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# INTERNET TELEPHONY®

VOLUME 10/NUMBER 4 APRIL 2007

The IP Communications Authority Since 1998™

Enter the World of  
Service  
Oriented  
Architecture



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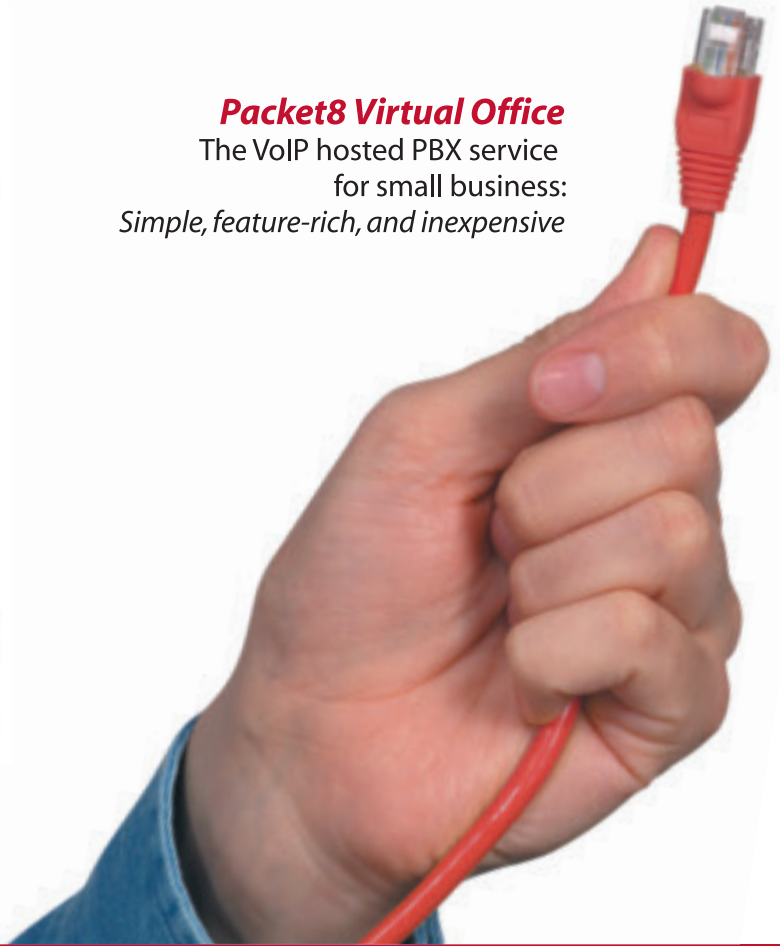
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# Which PBX is Right for Your Small Business?



**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](http://www.Packet8.net)*



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# This Call's For You

Packet8's Virtual Office Business VoIP Service Makes Expensive PBX Phone Systems Obsolete



**W**ith 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.

**The message from Packet8 is clear: Replace your expensive, complex premise-based PBX phone equipment with the Packet8 Virtual Office VoIP-Hosted Business Phone System.**

## **MULTIPLE LOCATIONS? NO PROBLEM...**

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.

## **NO RECEPTIONIST? NO PROBLEM...**

Another important advantage of Virtual Office is that it can eliminate the need for a receptionist (and the cost of a full time employee). Maintain a professional image for your company through the included Auto-Attendant which can route incoming calls to the appropriate department or person. Features include dial by name, extension or groups of people within a company phone directory.

## **VIPS NEED SPECIAL TREATMENT? NO PROBLEM...**

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## **THE SMART OPTION: PACKET8 VIRTUAL OFFICE**

Since the Packet8 Virtual Office VoIP-hosted PBX Business Service is delivered over the Internet, geographically dispersed employees can be united under a single phone system, giving small companies the telecommunication tools they need to compete on a large scale. Simple set-up, advanced calling features, ease of use and a low subscription price make Virtual Office an outstanding value for any business.

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](http://www.Packet8.net/about/virtual_office.asp)**

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By Richard "Zippy" Grigonis

## Up, Up, and Away!

Yours Truly was perusing some market statistics the other day, and came across PriMetrica's recent U.S. VoIP ([define](#) - [news](#) - [alert](#)) 2006 Quarterly Update, based on TeleGeography research figures. What is says is quite fascinating:

"The books have closed on 2006, and consumer VoIP service providers generated over \$2.7 billion in revenues over the course of the year. Subscriber growth was high throughout the year, and continued to grow rapidly in the fourth quarter of 2006, although growth rates have been leveling off. Quarterly subscriber growth slowed from 26 percent in the fourth quarter of 2005 to 16 percent in the fourth quarter of 2006. This slowing rate reflects the increasing size of the VoIP subscriber base. VoIP service providers gained 1.28 million new subscribers, comparable to subscriber gains in the third quarter, and finished the quarter with 9.5 million subscribers, a 112 percent increase from the fourth quarter of 2005." (For a graphical representation of what's happening, look at the figure accompanying this editorial.)

Certainly the revenue figures seen in the illustration indicate a classic growth curve for a highly successful technology. Doubtless the recent perturbations of the world's equity markets will have little effect on this growth — indeed, if anything, corporate efforts to both save money and bolster productivity should serve as an accelerating factor for the adoption of not just VoIP but IP Communications in general. We'll be waiting anxiously to see what the figures are for the first quarters of 2007. . .



### New Column!

Yes Gentle Readers (strange how the Victorians thought that all readers were gentle), we are adding yet another new column to our stable of luminaries. "Tech Score" is written by Jeff Hudgins, the VP of Engineering for Alliance Systems ([news - alert](#)) (<http://www.alliancesystems.com>). In his column's debut in this issue, Hudgins looks at what's happening with the AdvancedTCA (ATCA) computing form factor for heavy-duty telecom applications, and attempts to fathom "who is winning the game". IT

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

### CORRECTION

In our March issue we incorrectly identified **Bernie Stevens, President/CEO of PowerNet Global Communications**, as a Marketing Coordinator. Our apologies for the error. Indeed, in 2004 Mr. Stevens received a Deal Maker/Entrepreneur of the Year Award from the Association for Corporate Growth (ACG).



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A man with dark hair, wearing a white dress shirt and a grey tie, is sitting on a large, stylized globe of the Earth. He is smiling and looking towards the camera. The globe is blue and white, showing continents and oceans. The background is a light yellow with a subtle pattern of concentric circles.

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products designed  
exclusively for  
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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.

### Interactive Voice for Web sites and Browser-based Applications

More and more broadband users are leveraging their PCs and the Internet to make free or low cost telephone calls. Skype's free telephony client has been downloaded by hundreds of millions of consumers around the world. Popular instant messaging utilities such as AOL Instant Messenger, Yahoo! Messenger and Microsoft Windows Live Messenger all offer PC calling. <http://www.tmcnet.com/540.1>

### New Messaging Demands Require Better Intelligence

Last year, mobile operators pulled in \$70 billion in text messaging revenues worldwide. And operators are continuing to increase their reliance on data services such as SMS, MMS, and mobile IM to drive revenues. Data services, now representing nearly 20 percent of revenues, have tremendous growth and profitability potential. <http://www.tmcnet.com/541.1>

### Managing Applications on a Large Branch Network: Pipe Dream or Reality?

While managing WAN application traffic flow in organizations with a limited number of offices is challenging enough, businesses such as banking, insurance, travel, and others may have hundreds or thousands of offices that must share and manage information over the network. <http://www.tmcnet.com/542.1>

### Good Call Fielding Can Improve Odds of Executing Triple Play

Cable operators bring magic into subscribers' homes. They put crystalline images on the TV, blazing speed in the browser and pin-drop sound on the phone. But cable operators routinely miss the mark when they take an inbound call from a possible subscriber. <http://www.tmcnet.com/543.1>

### The Total Value of a Home-Based Outsourcing Partnership

As a corporate executive or decision-maker within an organization, assessing the home-based contact center model and determining the potential value and financial impact it can deliver to your company can be a challenge. <http://www.tmcnet.com/544.1>

### 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.

### Metrics That Matter, Proactively Boost Performance and Improve the Customer Experience

Now more than ever, contact center managers need to be more proactive in helping their organizations accomplish strategic and tactical goals. The stakes are much higher today. The choice of service provider often comes down to quality of service — and that's where the customer service representatives — the front line troops — can make a big difference. <http://www.tmcnet.com/538.1>

### VoIP that Works!

This white paper is intended to be a tutorial on several topics as they relate to deploying and maintaining digital phones on a VoIP network. In particular, this document aims to arm administrators, installers, and network planners with information to help them take advantage of the new technologies associated with moving voice traffic over data networks, both on a LAN and across several sites via a WAN. <http://www.tmcnet.com/539.1>

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### TMCnet's Open Source PBX Global Online Community

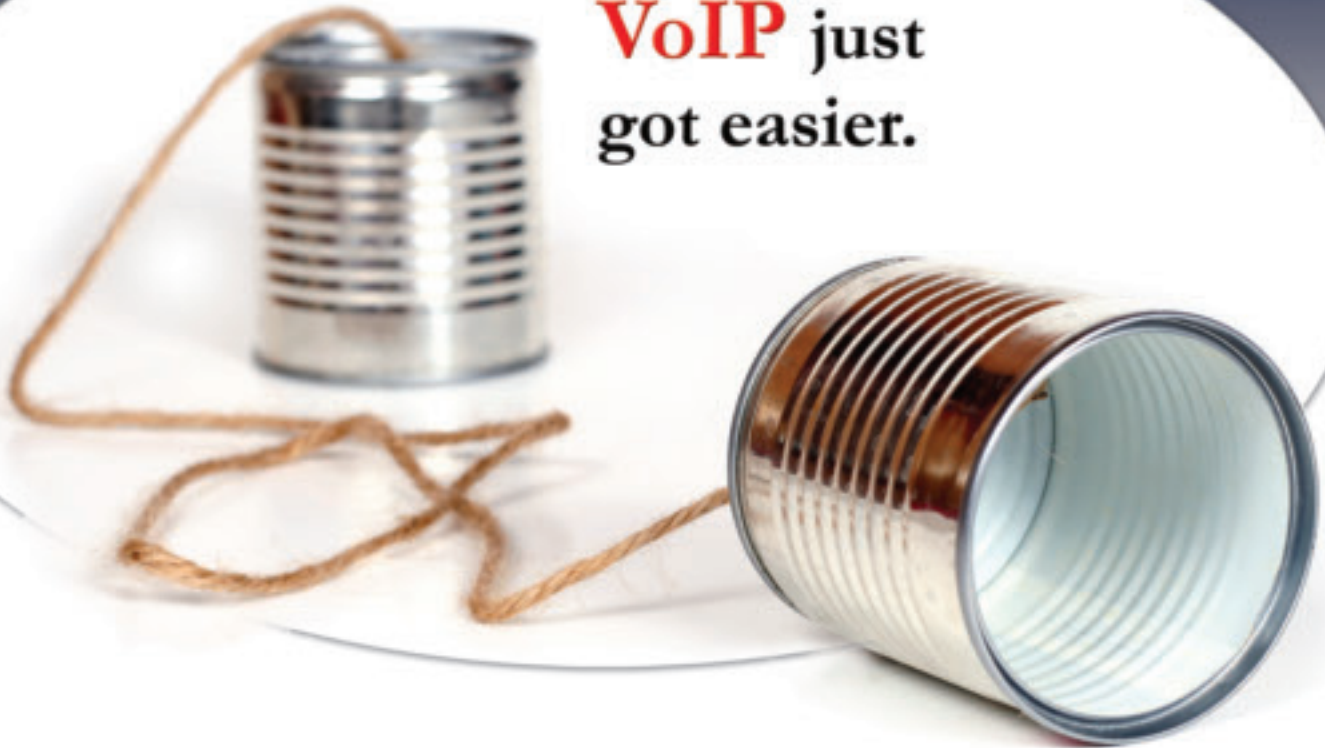
This community is designed to serve as a hub for this fast-growing area of communications technology. Visit often for the latest information concerning Open Source and how it applies to enterprise communications. Feature stories, updated news, whitepapers, case studies, tutorials, and an "Ask the Expert" feature will come together to serve as the core of the Open Source PBX community. <http://www.opensourcepbx.tmcnet.com> Sponsored by Sangoma.

### TMCnet's Internet Fax Channel

Contrary to what some might have predicted, faxing is not going away anytime soon. So, it needs to be embraced and integrated into IP-based communications. For the latest news and information on Internet faxing, be sure to visit TMCnet's Internet Fax Channel at <http://www.tmcnet.com/channels/internet-fax>. Sponsored by RingCentral.



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10. Modular Solution "As much as you want and as little as you need"





By Rich Tehrani

## Explosive Small Business Communications Growth

You would have to be asleep to not realize how fast small business communications is growing. The reason? Small businesses didn't have so many telecom choices a scant ten years ago. There was pretty much key systems and then some inexpensive PBXs came along thanks to AltiGen and other, similar players.

What is different now? VoIP. Vonage ([quote - news - alert](#)) has done the marketing to educate small businesses about the power of IP communications and the small business owners are getting it. Do they all understand the massive potential afforded by the latest in Internet protocol communications? Of course not, but they know there are more choices, ranging from open source to hosted systems to IP PBXs. It is astounding in fact how many choices there are for a small business these days.

According to AMI-Partners, the growth in this space is expected to hover at 11% between 2005 and 2007. The research firm estimates that, at the end of this year, the total size of the SMB communications space shall be \$6.7 billion. The IP PBX business is slated to grow at a — hold on to your hat and have a seat — *33% for the next five years*.

