each category.

The Best of Show awards are presented to companies that showcased impressive products and solutions on the ITEXPO show floor.

Thanks again to everyone who came together in Ft. Lauderdale to make this ITEXPO one of the best events in our history. I look forward to seeing you at the next event! IT

Best of Show Award Winners
Internet Telephony Conference & EXPO East 2007

Best Service Provider Solution
GlobalTouch Telecom
Sansay

Best Large Enterprise Solution
Interactive Intelligence
Citrix Systems, Inc.

Best SMB Solution
ActionTec Electronics, Inc.
Dirigo Telecommunications

Best Consumer Offering
Packet 8
InterEdge Technologies

Best Development Tool
Aculab
Touchstone

Most Innovative Product
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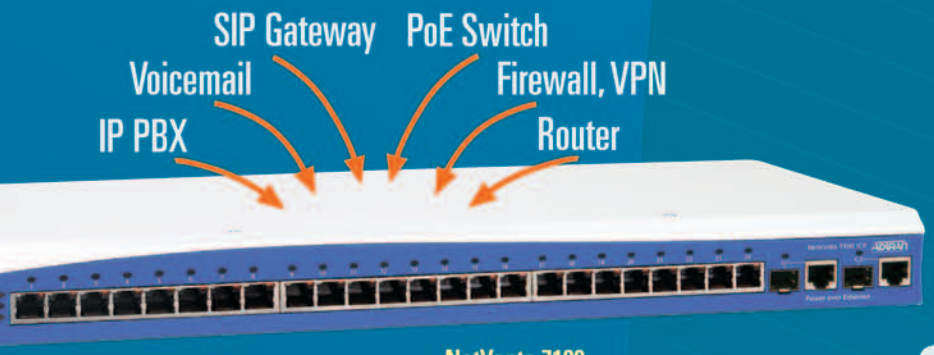

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NetVanta 7100
Integrated IP PBX, Voicemail, Auto Attendant, Router, 24-port PoE Switch, VPN, Firewall

ADTRAN offers a broad range of IP phones to meet your business communication needs

NetVanta® 7100 — Everything a small office needs for voice, data and Internet

New!

NetVanta 7100:
A phone system and data network, *all in a single device*

The ADTRAN NetVanta® 7100 is the newest addition to our field-proven suite of NetVanta switches, routers and VPN/Firewall solutions. This new IP PBX with integrated switch-router—an Office in a Box—provides a complete solution for growing small and medium businesses. Your office communications can be up and running quickly and smoothly with this converged IP platform.

Imagine a comprehensive telephony and data networking solution that consolidates voice, data, Internet and security—all in a single device.

High costs for communications are now a thing of the past. With ADTRAN, you can easily lower your total cost of ownership. Every NetVanta includes ADTRAN's ***100% satisfaction guarantee***, backed by ***industry-leading technical support*** (before and after the sale), ***free firmware upgrades***, and a full ***5-year warranty***.

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