One item cited in the study that I have mentioned before (<http://blog.tmcnet.com/blog/rich-tehrani/ip-communications/the-real-unified-communications-relationship-between-microsoft-and-nor.html>) is Microsoft's involvement in the market via their unified communications initiative. AMI feels Microsoft will act like lighter fuel on a burning fire. I believe prices per seat will increase as businesses start to purchase communications applications along with their phone systems.

My belief is that the larger companies will also be spending much more on communications systems as a result of all the excitement occurring in the small end of the market.

Indeed, many large companies tend to have so many branches that they act like a conglomerate of SMBs. So, expect the final numbers to be potentially higher than this study predicts. Of course this assumes no new massive geopolitical events of the negative type.

Naturally, if the unified communications market is really going to grow to its full potential there needs to be an objective educational resource supporting the market. I truly believe the value of communications to an organization is greater than almost every corporation realizes.

I have heard many people on the Internet say there is no "killer application" in the voice world and I believe some of

these people have it wrong. Voice and IP communications together is the killer application. This is especially true as IP communications embeds itself into your organization through SOA and other breakthrough technologies allowing all corporate applications to leverage the full potential of communications.

Pressing a single button and instantaneously being connected via a video conference and screen sharing to coworkers and customers around the world regardless of network or device type is a killer application. Anything yielding orders of magnitude productivity increases is a killer application.

Embedding presence throughout our applications and collective corporate psyche is a killer application. Having smart phones that are really smart and know what do to with phone calls depending on time of day, who is calling and what you are doing, is a killer application.

More importantly, what I am describing above is the growth of telephony from something commoditized to something truly invaluable.

Think about it this way: PCs and MP3 players are commoditized. iMacs and iPods are not. Do you know why? Because I will pay more for Apple products and part of the reason is the devices are simpler to use and have the integration the PC still lacks after all these years.

Consumers and businesses are paying more, much more for products where there is added value — products where the software and hardware is unified and thus allows us to be more productive. Apple in a way portends the future of unified communications. UC will be something companies pay more for because they get more in return.

### And Now It Can Be Revealed. . .

But getting back to the original premise — where will people learn about UC technologies and the amazing things they can do for the enterprise?

Don't fret, we at TMC have the answer. After taking careful observations of the market and spending considerable time deliberating over the way the IP communications world is

**TMC has decided to transform SIP Magazine into Unified Communications Magazine. SIP will end in May and Unified Communications will commence with the July issue.**

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evolving, TMC has decided to transform *SIP Magazine* into *Unified Communications Magazine*. *SIP* will end in May and *Unified Communications* will commence with the July issue.

The response to this news has been very positive thus far and although the market is still in its early stages we believe there is a great deal to teach and help both the enterprise and service providers as they venture forth into the world of Unified Communications. That said, TMC, with its stable of four communications magazines, websites and events, is the perfect organization to help lead the charge into the brave new world of UC, just as it had done previously with Internet Telephony and, prior to that, CTI (Computer Telephony Integration).

So what was wrong with *SIP Magazine* you ask? Nothing really — the technology is still sound. Indeed, the SIP protocol has disappeared into the very machinery itself of IP communications, busily working behind the scenes of countless VoIP and multimedia calls today. You will even find a prominently displayed section in *Unified Communications Magazine* dedicated to SIP in every issue.

I would love to hear your feedback on this news and as always we look forward to serving your educational and decision-making needs with the highest quality content available anywhere. Thanks as always for reading.

### Where the Development Opportunities Lie

Ecosystems. That is the key word in the development market. Ten years ago if you wanted to develop communications applications you generally worked with Dialogic, NMS, Brooktrout (now Cantata), Aculab, Pika, AudioCodes, etc. There were TAPI and TSAPI interfaces for Microsoft and Novell as well but that was about it. Then we had some application generator programs we could use to rapidly roll out apps but this was the extent of the choices you had.

Now things have evolved dramatically. We have all of the above and Asterisk, Skype, Avaya, Pactolus, Cisco, Nortel, Inter-Tel, Salesforce.com, etc. In addition, many of the board vendors from the 1990's have now produced HMP-based solutions allowing even more flexibility in providing solutions for customers.

And there are real opportunities in working with all of the above companies. Ecosystems have been a great advance for companies looking to leverage existing and growing communities of customers. It just makes so much sense to have the above companies help promote your products for you.

I have heard nothing but good things from companies who provide solutions for Salesforce.com, Skype and Avaya for example.

But there are so many other opportunities out there it is a bit bewildering. The question developers must ask is where the largest opportunity exists so they can allocate resources accordingly.

So here is a brief summary of some of the opportunities out

there and what my take is on each:

**Open Source:** this market is growing at phenomenal rates. Expect to see some amazing market research in the upcoming months on how many companies and service providers are using open source IP PBXs now. This is a no brainer.

**Unified Communications:** Microsoft ([quote - news - alert](#)), Cisco ([quote - news - alert](#)), Nortel ([quote - news - alert](#)), Avaya ([quote - news - alert](#)) and others are pushing this area and Steve Ballmer has said Microsoft programming tools will allow developers to easily write UC applications. This will be a huge market and presents tremendous opportunity

**SIP:** Everything will be SIP-enabled. Your car, your gadgets... Perhaps everything except Skype. You need to embrace SIP in your communications development.

**Skype:** Speaking of which you should develop applications that work with Skype and you should find ways to make sure your existing solutions interoperate with Skype. Businesses will need to have Skype Interop in the next few years so start developing Skype compatible products today.

**SOA:** Service providers and enterprises will all be standardizing on SOA so be sure your products embrace this architecture as well.

**IMS:** This is a massive opportunity and IMS *will* happen. The question is exactly when it will happen. Start researching and developing now so you are ready when the tidal wave of IMS enabled networks begins.

**Wireless:** This is a super-important segment and WiFi/WiMAX/DECT and Dual mode phones and gadgets will proliferate. Games will be voice-enabled. MP3 players (iPhone, etc.) will be voice enabled. It is getting tough to predict a device that will not be voice enabled.

The excitement in this space is beyond anything I have seen ever in VoIP or communications development ever! It is out of control and confusing and complex but you know what? The communications barons of tomorrow are developing the coolest products today.

If you are interested in learning more about the opportunities and perhaps just as important the opportunity to network with others who are part of the above ecosystems and are writing applications in the above fields, I invite you to the Communications Developer Conference (<http://www.com-developer.com>) May 15-17, 2007 in Santa Clara, CA.

Some of my favorite sessions at this conference are integrating voice into .NET, Nortel's IMS Development Community, Developing Unified Communications Applications and Video over WiFi.

There is so much more; I could go on talking for a long while about how exciting this market is. This show marks a

milepost in the evolution from the name "VoIP Developer" to "Communications Developer". Accompanying this is the observation that, as the communications market converges, the opportunities to generate revenue grows exponentially.

The opportunity is here. The tools are here. The networking will be at the show. Will you be there? I hope so. I will see you soon! IT

**The question developers must ask is where the largest opportunity exists so they can allocate resources accordingly.**





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# The New World of the Mobile Worker

By Richard "Zippy" Grigonis

Mention the words "telephone" and "mobility" and most people think of their wireless handset or "cell phone" as we say in the U.S. Typically, these mobile handset devices access networks that provide connectivity to other phones using GSM, CDMA or some other proprietary mobile signaling system. These networks connect to but are separate from what your desktop phone is connected to — the wireline network built by AT&T many decades ago, known as the PSTN (Public Service Telephone Network). When you hang up your office phone, get up and walk outside, to make another phone call you must use your mobile phone to access a different, wireless network and the carrier associated with it.

Now, however, the telecom industry's movement toward "converged communications" is rapidly changing this long-standing scenario.

"In the near-future, both wireless and wireline networks will come together or 'converge' so that each user is served by a single provider," says Jon R. Doyle, Vice President of Business Development at CommuniGate Systems ([www.communi-gate.com](http://www.communi-gate.com)) of Mill Valley, California. "In fact, many providers today offer both networks. In the U.S., AT&T is a great example of

this. AT&T purchased Cingular Wireless, and of course it also provides fixed network access to its PSTN, which AT&T began building in the 19th century."

"Most people still think of 'mobile' as being just a wireless, cellular technology, which is no longer the case," says Doyle. "Mobility now means that it doesn't matter where you or I happen to be situated when connected. A phone in Sao Paulo registered to my server in San Francisco rings just like the phone on my desk in San Francisco; it has no distinction of location. Physically, we and our devices can become completely mobile at a moment's notice and still maintain continuous communication with each other. We can also move a phone call from one type of network to another, seamlessly. Moreover, the devices we use on the Internet Network have no concept of toll or location-based models; once devices are connected, they can communicate to other devices, just like email or web services."

Doyle elaborates: "Here at CommuniGate Systems we have technology based on the now hot buzzwords 'converged communications' and 'dual-mode cell phones'. Let's say you have an application server such as our CommuniGate Pro platform that can provide interesting applications to both of those networks and 'bridge them'. If you're sitting at your desk talking to me

and you say, 'Wait a minute Jon, I've got to jump into my car and get going,' you can press a special button on your dual-mode cell phone, and that call between you and I will be linked into that cell phone over a wireless network as you leave the building and enter your car. You can see the productivity benefits of this. You don't have to hang up and redial. Moreover, it's one network, one provider, and one bill."

CommuniGate Pro is known as a powerful Internet Communication Server among service providers, carriers, and mobile operators. Its open standards-based integrated platform enables service providers the world over to deliver carrier class Messaging (Email, Calendaring) and Real-Time (VoIP, Video, Instant Messaging) communications over IPv4 and IPv6 networks. CommuniGate Pro also supports SIP/SIMPLE (Session Initiation Protocol) protocol and XMPP, which in turn enables support for Instant Messaging, audio, and video communication.

"Another dramatic change for the industry is that, if everyone now becomes truly mobile, moving between networks and using dual-mode phones, then connectivity to the network will become less expensive and less revenue-generating for the carrier," says Doyle. "Lower rates will obviously be very beneficial to subscribers, but carriers will now have to provide applications that we subscribers will be willing to pay to use. We can assume very soon you will have IP-based phone devices for your desktop, mobiles and home, and you'll be paying a fee of somewhere between \$25 and \$40 a month for connectivity to the Internet so that you can use these devices. If that's the case, then it's clear that the carrier won't be receiving as much revenue from you as it did before. Look at your mobile phone bill today, or your house phone bill, with its many additional charges. Those revenues will begin to disappear, and so the carriers will need to offer rich applications, which we call 'rich media applications'."

"Our CommuniGate Pro application server can provide a rich set of applications to be sold by providers. We have all the infrastructure for making phone calls, supplying presence information, calendar data, and so forth, but the Rich Media applications for consumers and business subscribers will drive new revenues. We provide these today, among both wireless and wireline networks," says Doyle.





“Another very interesting aspect about the modern interpretation of the word ‘mobile communications’ or ‘Internet Communications’ is that you now have one address space,” says Doyle. “My address space, [jdoyle@communiGate.com](mailto:jdoyle@communiGate.com), is my single address space for all forms of communications. Contacting me at my single address space rings both my desktop phone and mobile phone at the same time, and I can choose which device I want to use at that moment. Again, not only am I physically able to be mobile with different devices, but my address space is portable too and can link to any kind of device.”

“When a service provider moves forward by adopting CommuniGate Pro’s service delivery solutions, the subscribers will not only be able to move almost seamlessly between the desktop phone and the mobile handset, but they’ll also have a single address space. They can be physically mobile because your ‘phone number’ or address space are mobile across different networks.”

“Telecom networks will continue to evolve and converge,” says Doyle. “Look at what’s happening with PBXs. Many of them accept expansion cards that make them compatible with SIP, the chief signaling protocol of the VoIP world. Well, that’s very nice, but it represents a transition phase. Dual-mode handsets that are able to move from GSM to WiFi and back again are also interesting, but in the future, WiFi and WiMAX will be everywhere, so there may not even be a need to handoff a call between GSM and WiFi. After all, GSM itself is just another protocol for another closed network that is based on toll fees. If you and I can get that wireless signal for Internet Communications, then you can simply dispose of the GSM network.”

“Once that transition occurs,” says Doyle, “what will those operators sell to you and me when we’re on the Internet? Will they be able to compete with what I can get from Google? Will they provide me with interesting applications, and have support centers that care about me? We won’t be paying toll calls anymore, and we will look back and think how paying 10 cents for a phone call now seems odd. The carriers must use technology such as CommuniGate Pro to offer exciting, revenue-generating rich media-based services.” **IT**

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

## Building a Business After the Minutes

*By Karl Gretton, President, ProtocolIS Inc. ([www.protocolis.com](http://www.protocolis.com))*

What would it be like if you had to pay 10 cents for every website you visit, or 10 cents to send each email? Many people are forgetting that once a broadband connection is available, and people begin to use a domain name address for all communications, the VoIP business for toll by-pass will become uninteresting. Mobile providers already know what Fixed Mobile Convergence (FMC) and dual-mode handsets will mean for their toll-based business model. Subscribers in a few years will look back and chuckle at the notion of a dime for a call.

The buzz about applications, content, and media is more like a firestorm, because unlike email replacing the fax machine industry, the next phase of Internet Communications is all about replacing massive multi-billion dollar business models. Building out applications on a platform that can scale and from a vendor that will be around in this new ecosystem is actually quite challenging. Most of the handful of vendors that are delivering platforms have either already been bought/bailed out, or they are seeking an exit because of the changed environment of venture funds.

We found that open source options, compared to the variety of choices for say, email, are very slim. We were somewhat shocked that Asterisk could only provide about 200 concurrent users per server. I could not imagine a subscriber base the size of even a small regional Bell using that. Worse, creation models of really powerful applications seem lacking in the industry as a whole. Many vendors are still talking about basic things like multi-device ring, color ring back tones, and the like. To be competitive, especially in a world where Google and others will provide applications to the subscribers on your network, one must deliver Rich Media applications that will keep those subscribers on the network.

We stopped looking at open source, mostly due to a lack of scalability, and started looking at the three major vendors of SIP platforms. CommuniGate Pro, however, quickly impressed us with its performance, and the company having being around for 16 years sure helped a bit. The compelling thing about the platform first off was the tight integration of all the fundamentals, like email, SIP, XMPP, calendar, presence, even session border controller functionality. The example applications for a hosted PBX and voicemail are in an open scripting language; that immediately got us thinking how the calendar and PBX could work together. The really hot thing that sold it for us was the access to the platform via XML to the CommuniGate XIMSS API. With this API, all our interfaces and applications do not need to talk to anything but XML, allowing our developers to not have to learn heavy protocols like SIP. Our development of a support department application with an ACD and a customer-facing web-based chat client (using AJAX), that talks to that API, took less than one week to create.

Our business model is based on providing small businesses, typically under 25 users, a full communication offering that is hosted and supported completely. We have already moved from the VoIP minutes business into becoming a full stop ASP with flexibility to adapt to just about any business needs for communications. **IT**



<http://www.tmcnet.com/482.1>

### Global Crossing has introduced Global Crossing Managed IP Telephony Solutions

, an initiative designed to make it easier for enterprises to migrate from traditional telephony to Voice over Internet Protocol or VoIP. The solution enables the enterprises to bundle and customize the company's VoIP service elements.

<http://www.globalcrossing.com>

<http://www.tmcnet.com/483.1>



### Siemens has selected Verizon Business to provide global networking services

through its Verizon Private IP. Verizon Business, a provider of

leading-edge network management to businesses worldwide, will also support Siemens' corporate network, the communication link that connects the company's numerous global business units carrying the company's significant applications such as SAP, VoIP, and e-mail applications.

<http://www.verizonwireless.com>

<http://www.tmcnet.com/484.1>

**"Serving the enterprise market** is central to our vision of enriching people's lives by transforming the way the world communicates," said Pat Russo, the Chief Executive Officer of newly merged Alcatel-Lucent at the outset of that company's annual Enterprise Forum held February. Perhaps most importantly, Ms. Russo spoke of the company's commitment to the enterprise market. "I want to be very clear in conveying that there is something about which there is no uncertainty," she said, "and that is our commitment to — and the importance of — our enterprise business and the enterprise market."

<http://www.alcatel-lucent.com>

<http://www.tmcnet.com/485.1>



### Mediatrax Telecom, provider of VoIP access devices, gateways, and branch

connectivity, has introduced the new 3500 Series of digital gateways. The 3500 Series can be connected to either a legacy PBX or PSTN line and can integrate standard ISDN devices with SIP networks. The 3500 Series supports the most common NA standards such as NI-2,5ESS and DMS100.

<http://www.mediatrax.com>

<http://www.tmcnet.com/486.1>

### CoVi Technologies has introduced a remote wireless surveillance system.

With CoVi's technology, customers are able to broadcast live high definition surveillance footage wirelessly to any video and WiFi capable device within range. CoVi's Crystal HD v.2.2 software lets security personnel and others access a single video stream on a PDA, and up to four simultaneous streams on a WiFi enabled laptop. Its QuadView Windows compatible client allows for viewing of either live or archived footage, or a combination of the two.

<http://www.covitechnologies.com>

<http://www.tmcnet.com/487.1>

### Blue Coat Systems, a leader in secure content and application delivery, will

soon be delivering a solution which lets companies deliver streaming live video and video-on-demand content across a Wide Area Network (WAN). The company has a software interface and a partner initiative in place to integrate the video produced with its WAN optimization technologies using solutions from enterprise video vendors. Blue Coat SG appliances can differentiate between business videos, non-business-designated videos and unauthorized or unacceptable videos.

<http://www.bluecoat.com>



<http://www.intelliverse.com>

<http://www.tmcnet.com/488.1>

### Rivermine, a company that specializes in telecom expense management (TEM)

software and services, unveiled the latest version of its flagship offering. Rivermine 5.0 includes a new set of reporting and analytics tools, as well as other enhancements.

<http://www.rivermine.com>

[www.tmcnet.com/489.1](http://www.tmcnet.com/489.1)

### Certainly, not having to hang up a call and dial back

from a landline when reaching the office presents obvious benefits in both productivity and cost savings. But, according to Siemens



Communications' vice president of product planning Luc Roy, the real benefit — and the feature that 4 out of five enterprises truly covet — is single number and single mailbox functionality, which is a key part of Siemens' newly announced FMC solution. "While the 'sexiest' part of the solution is the seamless roaming, the most popular feature is the single number/single voicemail capability," expressed Roy. "That's actually the meat behind this solution."

<http://www.siemens.com>

<http://www.tmcnet.com/490.1>

### Aiming to dispel businesses' concerns over VoIP quality, IP communications

provider Intelliverse announced it has improved the quality and reliability for its hosted VoIP services, Talking Planet Business and

callEverywhere. The company has implemented a comprehensive media path optimization (MPO) that is expected to ensure top performance and quality on all calls for Intelliverse's customers.

<http://www.intelliverse.com>

<http://www.tmcnet.com/491.1>

**CTI Group** — a company that specializes in VoIP call recording solutions delivered using a hosted model — announced enhancements to its emPulse solution designed to address the needs of businesses and providers outlined above. The latest enhancements were rolled into a solution developed for Thinking Phones, a company that offers a variety of hosted, next-generation communications applications.

<http://www.ctigroup.com>

<http://www.tmcnet.com/492.1>

### Codima Technologies launched autoVoIP Traffic Blaster, which adds a

new dimension and stress tests the QoS experience for each user when extra VoIP and non-VoIP traffic is loaded on the network. The autoVoIP Traffic Simulator from Codima Toolbox monitors QoS over time for the simulated RTP traffic it sends out. The autoVoIP Traffic Blaster sends out competitive traffic and non competitive traffic using the Traffic Simulator interface to display the impact of this extra traffic on the QoS for the simulated RTP traffic.

<http://www.codimatech.com>

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<http://www.tmcnet.com/495.1>

**Jaguar Communications has selected ECI Telecom's XDM** multi-service optical platform for its backbone expansion, which gives Jaguar a cost effective solution that allows it to combine Ethernet flexibility and SONET reliability and WDM on a single platform. The solution is designed to enable Jaguar to become more agile in meetings its subscribers' needs and deliver highly reliable bandwidth intensive services.

<http://www.ecitele.com>

<http://www.tmcnet.com/496.1>

**For carriers without their own mobile assets, Tekelec**, with its T6000 IMS application server, brings to the table a way for them to leverage their own infrastructure while still allowing customers to benefit from today's emphasis on mobility.

The features Payam Maveddat, vice president, Switching Solutions Group, product line management at Tekelec, is most excited about are the way Tekelec manages privacy expectations with its single number calling, and the use of password protected access for certain incoming calls.

<http://www.tekelec.com>

<http://www.tmcnet.com/497.1>

**IMC Networks has released a fiber-to-the-premises solution**

designated the iMcV-FiberLinX-II.

Combining advanced optical demarcation features with media conversion capabilities, the FiberLinX-II enables CATV, MSO, telecommunications, and Metro Ethernet operators to deliver high-speed Internet, transparent LAN and Ethernet private line services to business customers, over fiber optics.

<http://www.imcnetworks.com>



<http://www.tmcnet.com/498.1>

**Among the several peering solutions providers making significant headway**, Arbinet has now launched a digital communications exchange solution specifically customized for the U.S. domestic market. With PeeringSolutions, carriers — including CLECs, MSOs, and mobile operators — can effectively exchange traffic with one another regardless of their specific network technology.

<http://www.arbnet.com>

<http://www.tmcnet.com/499.1>

**To help customers in their quest to quickly and economically migrate their networks to new advances infrastructures**, Network Insight has consolidated its many strengths into a tightly integrated blueprint for the future. The new Next Generation Network Solutions practice is designed to guide service providers through the entire process of transforming their networks while leveraging their existing assets. As CEO Chris Pond explained, service providers "need a comprehensive technology solution that addresses the business obstacles they will encounter such as how to build the network economically and how to migrate their existing customers without interrupting service."

<http://www.networkinsight.com>

<http://www.tmcnet.com/500.1>

**XO Communications has launched a campaign to offer an appealing alternative network solution** to address clients' growing demand for higher network bandwidth and competitive prices. This campaign is XO's strategic move to attract more clients from switching services at the height of company mergers. The campaign offers carriers, content providers, wireless companies, and large enterprises the ability to take advantage of XO's suite of inter-city and metro network solutions that include IP transit, Ethernet, and wavelength services.

<http://www.xo.com>

<http://www.tmcnet.com/501.1>

**Brix Networks announced that it has expanded the BrixCall VoIP analysis** and correlation application software by adding Network-based Call Signaling for cable operators. The move would provide cable operators with QoS visibility into subscribers' homes. The software now supports the protocol commonly used in cable environments by correlating passive monitoring entries and active test results to allow for troubleshooting and fault isolation.

<http://www.brixnet.com>

<http://www.tmcnet.com/502.1>

**Broadband Internet service provider Comcast** said that its Comcast Digital Voice has surpassed the two million-customer milestone. The company's IP-enabled voice service delivers digital quality phone service, voice-mail, cost-effective interna-



tional rates in more than 200 countries and unlimited local and domestic calling to Puerto Rico and Canada.

<http://www.comcast.com>

<http://www.tmcnet.com/503.1>

**Ciena Corporation**, which offers solutions to help service providers and enterprises make a smooth transition from legacy to all-IP networks, without service interruption, is now offering FlexSelect for Ethernet, to help companies make a smooth transition to carrier-grade Ethernet networks. The company announced the launch of two new series of Ethernet-based platforms — the 3000 Ethernet Access Series and 5000 Packet Services Series. These new platforms will enable service providers and enterprises to make Ethernet a carrier-class, performance-grade convergence vehicle from the access network to the core. The company is hoping to transform Ethernet into "the solution of choice" for service provider network convergence.

<http://www.ciena.com>

<http://www.tmcnet.com/504.1>

**SMC Networks has launched the newest in its TigerAccess family** of switches for Metro Edge networking, the SMC7824M/FSW.

The new release is priced to bring Fiber to the Home bandwidth and speed at under \$200 per port. ISPs and Integrators can use the SMC7824M/FSW to enhance service offerings, revenue opportunities and customer satisfaction with reliable, high-speed, versatile edge connectivity.

<http://www.smc.com>



<http://www.tmcnet.com/505.1>

**Phonetime has kicked off a key network expansion** to handle up to 50,000 simultaneous calls, helping the company process more than 800 million minutes of call traffic per month. Phonetime modified its proprietary software, which effectively handles all call control and routing functions and with TDM and IP gateway expansions into the company network as well.

<http://www.phonetime.com>



<http://www.tmcnet.com/508.1>

**Cognio has released version 3.1** of its WiFi network monitoring and troubleshooting tool, Spectrum Expert. The new release gives recommendations for specific actions that should be taken by IT managers to maintain network integrity and performance — a feature which Cognio is calling an "industry first."

<http://www.cognio.com>

<http://www.tmcnet.com/509.1>

**LitePoint Corp. has released the IQmax-100 one-box solution** to address the needs of WiMax volume manufacturing.

The tester shares a common hardware platform with the IQmax-500. With integrated Vector Signal Analyzer (VSA) and Vector Signal Generator (VSG) resources, the one-box testers ensure consistent test results for all critical fixed and mobile WiMAX physical layer parameters, including all bandwidth and data rate options for product development, volume manufacturing and quality assurance (QA), said the company.

<http://www.litepoint.com>

<http://www.tmcnet.com/510.1>

**Broadband operators consistently dealing with dramatic increases** in the density and mix of users, devices and applications at public WiFi hotspots, will benefit from the Ruckus Wireless announcement that the company has released

its Ruckus MediaFlex Hotspot (HS). It is the first industrial-strength "smart WiFi" access point specifically designed for operators facing the aforementioned challenges.

<http://www.ruckuswireless.com>

<http://www.tmcnet.com/511.1>

**Nortel Networks has unveiled wireless LAN (WLAN) capabilities and solutions** that enable business to use their existing WLAN network to deploy advanced enterprise applications such as location tracking, advanced security solutions, and voice over the WLAN. In addition, Nortel has launched several upgrades to increase wireless LAN network security, and improve overall productivity by allowing businesses to use the network to quickly locate people, company assets and equipment that are dispersed across their campus.

<http://www.nortel.com>

<http://www.tmcnet.com/512.1>

**Wireless communications solutions supplier Redpine Signals has launched Lite-MAX**, a semiconductor platform for mobile devices offering wireless connectivity conforming to the IEEE 802.16e-2005 standard.

The Lite-MAX low-power mobile platform offers all features of the WiMAX Wave-2 profiles. Lite-MAX supports both single antenna and two antenna MIMO configurations and employs high performance enhancing and power saving techniques to enhance battery life.

<http://www.redpinesignals.com>

<http://www.tmcnet.com/513.1>

**Verizon Wireless launched a broadcast TV service** for cell phones in about 20 Midwestern and Western markets, charging \$15 to \$25 a month for the initial lineup from eight leading networks. While Verizon had already said it planned to introduce the service this month, the launch provided the first detailed look at the long awaited mobile TV service.

<http://www.verizonwireless.com>

<http://www.tmcnet.com/514.1>

**Aruba Networks has launched initiatives, partnerships and new capabilities** of the Aruba Mobile Edge Architecture that allows the secure implementation of multiple healthcare applications on a single wireless network. Thanks to Aruba, healthcare IT can create secure, multi-service mobility networks designed to reduce costs and complexity while satisfying federal regulations.

<http://www.arubanetworks.com>

<http://www.tmcnet.com/515.1>

**Meru Networks**, developer of wireless infrastructure solutions that enable the All-Wireless Enterprise, announced that long-time partner

Ascom, the leading provider of on-site wireless communication solutions, is now a member of Meru's VoIP Unplugged

Program. The companies, which recently completed extensive interoperability testing between the Meru Wireless LAN and the Ascom i75 VoWiFi handset, are pursuing joint marketing and sales opportunities throughout North America and Europe.

<http://www.merunetworks.com>  
<http://www.ascom.com>



<http://www.tmcnet.com/516.1>

**Tropos Networks has added sophisticated new business analytics** to its advanced

MetroMesh analysis and optimization system with the release of Tropos Insight 2.0. Operators

can use the essential new business analytics features of the Tropos Insight 2.0 to more effectively manage their networks, ensure a great user experience, deliver the applications that users want and enable new revenue streams.

<http://www.tropos.com>



<http://www.tmcnet.com/517.1>

**Fixed/mobile convergence (FMC) solutions provider FirstHand Technologies** has reportedly signed an agreement with NEC to fully integrate its

FirstHand Enterprise Mobility Solution with the NEC UNIVERGE portfolio. Using the combined solution, corporate customers will be able to "push" enterprise PBX functionality to smart phones and dual mode devices over both cellular and WiFi networks.

<http://www.firsthandtech.com>  
<http://www.nec.com>



## CHANNEL NEWS

<http://www.tmcnet.com/521.1>**VoIP telephone systems vendor**

**TalkSwitch** has signed an agreement with D&H Distributing, a national distributor of computer and consumer electronic products.

D&H will market TalkSwitch's phone systems to its network of approximately 12,000 reseller agents across the United States — and to existing

U.S.— based TalkSwitch resellers that prefer purchasing through a distributor. D&H will be offering first-level technical support to reseller partners as well.

<http://www.talkswitch.com>  
<http://www.dandh.com>

<http://www.tmcnet.com/522.1>**With an eye to extending its presence across the pond, Sangoma Technologies,**

a provider of connectivity hardware and software products for Asterisk-based solutions including VoIP, TDM voice, WANs, and Internet infrastructure, has

signed a distribution agreement partnership with VoIPon Solutions as a distributor of Sangoma hardware solutions for the United Kingdom. Sangoma

Technologies plans to leverage its strategic relationships with its vast network of contacts and resellers in the open source telephony space to strengthen its market position.

<http://www.sangoma.com>

<http://www.tmcnet.com/523.1>

**Telchemy**, a global provider of Voice and Video over IP fault and performance management technology announced that Trend Communications has licensed its VQmon/SA performance monitoring technology. Trend

Multipro Triple Play test set will utilize VQmon.

<http://www.telchemy.com>

<http://www.tmcnet.com/524.1>

**Sipera Systems has signed an agreement for the Sipera IPCS** products for comprehensive, enterprise VoIP security to

become part of INSI's solution portfolio. INSI is recognized in the IT community as a reliable source to design, secure, install and improve business networks. Partnering with Sipera will enable INSI to provide its customers with comprehensive VoIP security solutions for pervasive, real-time, unified communications.

<http://www.sipera.com>

## DEVELOPER NEWS

<http://www.tmcnet.com/525.1>

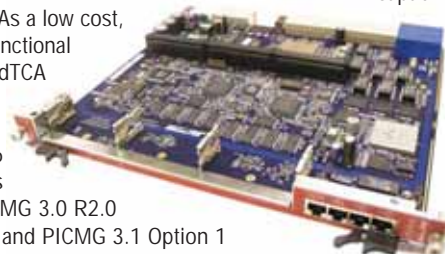
**SkyCross is supplying both the internal and the external WiMAX antennas** for the Samsung SPH-H1100 and SPH-H100 PC cards. Both the cards operate on the WiBro network, which is a WiMAX-compliant standard for last mile broadband connectivity in South Korea. SkyCross recently introduced a WiMAX product line, which includes the first antennas designed and manufactured for this protocol.

<http://www.skycross.com>

<http://www.tmcnet.com/526.1>

**Diversified Technology has introduced a low cost, highly functional ATS1936 Switch Blade.** The board reportedly features 10G Ethernet transfer speeds. As a low cost, highly functional AdvancedTCA switch, the ATS1936 complies with PICMG 3.0 R2.0 ECN002 and PICMG 3.1 Option 1 and Option 9. This switch features three AMC sites for OA&M, Firewall, and Encryption applications.

<http://www.dtims.com>

[www.optimaeps.com](http://www.optimaeps.com)**Optima EPS, an b Company, offers S-Series cabinets with flexible design options.**

The modular approach allows variation in sizes, depths, and options for customized solutions based upon a proven, standard product base. The S-series offers a wide range of bezel styles and options for; frame

size, mounting rails, base, top panel, bottom panel, side panel, doors, color and accessories. Cabinet heights are from 12U to 44U and widths in 19", 23" and 24". The depth options of the cabinets permit different mounting choices in the front and rear, and a diversity of ways to layout the cable management.

<http://www.optimaeps.com>

<http://www.tmcnet.com/527.1>**BlueNote Networks, a company that specializes in service oriented architecture (SOA)-based software solutions,**

announced today the introduction of a new, thin-client application for Web-based voice services: WebCaller. WebCaller is a set of technologies that allows Web designers to quickly and easily add real-time communications capabilities to Web sites — or any browser-based application.

<http://www.bluenotenetworks.com>

<http://www.tmcnet.com/528.1>**WildPackets introduced the version 2.0 of its WildPackets Developer Network (WPDN).**

WPDN is an online community and software distribution site that aids network engineers and product developers broaden the capabilities of WildPackets' OmniAnalysis

Platform, which troubleshoots and monitors networks and applications' performance. Now available online, WPDN 2.0 features a redesigned user interface, a new blog and a Networking News section. The site also offers downloadable plug-ins for WildPackets products, as well as source code, programming primers, tips, and sample codes.

<http://www.wildpackets.com>

<http://www.tmcnet.com/529.1>**VoxPilot, Speech Village, and Loquendo, have come together**

to combine their areas of expertise to offer service developers and application designers a faster, more cost efficient way to bring interactive voice services to market. The solution, Silver Bullet, is an easy to integrate platform and allows the deployment of quality apps as well as smooth migration from single DTMF to advanced speech applications.

<http://www.voxpilot.com>  
<http://www.loquendo.com>  
<http://www.speechvillage.com>





## IP CONTACT CENTER NEWS

<http://www.tmcnet.com/530.1>

**The Taylor Reach Group (TRG) has announced that it has launched "Teleffective Inc."** a call and contact center service provider. Based in Canada, Teleffective will provide Business to Business sales support in lead generation, account management, interim Inside sales/telesales and direct sales. Colin Taylor, CEO of TRG said, "Many of our clients asked us to assist them in sourcing a high quality service provider. After some mixed experiences we concluded that we should create our own. Then we ensure the highest level of quality to our clients by proper control of the process."

<http://www.thetaylorreachgroup.com>

<http://www.tmcnet.com/531.1>

**InsideSales.com**, a vendor of on-demand customer relationship management (CRM) products with built-in dialer, has released what company officials describe as "several enhancements to its hosted CRM and Contact Center automation suite," designed to "make life easier for both managers and users."

<http://www.insidesales.com>

<http://www.tmcnet.com/532.1>

**Nortel announced that it has been tapped** by the Geisinger Health System for an IP Contact Center system, which will link 2.5 million people in its network of hospitals and physicians across 20,000 square miles. The system is part of Nortel's clinical grade Healthcare Solutions, which facilitates access to the group's practitioners and patients.

<http://www.nortel.com>

## SIP NEWS

<http://www.tmcnet.com/533.1>

**To better reflect the range of services it offers** — particularly its engineering and integration capabilities — enterprise VoIP solutions provider **SIPBox** has changed its name to NeoPhonetics. Chad Agate, co-founder and CEO of NeoPhonetics, said the new name better reflects the company's main objective, which is "to design and build the most advanced phone systems, based on the latest, most cost-effective technology available."

<http://www.neophonetics.com>  
<http://www.sipbox.net>

<http://www.tmcnet.com/534.1>

**Verizon Business SIP trunking services have now been rated compliant with key Avaya IP telephony systems.**

The move will now allow enable enterprises using Avaya communication systems to have lower priced access to the public phone network without having to rely on hard-wired land lines.

Verizon's Business arm is a member of the Avaya DeveloperConnection program, which serves as a platform for companies wanting to join Avaya to develop, market and sell third-party products that interoperate with Avaya technology.

<http://www.verizonbusiness.com>  
<http://www.avaya.com>



<http://www.tmcnet.com/536.1>

**In a bid to enrich its SIP telephone range, Aastra Telecom**, a provider of traditional and VoIP communication products and systems has launched Aastra 5i Series. The Aastra 5i Series is comprised of the 53i featured set, the 55i advanced featured set, and the 57i full-featured set.

Also of note, the 57i CT, which offers the features of the 57i along with an integrated cordless base for VoIP mobility.

<http://www.aastratelecom.com>



<http://www.tmcnet.com/537.1>

**Arcosoft has released VONaLink TeamRecord**, which works with any VoIP phone system based on the open SIP standard to centrally record all phone calls for a company workgroup. Earlier TeamRecord was available only for Windows. Thanks to the latest VoIP systems built on open, standard protocols, calls can be recorded by monitoring network packets.

<http://www.arcosoft.com>

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By Tony Rybczynski and Todd Schofield

# Unified Communications Goes Global

Many of us have breathed a sigh of relief on arriving home from an international business trip without experiencing the anxiety (and in some cases the horrors) of requiring medical treatment in some far-off land. Fortunately, many organizations provide overseas assistance coverage to their employees by contracting a global assistance company and then issuing an assistance card with a telephone number for services while traveling abroad.

Global assistance companies provide a variety of services, often including medical assistance, international healthcare and security services. This could be a security or safety advisory, referral to a local medical provider or in a critical medical situation, an emergency evacuation, transporting you from a remote location to a place where you can receive proper medical care.

## Unified Communications for Worldwide Reach and Human Touch

The business of a global assistance provider is highly customer-centric, very time sensitive and heavily communications-oriented reaching the far corners of the globe. The values of Unified Communications are well aligned with the business needs of global assistance providers, by delivering a unified presence-enabled highly adaptive user experience anytime, anywhere over any device. This allows global assistance providers to rapidly respond to emergencies anytime, anywhere and to collaborate more effectively in delivering these services.

A case in point is International SOS, the leader in global assistance, services 83% of Fortune 100 companies among its customers. With a "Worldwide Reach, Human Touch" philosophy, International SOS employs 4500 staff, 30% of whom are medical professionals, across its 27 Alarm Centers, 51 offices, 24 medical clinics and 150 customer sites worldwide. International SOS has adopted Unified Communications as a core technology strategy, targeting two key goals: enhancing its communications capabilities and controlling its telecommunications expenses.

Their assessment of Unified Communications started with a clear analysis of technical and business needs. From an end user perspective, International SOS was looking to address user requirements and demands for more effective communication with a common look and feel throughout the enterprise. This included enhancing communication capabilities internally and externally, keeping a highly mobile and distributed work force in touch. From an expense perspective, International SOS wanted to mitigate increasing local and long distance telecommunications costs, and more generally to lower the IT infrastructure of currently siloed telephony, conferencing and email communications systems. As part of this, they needed a scalable communications architecture to support business growth objectives in terms of the number of customers, geographic reach and breadth of services; all while leveraging and integrating with existing technologies, including Nortel telephony and contact centers and Microsoft desktop, Exchange and directory systems.

The solution selected by International SOS was based on the integration of its Nortel IP-enabled PBX and Microsoft's Live Communications Server, the cornerstone of the Microsoft-Nortel Innovative Communications Alliance. The initial phase focuses on internal users in Singapore as well as in Asia-Region offices, and is designed to prove stability and usability before implementing Unified Communications functionality in customer-facing roles. A telephony-enhanced Microsoft Office Communicator client provides a single personal and intuitive interface for PCs, laptops, tablet PCs and mobile devices for voice calls, IM, application sharing, video and presence, creating an opportunity to replace physical phones by soft clients. The UC client is tightly integrated with Outlook email and calendaring, with Office applications, with Active Directory, and with the telephony features of the Nortel IP PBX.

In the longer term, International SOS expects to evolve to a full suite of Unified Communications capabilities across its customer-facing employee base, including its Alarm Centers/Contact Centers and provide integration with business processes and web portals internally and out to its partners and clients (e.g. including multimedia conferencing). They see a path to a unified software-centric platform for Unified Communications which will establish a global communications architecture with transparency, ease of use, and enhanced business continuity capabilities.

## Keeping Your Business First

Whether your business is global or local, you can learn from the strategic positioning of Unified Communications by companies such as International SOS that there is a lot to gain. When looking at Unified Communications, focus on both the functionality of the user experience as well as taking the opportunity to solidify and enhance the underlying IT infrastructure. You can initially focus on those users who are tightly associated with time critical business processes- this will help you justify the investment. Of course, partner with the targeted communities of users- their acceptance is very important. Finally plan for short-term gain, but understand that you are establishing a visionary communications structure with a path towards growth and increased business effectiveness. IT

*Tony Rybczynski is Director of Strategic Enterprise Technologies in Nortel, (quote - news - alert) and has over 35 years experience in the application of packet network technology. Todd Schofield is Chief Technology Officer of International SOS headquartered in Singapore, and has written a number of business articles in the Asian press.*

# Seeing Beyond Tomorrow

With over 20 years of expertise in building the most robust communications systems around the world, Dialogic now offers the broadest product family of IP-based open systems solutions. From ready-to-deploy media gateways, to market leading multi-media processing software, Dialogic products continue to create a legacy of innovation. Dialogic empowers you with the ability to leverage a worldwide industry leading sales and support organization that understands your needs and wants to work with you.

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By Brough Turner

# Beyond Digital POTS

In the [VoIP \(define - news - alert\)](#) industry we pride ourselves on innovation, but over the past decade our impact has been less than stellar. The real revolution has been the advent of mobile phones.

Mobile phones are highly personal devices, associated with individuals, not places. The user interface is vastly improved over traditional black phones. At a minimum, you call by name or by directly selecting people with whom you've recently spoken. Everyone has voice mail, not just businesses. Everyone has text messaging, even if Americans make less use of it than the rest of the world. Indeed, picture messaging is widespread, while video messaging and video telephony have emerged in Asia and Europe. But at least so far, the mobile phone revolution has been based on traditional circuit switching and Intelligent Network concepts. Even 3G video telephony is based on circuit-switch data rather than video-over-IP.

Meanwhile, the biggest impact of VoIP has been to drive down rates for long distance and international calls, as VoIP technology enabled new competitors with arbitrage plays. More recently, VoIP has begun to reach consumers who have broadband Internet access through the efforts of Vonage, services like Wanadoo, BroadVoice and AT&T CallVantage, and VoIP packages from major cable TV operators. These services are beginning to take noticeable fixed-line market share, but they are relatively low in innovation. As residential replacement services, they focus on replicating plain old telephone service (POTS) with, at most, a few new features. I call that "digital POTS"! I'm all in favor of low-cost communications but, with VoIP, we can do better than digital POTS.

Skype ([news - alert](#)) is the most successful of those trying to change the actual communications experience. In part, their initial success came from the "it just works nature" of their system, but they also provided significant new value with a coordination function, based on presence and instant messaging, that helps parties decide, in advance, when and how they will communicate. Of course similar services are now available from AOL, Yahoo, MSN and Google, but Skype gets the credit for pioneering the coordination function, for offering better than telephone quality audio and for supporting alternate forms of communications (voice, text and now video) in the actual communication session.

Indeed Skype may end up a serious competitor to Vonage, AT&T CallVantage and the cable VoIP operators as Skype, more than any of the others, has fostered a third-party software and hardware products program. As a result, Skype

handsets are emerging that look to the consumer like ordinary cordless phones. So Skype will get into the fixed-line consumer space and end up head-to-head with digital POTS vendors like ([quote - news - alert](#)) Vonage, AT&T CallVantage and the cable operators. That's progress, but it's still nothing like the global personal telephony revolution that mobile has created.

Of course, each successive Internet Telephony Expo is replete with innovative ideas for new VoIP capabilities — both new ways to coordinate communications and new ways to communicate. Indeed at some point, maybe less than ten years from now, we will see 3-D holographic virtual presence conferences, but they will be just as dull as today's business video conference. But what's missing with VoIP services today is the personal mobile VoIP communications device and the service innovations that a personal mobile interface could allow.

There's hope. The past year has seen actual shipments of diverse WiFi/mobile handsets, including products from majors like Nokia. Adoption in the U.S. has been limited, as U.S. mobile operators control the handsets available for their services. However, in Europe, the existence of these handsets has spawned numerous startups. Many are seeking to provide fixed mobile converged services for enterprises. Others, like Truphone are directly targeting consumer communications.

The remaining impediments are walled gardens or expensive data plans, and handset diversity that means most applications won't run on most handsets. Mobile competition, WiFi hotspots and ever increasing 3G capabilities should put an end to walled gardens within two to five years. Handset

diversity will be with us, perhaps indefinitely, but a few powerful frameworks are gaining ground at different levels of abstraction, e.g. Symbian and Windows Mobile at a base level, J2ME as middleware and Flash Lite and Opera & Safari browsers with AJAX. There won't be a single API to write to (like Windows for the PC), but it should be possible to produce slick user

interfaces across a wide variety of phones with a proxy server and five or six downloadable modules.

VoIP and mobile — now there's an opportunity for 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>.

**...Skype may end up a serious competitor to Vonage, AT&T CallVantage and the cable VoIP operators...**



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By Marc Robins and Chris Gatch

# Managed Services Providers: Delivering on the Promise of High-Value Services

As the IP communications industry continues to evolve and mature, an array of new companies offering highly reliable and robust new products and services have made their way to market, providing users with an uncommon wealth of new productivity enhancing communications capabilities at extremely competitive prices.

Foremost among these new entrants to the marketplace are a breed of companies commonly referred to as Managed Services Providers, or MSPs. These MSPs represent a special type of service provider that leverages new Internet technologies to combine the best of Web Service and network service models to deliver a whole new class of hosted services to users, and also represent a new genre of investment opportunity to Wall Street.

MSPs typically provide a unique bundling of various hosted voice and data communications services and applications, often coupled with quality of service guarantees, robust security measures and web-based administrative features. But what exactly is a managed services provider, and what differentiates an MSP from a Web Services and network services company?

## The Two Types of Integration

Service providers establish their unique identity through integration — using process and technology to make distinct systems work together for the benefit of their customers.

When one examines the concept of integration with respect to an IP-based services provider, there are really two distinct types of integration to consider: network integration and application integration. In fact, the types of integration that are practiced in large-part determines whether a provider is a network services operator, Web Services provider, or an MSP.

The matrix represented in Figure 1 illustrates the differentiation between these two types of integration as well as the progression of derived value as the degree of integration

increases across the two planes. For example, a basic html-based website represented in the lower left-hand quadrant functions rather autonomously and displays little or no integration with other network resources or other applications running on a network. As integration with other network resources increases, such as in the upper left-hand quadrant, services such as POTs, Fax-to-Email and other network integration-based services are enabled.

It can be said that if a service provider is high in network integration, but doesn't pursue application integration, then this provider fits into the Network Service Provider paradigm.

For example, a web hosting company rates high in network integration: In practice, they're abstracting infrastructure for their customers, but they don't really integrate with anybody else. In effect, they outsource the hardware function of running a website on behalf of their subscribers.

With respect to a high-degree of application integration as represented by the lower right-hand quadrant, web-based companies like eBay and Yahoo are prime examples. In these cases, it can be said that if a service provider is high in application integration, but low in network integration, then it fits into the Web Services paradigm.

With respect to an MSP, the utilization of both types of integration is a prime differentiator that distinguishes it from a Web Services or Network Services Provider. *In fact, a managed services provider combines both planes of integration*, which allows it to provide a number of higher-value services such as CRM and unified messaging — services that rely on the integration of both networks and applications.

In order to fit into this MSP paradigm, it's not enough for a provider to have a high degree of network integration, because that would still qualify it as a Network Services Provider, and it's not enough to have a high degree of Web integration — a true MSP has to exhibit both attributes.

The fact that everything is coming down to a common denominator of IP allows a network to support an array of applications in an integrated fashion, and this integration is happening on the information layer as well. Indeed, since most everything now rides over IP, the constraints that affected the types of integration one would have wanted between various applications and network services are rapidly disappearing.

**We suggest that an MSP delivers new value to users by offering a unique combination of integration, and personalization.**

## Key Attributes of a Managed Service

Now that we've defined an MSP as implementing a high degree of both network and

application integration, let's try to tackle the question about how an MSP must reach beyond integration to create high-value managed services.

We suggest that an MSP delivers new value to users by offering a unique combination of integration, and personalization. An application that exhibits personalization stores personal user data, their preferences relative to the service, and it

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may even allow them to customize the service itself to meet their specific requirements.

The matrix in Figure 2 illustrates the progression of service value as the concentration of personalization and integration increases. For example, early web-based applications were basically autonomous pursuits — they allowed a user to perform various basic functions such as a database lookup or numeric calculation such as that found in lease rate estimators found on automotive websites. Other websites pursued complex machine-to-machine integration with other services and data sources and simplified the number of steps involved to solve a complex task. For example, a site that provides background checks may integrate data from a wide variety of sources, thereby decreasing the time necessary for a thorough background check.

Further up the food chain, some websites began to add additional value by allowing personalization. A good example of such a site is Delta.com, which allows users to tailor individual choices based on their stored profiles — in this case selecting flight itineraries, seating and food preferences, payment methods, etc. Delta.com in effect personalizes user information and enables a transaction — namely the booking of a flight — to occur.

As we follow the progression of value to the upper right hand quadrant, we see that some companies have succeeded in combining both personalization and integration to deliver higher value services to their users. A great example of such a site is Salesforce.com. This unique service outsources the infrastructure demand of managing a CRM system, provides intuitive web-based configuration of the platform, and extends their platform with a network of almost 400 web-based partners under their AppExchange partner program.

Now you may be asking, what does this have to do with VoIP? We stated that personalization includes not only personalized data and preferences, but control of the service by a user. An MSP provides the ability for users to conduct transactions — in terms of allowing users to subscribe/unsubscribe to services, and enable/disable various service features and functions. In effect, users are provided with a high degree of control regarding what services and features get delivered to them and what network resources they have access to — *but the upshot is that this control not only includes access to information but it also includes customization of the service itself, including real time communications services.*

The key point we are trying to make here is that the same degree of personalization and customization that is occurring in the Web Services realm is being enabled in the real-time communications services realm, and it's at the junction of both that MSPs are leading the charge.

### Web Information and IP Communications Mashups — The Network as a Web Service

With the wealth of new Web 2.0 and IP communications technologies currently available, there is an incredibly rich opportunity for MSPs to combine a variety of services to create even more valuable and meaningful “super” services for users. By employing Web 2.0 access to information and application resources, while simultaneously relying on communications networks as a key resource, MSPs are making telephony (voice and video) an integral part of the mash-up

## Technology Toolbox for Managed Services

A host of new technologies are making new types of integration and improved user interfaces possible. These technologies present a ripe opportunity for managed services providers because they provide a programmatic way to use the resources of the underlying network (for example, like SIP does for the network integration plane.)

It's not essential for a company to use all of these technologies or only these technologies to qualify as an MSP, but from our perspective these are the most interesting developments that are fueling innovation.

**IP — Internet Protocol.** A common network protocol that makes the convergence of disparate media (voice, video and data) on a single network infrastructure and the combination of many services into a single managed services bundle possible. It is the “lingua franca” of today's network infrastructures.

**SIP — Session Initiation Protocol.** A simple, text-based protocol for IP communications session establishment that makes the creation and enhancement of voice, video, IM, gaming and other session-oriented communications possible.

**XML — Extensible Markup Language.** A simple and extensible means of communicating information between various Web-based applications and services — a standard way to describe information that's exchanged between Web services. XML is extremely powerful because everything from calendar information to contacts to emails to documents can be appropriately labeled in an XML schema.

**APP — Atom Publishing Protocol.** A replacement for Really Simple Syndication (RSS), APP is a simple HTTP-based protocol that allows one service to subscribe to another and automatically receives new, relevant information when available.

**REST — Representational State Transfer.** An emerging new tool, an architectural principal that represents the various states of an application in a standard URL format that can and often is combined with XML. This technology represents a replacement for an older generation of “APIs” that were based on remote procedure calls (RPC). Consider an email platform based on REST: every e-mail on the server is represented as a unique URL with the content set forth in a defined XML schema. REST makes the use of that information very easy in other enhanced services.

**AJAX — Asynchronous JavaScript and XML.** AJAX is a web development technique for creating interactive web applications. The intent of AJAX is to make web pages feel more responsive by exchanging small amounts of data with the server behind the scenes, so that the entire web page does not have to be reloaded each time the user requests a change. This is meant to increase the web page's interactivity, speed, and usability.

AJAX brings it all together with a whole new set of capabilities that allows an MSP to produce desktop quality web interfaces.

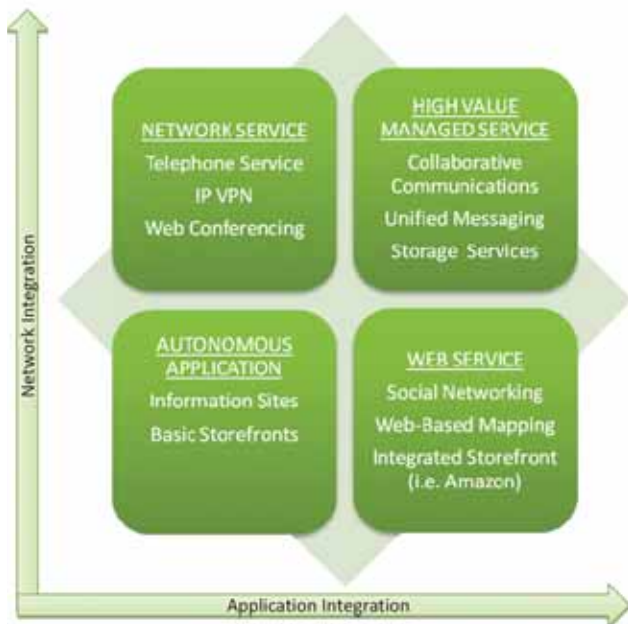


Figure 1. Combining Two Planes of Integration.

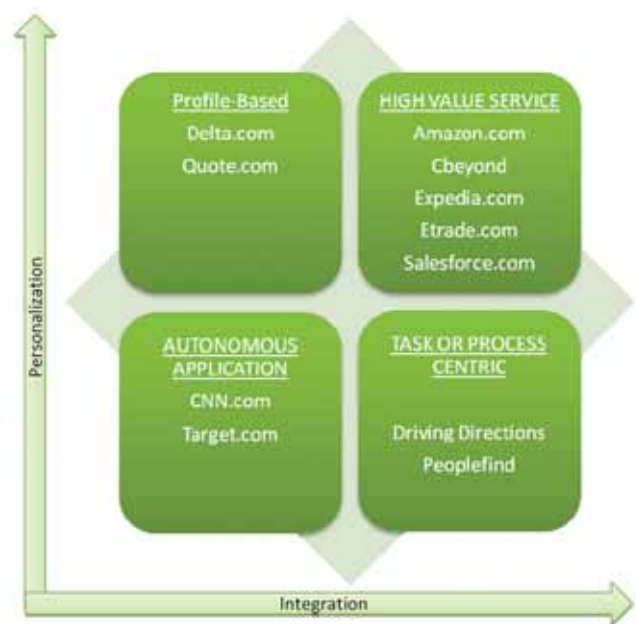


Figure 2. Combining Personalization and Integration.

phenomenon (see sidebar “Web 2.0 Technology Toolbox for Managed Services”).

In fact, we believe that the combination of network-based information and applications with other content and applications makes the managed services opportunity almost limitless.

For example, XML by itself is an invaluable Web 2.0 tool as it provides an easy mechanism to describe and label data being exchanged between two web-based entities. In effect, it offers up a standard format for presenting web-based content. Furthermore, there are numerous examples of standardized XML schema that allow one to easily digest more common forms of data such as contacts (vCard-XML), secure identity (SAML) BLOGS (Atom), etc.

There are many examples of useful information available in the standard XML formats including Yahoo maps, eBay auctions, professional sports teams game calendars, etc.

Beyond the revolution in content and data, we believe service provider networks will eventually be accessible via Web Services APIs. This includes wireline and wireless networks, as the progression of VoIP ([define](#) - [news](#) - [alert](#)) standards promises to make the network an accessible resource of higher programming languages. Today, VXML is a good example where basic call and IVR functions can be accessed on a service provider network using a basic markup language.

Many other service provider networks already support call control or other resource manipulation through RPC type APIs. Some modern platforms like the popular Broadsoft Broadworks Application Server allow subscription to call information and manipulation of calls via a Web Services API.

While examples in this arena are not as plentiful as content examples, one need only look at some interesting developments like Voxeo's IVR services, Cbeyond's SIP trunking and converged fixed-mobile services or AOL's plan to expose network call control to developers to gain an appreciation of the potential that exists for the managed services industry..

## Conclusion

We believe that if a provider is simply building on the information of other providers, they're a Web Services company, not a true MSP. For example, in our view an eBay is a great Web Services company, but not an MSP. AT&T is a network service provider of tremendous scale, but it is without an application strategy, and therefore not an MSP. To truly qualify as an MSP, a provider must provide both network and application integration, and in most cases will extend broad capabilities of service configuration and personalization to the users of the service. This demanding distinction makes MSPs a rare breed among service providers.

The good news is we are truly on the leading edge of a golden era of high-value managed services. The unique combinations of technological building blocks and new combinations of services — the mashup if you will — has created a new platform for the creation of new services and new capabilities. While the current list of companies one should consider a true MSP is limited, expect to see this change in a dramatic way in coming years. IT

*Chris Gatch is the CTO and a founder of Cbeyond, a small business-focused managed services provider founded in 1999 and now publicly traded on the NASDAQ (CBEY). Chris is a contributor to the industry effort to standardize SIP Trunking and serves as an editor of the SIPconnect technical specification published by the SIP Forum. He has served on the Service Provider Board of the International Packet Communications Consortium (IPCC), and he presently serves on the Board of the SIP Forum. For more information about Cbeyond, ([news](#) - [alert](#)) visit <http://www.cbeyond.net>.*

*Marc Robins is Chief Evangelism Officer of RCG (Robins Consulting Group), a leading marketing, communications and business development consulting firm 100% dedicated to the IP Communications industry. For more information about RCG, visit <http://www.robinsconsult.com>, email [marc@robinsconsult.com](mailto:marc@robinsconsult.com), or call 718-548-7245.*



By Kelly Anderson

## Where's the Customer Focus?

I ran into an interesting article this week by Robert Heller about creating new business models. It got me thinking about our industry and as it moves into new areas of service, we need to continually take inventory of goals about the way we operate our services. Not only is it important to constantly review your operations to make sure they are as efficient as possible, but it's also important to look at your approach to the customer. So many operators have a "less than desirable" reputation regarding their approach to the customer, primarily reflecting their legacies from years gone by. If a provider had a regional outage five years ago, people still remember it. They forget the cheerful sales representative or the newly designed web interface. Because the communications industry has experienced so many changes in reputation, company names, and services over the past few years, we "industry folks" have to look at what the common customer is doing, what they are willing to buy, and what will make them loyal.

In a book titled, *The New Wealth of Nations*, Thomas Stewart lists three varieties of intellectual capital necessary to effectively manage all areas of a company's services. He lists the first intellectual resource as human capital, which consists of a manager's ability to access their own creativity and resources to find new ways to offer services and do business. Stewart claims this type of capital is the most understood today and the most sought after. The second most known resource is the structural capital, which is the collective knowledge and "know how" in an organization. He claims that though the two listed above are important in a balanced organization, he calls the third intellectual resource possibly the worst managed of all intangible assets, yet one of the most crucial investments — customer intelligence. How true is that today in the communications industry?

A friend recently commented about a telemarketing call she had just received. She called the only person she knew that was related to the phone industry (me) to ask, "Do you know anything about phone service that is hooked to a modem?" I asked a few probing questions about the offer and learned that it just wasn't that good, and much of the information she needed to make a decision was simply not provided. And, she could get a similar VoIP ([define](#) - [news](#) - [alert](#)) service for half the price. My friend's real frustration came out when she told me that every time she asked a question, the representative deflected and never answered it. And what's most interesting about her story is that this provider has been giving her broadband service for years now. I keep feeling we are missing something here. I have been to more conferences this year about being customer focused, getting customer data, keeping customer

loyalty than I can count. Every time I leave these conferences I always feel like the message is getting across. If my friend's experience is any indicator of our current progress in this industry, this 'customer-focused' concept has stayed in conference banter and has never touched the customer.

I sometimes feel like I hear an echo when I talk about customer data at major industry conferences. Everyone leaves the room, tells me what a good job I did, (or not), takes my card and tell me they're going to call about reference implementations. I end up hearing from less than 10% of them. Barring any major personality defect I may be missing (trying to be humble here), I'm inclined to believe that gaining and using data for the purpose of offering a better product has just not made it to the operational layer of today's service providers.

Some amazing work has flourished this past year across industry standards organizations that are focused on finding, retaining, and analyzing customer data, and we, as an industry, need to access it. There is no end to the capabilities and

**There is no end to the capabilities and possibilities that will come from gathering data to create new and interesting business models for advanced IP services.**

possibilities that will come from gathering data to create new and interesting business models for advanced IP services we have today. Creating something new, something that is "buyable" to current and future customers will allow these services to flourish and create excitement for the industry again. I want to challenge all service providers to step

up and make the investment in creating a business that is customer-focused. The technology is now there; it's time to implement. IT

*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 Hunter Newby

## Physical Limitations

We're already a few months into 2007 and it seems that the same old obstacles challenge service providers far and wide. Besides the obvious and daunting challenge of rapid technological change and the fear and associated financial risks that come along with making a bad decision, the more obvious challenge is quite simply — awareness. Yes, that's right folks, if everyone in network planning and architecture knew what had already been done to near perfection by someone else before them we would all be much better off and further along than we are. Sounds funny, right? Just think of all of the mistakes that would have been avoided and the time and money saved.

It seems quite logical to approach issues in this way no matter what they are. Collective thinking and reasoning, the conveyance of knowledge to any and all that plug in to it. In a very specific way, Wiki's are helping to build this collective of information. It's not all there yet, but it has begun. A big part of the ability to share information is not just the gathering of it, or the knowledge of where to put it so that others can access it, but the existence of the network itself. It is because the network exists that it is used. The irony is that it takes a shared network, the Internet, to learn that the key to quality and security for business-class VoIP ([define](#) - [news](#) - [alert](#)) is to build your own private IP network.

Building a private IP network sounds like it may require digging up the streets, but it does not really mean that. It may also seem like an extreme thing to do to solve the problems of quality, security and congestion, but actually it is not. It is very low-tech and simple. More importantly, it is happening today, right now and it works great. Private IP networks are those that use IP over inherently secure Layer 2 (transport) circuits such as Ethernet, clear-channel TDM, or even wave-lengths. The point is that businesses buying wide-area services want quality and security and this is the best way to deliver it. If you are a VoIP service provider looking to sell VoIP as a service, build your network in this way and you have a no-brainer value proposition. If you are a hardware vendor looking to sell gear to businesses, or service providers you have a similarly strong value proposition. Recommend a private IP network design in your proposal and you too can leverage the built-in benefits without having to go to great lengths presenting software and application-layer security as the only solution to the public Internet threats. If you are an enterprise CIO, or network manager and you need to hit these points, then think low in the stack, stay out of the cloud and your issues will clear up considerably.

As a matter of fact, in the not-too-distant future, video applications will totally clog the public sewer of the Internet and force users to acknowledge the issue and find an alternative. There's nothing like a good old-fashioned clog in the pipes to raise the awareness of a problem down the line. The ISP backbones of today were built to handle the low bandwidth applications of email and html on the web. Now we have P2P video and there goes the neighborhood. In a similar way back in

1997 when AOL really took off, they did not have enough dial-in ports for all of their subscribers. This led to busy signals, getting "kicked-off" the Internet and a rather slow experience while online due to the congested backbones of the day. In 1997 it was a big deal to have a fully meshed DS3 network. Today 10 Gig isn't enough on the major routes. AOL solved the problem by getting thousands of numbers assigned to them by MFS (And in return WorldCom's John Sidgmore — who was really Mr. UUNet — got to buy ANS from AOL).

One thing is for sure, it can't be stopped. We must adapt just as they did, but there is an even greater awareness that needs to be derived from all of this. Below the transport, below the access, there lies the physical path itself. The real threat to a prolonged service disruption is a cut that can't be repaired. If you're a service provider and this happens you're out and your customers may walk. If you're an enterprise your business will take a huge hit and if the network is your responsibility you will probably get fired. Do not think that this can't happen. It just did in Southeast Asia as a result of an earthquake that took out several undersea cables and the after-effects are still being felt. Just to recap: in many places in Southeast Asia there was no Internet access, no international calling, no ATM (bank machines) and other financial transactions — for weeks.

Many carriers share the same trenches around the world due to shared costs savings and moratoriums on building new cables in certain places. This may have been convenient, but it is very detrimental for all of our futures if we do not pay attention to it. This is not limited to undersea cables, but also applies to fiber and copper that is single-threaded into and out of buildings all across the world. When thinking about what your network plans are for 2007 make your first order of business the first layer in the stack — Layer 1. Just ask two simple questions. Where's my path? Where's my backup? Ask your carrier and demand an answer. If you are a carrier you had better go find out. If you have physical diversity you are in business and worlds away from your competitors who are not. In order to take advantage of that competitive information you just need to be more aware. IT

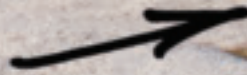
*Hunter Newby is chief strategy officer for telx. ([news](#) - [alert](#)) For more information, please visit the company online at <http://www.telx.com>.*



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By John Joseph

## Making the Most of IP Contact Centers

IP Contact Center solutions have now matured to offer the functionality contact center managers need to replace their existing TDM solutions. However, to realize the full potential of VoIP, organizations need to go beyond simply porting existing functionality into a VoIP environment. Rather than simply replacing a PBX with an IP PBX, or an IVR system with an IP IVR system, organizations should change their processes to take full advantage of the inherent centralization, multimedia and convergence benefits that [VoIP \(define - news - alert\)](#) has to offer. Some of the most impactful process changes involve the better management and use of customer data. Collecting customer data and leveraging it in customer service and sales operations can lead to a big improvement in the customer experience and the long-term success of an enterprise.

### The Advantages of IP Contact Centers

Today's IP Contact Center solutions have a variety of advantages over traditional TDM systems including:

**1. Lower Operational Costs**— VoIP has the potential to yield significant cost savings from reduced phone charges, but the cost savings don't stop there. VoIP provides the ability to centralize all call handling operations, regardless of the number of contact center locations or branch offices that must be served by the system. In fact, VoIP allows the contact center infrastructure to be distributed more widely, making it possible to leverage labor pools through at-home agents.

Centralized call handling yields several cost and service benefits, including routing and agent utilization benefits because calls can be distributed across the entire agent pool rather than restricting routing schemes to a single location. Plus, centralized administration and upgrade management alleviates a tremendous cost and staffing burden and means that individual locations no longer have to maintain separate IVR or ACD systems or supporting contact center management applications such as call recording, workforce management or survey software. Finally, centralized call handling allows organizations to easily obtain a single, unified view of their operations via centralized reporting mechanisms.

**2. Improved Customer Service**— More consistent access to customer information, regardless of agent location, allows organizations to provide a more consistent face to the customer, resulting in better control over service quality. VoIP also provides a more elegant solution for multi-channel communications. Because voice transmissions now look the same as any other email, data or Web transaction, they can all be easily integrated together into a universal queue. Additionally, SIP end points can easily switch between different media (voice, text, video) for greater flexibility and more robust applications, enabling organizations to add new capabilities such as video for interactive voice and video response (IVVR) solutions. In a VoIP world, the time-to-benefit from new technologies is greatly reduced.

With these benefits alone, most enterprises are able to make a case for adopting an IP-based contact center, but IP also helps

to break down the information barriers that traditionally have made the PBX, CRM, agent desktop, call recording, IVR, and workforce management applications operate as islands within the enterprise. The fact that VoIP forces all information to be carried over the network enables enterprises to better integrate these components and other enterprise applications. This allows them to improve the information flow throughout the contact center and the greater enterprise. Enterprises that can leverage the convergence benefits of VoIP to focus on the higher level business process will find that two plus two equals five. When your PBX, CRM, agent desktop, call recording, IVR and workforce management applications are working in unison, you will gain more benefits than each can provide on its own.

### Leveraging the Convergence Factor

What are the benefits of focusing on the overall business process? In a fully integrated world, information collected through the contact center would be immediately available to the contact center manager and, to managers outside of the contact center as well. For example, each time a customer calls, the CRM database can automatically be populated with the call activity data (call length, agent ID, ANI, DNIS, IVR interaction, etc...) via a computer telephony integration (CTI) solution. Contact center managers can be alerted to all calls that exceed an anticipated interaction time to proactively identify training deficiencies, agent challenges, or customer issues that need to be escalated. And, account managers can also be alerted to excessive service and support utilization to proactively monitor their customers' status. When the call recording system is integrated, either manager can simply click on the interaction to hear the discussion firsthand and better understand what action (if any) may be required.

Connecting these multiple systems can assist sales organizations running extensive lead generation programs to operate more effectively as well. Automatically populating lead records with a campaign's specific call-in number using DNIS from the IP PBX enables an organization to better understand their program's effectiveness. Taken a step further, that same DNIS data can be used to "pop" product specific scripts and data

collection screens to the agent desktop solution for increased efficiency. When agents are cross-trained on multiple products, dynamic script-popping, coupled with intelligent routing solutions, enables an organization to maximize the productivity of their workforce.

As CRM, presence and agent skills management systems continue to evolve and to be integrated, there will continue to be more opportunities to tighten the needs-skills match to personalize service and to resolve calls more quickly. Because VoIP makes it cost-effective to extend the contact center infrastructure to more employees, organizations have an opportunity to tap their entire knowledge base — not just customer service agents — to better assist callers with complex issues. Coupling intelligent routing with an agent screen pop solution that shows historical data from the CRM system will enable agents to further personalize each transaction and resolve issues faster.

### Realizing the benefits through standards

Today, many contact center managers face the challenge of moving to a high-quality, next generation system while managing constant budget pressures. The reality is that the upgrade to IP technology often occurs in stages. For example, a contact center manager may need to upgrade obsolete components, such as their IVR system, immediately, while squeezing another couple of years of life out of their PBX. Given these pressures, is it possible to leverage your customer information to

reap the benefits of convergence? One tactic to ensure a smooth transition and to ensure that you can leverage customer information at the earliest possible time is to adopt standards-based architectures or components, such as those that leverage Web services, wherever possible rather than direct product to product integrations. Many standards initiatives around VoiceXML and SIP, for example, have gained significant traction over the past few years and will ensure that your applications can handle change and will continue to operate as designed even when pieces of your infrastructure change.

But before you go out and buy a standards-based IVR, take a step back and rethink the services you would like to offer customers and understand how you can improve your overall business process. What information can be leveraged to personalize the customer interaction or improve processes outside the contact center, such as sales and R&D? How can you better match customer profiles to agent skills to maximize call resolution rates? Are there datapoints that could be connected to provide a better picture of the service you provide?

The knowledge gained by simple questions such as these will help you fully realize the benefits of the move to an IP Contact Center. IT

*John Joseph is Vice President of Corporate Marketing for Envoy Worldwide. (news - alert) For more information, visit the company online at <http://www.envoy.com>.*



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By William B. Wilhelm

## An “Appealing Case”

### VoIP Providers Ask Court to Reconsider Aspects of the FCC’s Universal Service Order

In February, the United States Court of Appeals for the District of Columbia heard argument in the appeal of the FCC’s Interim Universal Service Order. The panel hearing oral argument from Petitioners CCIA and Vonage, consisted of Judges Edwards, Garland and Tatel. While it is notoriously difficult to predict how a court will rule based on oral argument, it seemed that the arguments relating to double collection and disparate treatment of traffic studies — both issues explained in detail below — resonated with the Court more than other objections to the Order.

Vonage ([quote - news - alert](#)) appealed three separate aspects of the Order: (1) that the 64.9% safe harbor (i.e., the amount of interconnected VoIP traffic that is deemed to be interstate and therefore subject to USF contributions) was arbitrary and capricious; (2) that it was arbitrary for the FCC to require interconnected VoIP ([define - news - alert](#)) providers to obtain pre-approval for their traffic studies while wireless carriers can file their studies and rely on them unless the FCC rejects them; and (3) that it was inconsistent with the Act to require both the carriers that provide the underlying telecommunications services to interconnected VoIP providers and the interconnected VoIP providers to contribute to USF amounting to a double collection applicable only to VoIP providers.

Concerning the safe harbor figure of 64.9%, Vonage argued that the FCC impermissibly compared interconnected VoIP services to long distance service providers rather than traditional local telephone service. This was inconsistent with the FCC’s VoIP E911 Order and CALEA Orders that interconnected VoIP services were substitutes for local phone service and thereby subject to 911 and CALEA regulations. In adopting the safe harbor percentage, Vonage argued that the FCC relied on a study that was not part of the FCC’s record and reached its conclusions using worldwide minutes of use for interconnected VoIP services. Vonage argued that the Court should not rely on the report because it did not distinguish between different types of VoIP services and it did not segregate traffic into inter- and intrastate components since it was focused on worldwide VoIP minutes of use. Vonage suggested that the 37.1% safe harbor used for wireless services would be more appropriate for interconnected VoIP services.

Judge Tatel asked whether Vonage’s argument rested on whether there was sufficient record evidence for the FCC to determine whether 64.9% was the appropriate safe harbor, because if so, the Court affords substantial deference to the agency. Moreover, neither Judge Tatel nor Judge Garland seemed convinced that wireless services are an appropriate ana-

logue for interconnected VoIP services noting that consumers use wireless in addition to wireline phone service and for convenience. Judge Garland also questioned whether Vonage could have submitted a traffic study prior to the FCC adopting the order demonstrating that their percentage was below the safe harbor identified by the FCC. Vonage responded that at the time the Order was adopted, it appeared that the only safe harbor in play was the wireless safe harbor and that there was not sufficient notice for Vonage to take such a step.

Regarding the disparate treatment of traffic studies submitted by wireless and interconnected VoIP providers, Judge Tatel asked the FCC attorney to begin his oral argument addressing this issue. The FCC argued that it made sense because the wireless carriers have relied on such studies for years and have studies on file. Wireless carriers relied on this system while interconnected VoIP providers were new to the obligation so there was no similar reliance. Moreover, FCC counsel argued that interconnected VoIP providers were new to producing traffic studies implying that they would require FCC review. Finally, FCC counsel argued that the FCC thought there were significant problems with the wireless traffic studies and didn’t want to compound the problem by allowing interconnected VoIP providers to use the same process for calculating revenues subject to USF. Judge Garland wondered if FCC counsel was suggesting that the FCC was indulging the wireless industry but not providers of interconnected VoIP services. Judges Edwards and Garland appeared skeptical that the FCC’s explanations of this disparate treatment offered in Court was actually made in the Order.

Turning to the issue of double collection, FCC counsel argued that the FCC was concerned that if there was not double contribution, there would be a drop in the fund requiring the FCC to increase the contribution percentage attributable to all telecommunications service providers. Judge Garland questioned whether this reason comports with Section 254 of the Act that requires equitable and non-discriminatory contribu-

**Judge Garland wondered if FCC counsel was suggesting that the FCC was indulging the wireless industry...**



tions and that a better reason might have been that providers of interconnected VoIP services have not contributed until now. Judge Edwards also questioned the reasonableness of the FCC's position that interconnected VoIP providers should be subject to double collection in a discriminatory manner. FCC counsel then attempted to argue that the non-discrimination provision only applies to telecommunications services and the FCC has not yet classified interconnected VoIP services as telecommunications, but quickly retreated from that position as each Judge took turns examining the seriousness of that position and inquiring whether it was counsel's argument or that of the agency's — with Judge Garland noting that this was not even a good post-hoc rationalization of the Order.

CCIA argued that the FCC lacked the statutory authority to subject interconnected VoIP providers to USF contribution obligations. CCIA's primary argument was that in the absence of classifying interconnected VoIP services as telecommunications or information, the FCC could not subject interconnected VoIP services to USF contribution obligations. The Court seemed skeptical of this argument with both Judges Tatel and Edwards noting that the FCC was acting under its permissive authority to require contribution. CCIA responded that the FCC's permissive authority to subject services to USF contribution was limited to non-common carriers providing telecommunications services, like private carriers or aggrega-

tors. All three Judges questioned CCIA's reading of the statute.

CCIA also argued that the FCC's legal principle for subjecting interconnected VoIP services to USF contribution obligations threatened to eviscerate the statutory distinction between information and telecommunications services. Specifically, CCIA framed the FCC's argument as one where regardless of whether interconnected VoIP services are telecommunications or information, they have a telecommunications component and it is on that component that the FCC argues it can assess USF. Using that same reasoning, CCIA argued that the FCC could require all information services, like instant messaging and dial-up Internet, to not only contribute to USF but also to comply with Title II common carriage regulation. Judge Tatel responded that the FCC was not regulating interconnected VoIP services but requiring them to contribute to USF and had not addressed information services in its Order.

An order is expected in the next several months. For now, VoIP providers will have to wait for the outcome. **IT**

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By Anthony Iadisernia

# Adapt or Die. It's all about the NETWORK

*If you build it, will they come?*

The Millennials are our next generation workforce, born between 1980 and 2000. Unlike the Gen-Xers and the Boomers, they are already connected all over the world by cell phone, text messaging, PDA, email, instant messaging, and the Internet. They won't just ask for the tools they are accustomed to, they will demand them. Organizations need to start thinking about how they will evolve, adapt, and introduce these new applications into the workplace.

IT managers are being asked to design both wired and wireless networks to support rapidly evolving application requirements. The end goal is a better, faster, more reliable infrastructure. Unfortunately, new hardware and higher bandwidth are only two of the ingredients required to accomplish this daunting task. Networks designed to simply handle basic file transfer, email, and web browsing cannot efficiently support new applications such as VoIP, video, unified communications, instant messaging, and presence technology. *Adding any of these applications to an unintelligent network can result in major performance issues with mission-critical business applications.* Your network must be prepared to be able to handle all of the above.

## The Network

Start with the basics. The performance of your network will determine the quality of the applications it supports.

Perform a network assessment. Understand exactly what your limitations are. This investment will also play an integral part when building a network blueprint for the future. Many organizations perform a follow-up assessment once their new network is in production. It allows you to verify that your design expectations were met, and that your QoS, bandwidth sizing, acceleration, and such are working as designed.

As you reengineer your network, assume that *all* of these advanced technologies or applications will someday be running on it. It's much easier and less expensive to include capabilities like QoS and data classification/prioritization in your architecture as you plan, design, configure, and implement your new network. It's difficult (and expensive) to go back later and reconfigure a production environment.

An intelligent network can differentiate time-sensitive data such as IP voice and video from opportunistic data such as email and web surfing. A QoS-enabled network ensures control, reliability, and efficiency; it accomplishes this by means

of classification, marking, and prioritization of all network data. When designing your infrastructure, all of your network hardware should support QoS.

Once your new network is in production, it is recommended that you budget for an annual network assessment. Remember, the shape of your network changes every time you add a new router, location, or application.

**Network Security.** In the old-fashioned thinking, organizations would "dig a trench" and hide their network from the outside world. However, a properly-designed network should be not only secure, but also a technology enabler. Whether you are considering VoIP, ([define - news - alert](#)) unified communications, instant messaging, presence, or collaboration tools, there are security solutions out there that will protect you.

**Application Acceleration.** Application acceleration technology can drastically improve application performance over the WAN while keeping bandwidth requirements in check. Latency plays a major role with regard to application performance issues over the WAN. Simply adding more bandwidth may not solve the performance problem.

## Blending

A few years ago cell phone manufacturers started adding "text messaging" and calendar functionality to their devices. At the same time, PDA manufacturers were adding voice technology to their devices. Nowadays, when you walk into a wireless store, it's hard to tell if it's a cell phone with PDA capabilities or *vice versa*.

Wouldn't it make sense to be able to have the same blending concept in the enterprise?

## Presence

Most of us already use simple presence technology in the form of an IM buddy list. We can login and instantly see who's "available." Imagine a single dashboard with your IM,

**Perform a network assessment. Understand exactly what your limitations are. This investment will also play an integral part when building a network blueprint for the future.**

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### Managing it all

**Management Tools** There are several network management tools available today. Most tools are able to monitor and manage in a heterogeneous computing environment, meaning that the management solution operates utilizing standard interfaces with the ability to customize for certain environments.

When considering a Network management solution, be sure you select a tool that can handle the size of your environment. You should also review the product to ensure open architecture, fault management capabilities, notification capabilities. Consider, also, a tool that offers comprehensive, continuous visibility and automatic, custom

behavior analysis.

**Policy/Compliance** It's a good idea to ask the network management vendors if they can support your compliance requirements. You may want to incorporate policies such as SLA, escalation, and other requirements into the Network management system.

**When considering a Network management solution, be sure you select a tool that can handle the size of your environment.**

In order to stay competitive, organizations need to start preparing to be part of the massively connected world. As technology continues to evolve, you can be confident that the impact will be highly disruptive. It will pay to be prepared. IT

*Anthony Iadisernia, Director of Network Solutions for Forsythe Solutions Group, (news - alert) has nearly 20 years of broad experience in the field of information technology. His expertise includes telecommunications, and network and IP infrastructure management. Throughout his career, he has skillfully managed multi-million dollar projects across a diverse portfolio of needs in IT visioning and strategic planning at organizations such as Liz Claiborne, Morgan Stanley Trust, Tommy Hilfiger, and Scholastic Publishing.*

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By Rich Tehrani & Max Schroeder

# Working Together to Promote Continuity Initiatives

The second Disaster Preparedness Communications Forum (DPCF) East Coast meeting and workshop was held in Ft. Lauderdale on February 25, 2007. One of the speakers was Mike Emerson, Senior Manager, Security & Business Continuity Services for Citrix. Following the event, Mike had Laura Mallet, Business Continuity Coordinator, Security and Business Continuity Services for Citrix call me in reference to The Association of Contingency Planners (ACP).

The ACP is a non-profit trade association dedicated to the advancement of business continuity professionals. At over 2,500 members, ACP is the largest, most established networking and information exchange organization in North America — serving business continuity professionals for nearly 25 years. The ACP has become a unifying force for practitioners in the rapidly evolving field of business continuity. ACP provides a powerful peer-to-peer networking and learning environment for its members through chapters across the country. Currently there are 42 chapters across the country plus their first international location in Mexico City.

Laura Mallet is the Program and Marketing Director for the Southeast Florida Chapter and she put me in touch with the chapter President, Linda Hoffman, who is also Manager, Systems Control/Disaster Recovery of Baptist Health South Florida. The Southeast Florida chapter is an excellent example of how the system works. The chapter provides members with an information exchange experience and opportunities to set emergency response and recovery trends. In addition, the group works to strengthen relationships through alliances with public and private partners. Volunteer organizations, government agencies and businesses of all sizes can benefit from these networking opportunities.

As a non-profit association, most of the members contribute time and resources to further the cause. Therefore time is a critical factor to their members. As Linda explained, this is the reason that several states have multiple chapters to minimize the time it takes to travel to meetings. For example, a small state like Connecticut has a single chapter based in Hartford. Florida and Texas each have 4 chapters:

Alamo Chapter (San Antonio) — Greater Tampa Bay  
Capital Of Texas (Austin) — Mid-Florida/Orlando  
North Texas (Dallas) — Northeast Florida-Jacksonville  
South Texas (Houston) — Southeast Florida

Attending meetings is critical as active participation allows members to share knowledge with other members and gain insight from industry specialists. Plus, members can earn professional education credits and receive discounts on conferences, products, services, and training.

Each chapter develops partnerships with local government agencies and related professional organizations to accomplish goals at the direction of their membership. Many chapters are

very involved with their Chambers of Commerce and The Institute for Business and Home Safety in making small area businesses more resilient. Again, the Southeast Florida chapter provides a good example of how this works. The chapter has 5 meetings scheduled so far for 2007. The meeting dates are January, February, March, May and August. Not every month is covered but it is still a full schedule. Nuance is sponsoring the ACP breakfast for the March meeting and Cisco provided speakers for the February meeting.

ACP Corporate is dedicated to establishing mutually beneficial alliances that benefit the membership as a whole. Corporate works with many public, private and nonprofit organizations to provide networking opportunities, volunteer outlets, white papers, etc. for practitioners from the varied professions and industries.

The Enterprise Communications Association has similar goals and TMC has proven their dedication to the community with their support of the DPCF initiative. Hence the reason for the mutual co-operation of the three organizations. As we have covered in previous columns, the DPCF's objective in the disaster/continuity planning industry is to position ourselves in a supporting role where we can share our technological knowledge with the community at large. The DPCF is only one segment of the overall solution.

Membership in the ACP is open to anyone with an interest in or responsibility for the varied aspects of continuity planning. Members can join a chapter or become a general member if they are not situated near a chapter. To find a chapter near you visit [http://www.acp-international.com/contact\\_chapters.asp](http://www.acp-international.com/contact_chapters.asp) and visit <http://www.acp-international.com> for more information.

Membership in the DPCF is also open to organizations with an interest in continuity planning. If you are interested, please contact Max Schroeder at [maxschroeder@tmcnet.com](mailto:maxschroeder@tmcnet.com) or [mschroeder@faxcore.com](mailto:mschroeder@faxcore.com). IT

*Max Schroeder is a board member of the ECA, media relations committee chairman, and liaison to TMC. He is also the Senior Vice President of (news - alert) 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.*



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By Jeff Hudgins

## ATCA Can Add Value to the Telephony Market. . . But When and How?

Since the base specification release of PICMG 3.0 R1.0, AdvancedTCA Specification for Next Generation Telecommunications Equipment, the increasing level of interest in this design architecture has increased each and every year. After the initial release of the standard at the end of 2002, the growth projections by the year 2007 were staggering, but thus far the actual realized revenue growth has not lived up to those expectations. My objective for this column is to provide readers with a “street view” of what’s happening with the technology.

So let’s explore the state of the AdvancedTCA’s (ATCA) progress and see who is winning the game. Since I am a sports enthusiast, I like to break things up into logical segments — like a game plan. New technology adoption typically flows in four quarters:

1. Technology evaluation — “Does it really work and how?”
2. Acceptance — “What’s the value and can we make money?”
3. Deployment — “Production and lower cost activities.”
4. Phase out — “Final days.”

Currently the ATCA products are stuck in halftime. Many hardware and software vendors are still trying to justify and re-coop their significant capital investments in the technology. At the same time Independent Software Vendors (ISVs) and Original Equipment Manufacturers (OEMs) are trying to determine how ATCA hardware will enhance their solutions. Both seemingly are stuck half way.

One way to get a fast read on the state of the technology is to ask the creators and users some probing questions. So I quickly tapped into a network of experts that have first-hand experience with the good and the bad when it comes to ATCA.

### What are the most important recent developments in ATCA technology?

The consensus among the network of experts is that the ATCA base standard is good, but its offspring are really the market-makers. Follow-on standards such as the AMC PICMG specifications (.0, .1, .2, and .3) and the MicroTCA.0 R1.0, based upon AMC cards that plug directly into a backplane, seem to be where the action is.

According to Rubin Dhillon, GE Fanuc Global Director of Embedded Communications Products, “The most important recent developments in AdvancedTCA are the great strides the AdvancedMC specification has taken — specifically AMC.0 ECR001, an Engineering Change Request to add additional, new AMC connector types and vendors to the AMC.0 specification, and AMC.0 ECR002, a more general Engineering Change Request to review and update the AMC.0 specification, add features and correct errors in the specification. These

changes will enable AdvancedMCs to give ATCA designers more flexibility and add a wider range of interfaces to each design, meaning that identical base systems can be customized with different processing and I/O capabilities for specific applications. The original goal for AdvancedMCs was to define an ATCA mezzanine card that would meet the modularity and scalability requirements of the telecom industry. Its focus is therefore high availability, manageability, hot-swappability and a serial switched fabric backplane. Ultimately, ATCA blades equipped with hot swappable AdvancedMCs provide the greatest modularity of any open telecom platform. Further, AdvancedMCs extend ATCA’s high performance switched fabric by providing data rates up to 200 Gbps. The benefits of modular computing are driving a general trend towards modularity, particularly within industries where major system development continues under pressure to cut costs and increase performance.”

Amnon Gavish, VP of Business Development for [Radvision](#) ([news - alert](#)) adds: “The current processors on the ATCA blades are not sufficient to handle all of our video processing, so our video transcoding units will require MicroTCA to host DSP-based Advanced Mezzanine Cards (AMCs) to do the work. This will enable us to perform the video transcoding between video and audio codecs as well as video enhancements such as picture in picture and text overlay.”

### What hurdles does the ATCA standard still need to overcome?

Since the initial release of the ATCA base standard in December 2002, we have seen two major updates to the standard adopted and Release 3.0 is currently under development, but there is still work to be done.

“Many of the key attributes of the Advanced TCA architecture are well suited to a wide range of applications across the enterprise space as well as the telco space. This would include applications such as network security, VoIP, Voice Quality, etc. However — on the enterprise side, comes an increased focus on price /performance — and the need for a set of products which leverage the ATCA architecture — but with a subset of the high availability, NEBS/Telco features. These requirements are not specifically addressed in the ATCA specification — but clearly there is a market need for products in what can be



dubbed the 'ATCA-ish' category — particularly from the chassis and management perspective. Ongoing development — particularly in the management area will be needed to facilitate standardization in the approaches.” — Laurie Burger, Business Development Director Pentair/Schroff.

Additionally, there has been a strong interest from the Military, Aerospace, and Government sectors in both ATCA and MicroTCA technology. This demand is fueling design requirements for ruggedized ATCA and MicroTCA-based platforms, but to date there is no official standard to specify temperature, shock, and vibration requirements.

“Beginning in 2004, we entered the ATCA marketplace and had some almost immediate successes in NEBS high density compute environments. Essentially, we were replacing a rack full of NEBS 2U servers with ATCA blades. This area of the market, however, has been limited to a few key customers. PICMG 3.0's base connectivity at 1Gbps was just too slow for what many of our customers needed and a lack of off-the-shelf DSP / Telco network connectivity blades essentially stifled the tier 2 and 3 markets. . . Now, with PICMG 3.1 in prime time offering greater network performance, plus manufacturers like Dialogic, AudioCodes, Surf Communications, and others releasing their network building blocks in ATCA and AMC form factors, we are beginning to see a resurgence of interest in

Standard	Board Area	Chassis Slots	Total Area
cPCI (PICMG 2.16)	58 sq-in	21 blades (19 payload)	1,102 sq-in
ATCA (PICMG 3.0)	140 sq-in	16 blades (14 payload)	1,960 sq-in

ATCA design work. Based on our current design work and customer trials, we expect our ATCA revenues to nearly double over 2006 and continue this growth into 2008.” — Austin Hipes, Director of Technology, Alliance Systems.

**What ATCA architecture advantages allow you to differentiate your solution?**

The key ATCA architectural advantages that seem to climb to the top of the list are:

1. Interconnect Bandwidth
2. Scalability
3. Density

First the interconnect bandwidth. The older CompactPCI framework is limited to 1 Gbps per link under PICMG 2.16 and 4 Gbps for PCI. The ATCA standard blades will support up to 10 Gbps bandwidth per link. RADVISION, headquartered in Fair Lawn, New Jersey, is a leading provider of products and technologies for unified visual communications over IP and 3G networks. According to Amnon Gavish, VP of Business Development for RADVISION, “At RADVISION, we have a video web conferencing solution with a soft MCU which is a very demanding video application called Click to Meet ® Server. We were able to port our application over from CompactPCI to ATCA in a just a couple of weeks. The ATCA architecture gave us a significant increase in throughput both in and out of the blades and allowed us to triple the number of concurrent users on each blade.”

Secondly, the scalability of the ATCA architecture allows ISVs and OEMs to deploy a system which is populated with the right number of application blades to meet the user's initial requirements. As the end user's needs grow, they can add application blades to the existing environment without interoperability concerns. The end user can significantly lower both their CAPEX and OPEX spending with this “grow with demand” strategy.

Lastly, the ATCA board surface area is more than 140% greater than a standard CompactPCI board. This increased board real estate allows hardware vendors to increase the board density inside the ATCA chassis. If we consider a PICMG 2.16 cPCI high density system to an ATCA high density system, the total revenue-producing area is nearly double (see table).

**Final score**

The field of experts agrees on two things. One, the adoption rate has been slower than expected, but momentum is building and the ATCA standard is emerging from halftime. The winners in the second half will be those who reap the benefits from AMC flexible designs, 10 Gbps throughput, and price advantages of MicroTCA. IT

Jeff Hudgins is VP of Engineering at Alliance Systems. ([news - alert](#)) For more information, visit the company online at <http://www.alliancesystems.com>.

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By Richard "Zippy" Grigonis

## RadiSys on AdvancedTCA

Celebrating its 20th year in the embedded computing business, [RadiSys \(news - alert\) \(http://www.RadiSys.com\)](http://www.RadiSys.com) makes boards and rackmount machines in a variety of form factors. Since RadiSys was a big manufacturer of CompactPCI equipment for telecom, it makes sense that they would plunge into the new, heavier form factor of AdvancedTCA (ATCA) for high-end telecom and networking equipment.

Grant Henderson, VP of Product Marketing for RadiSys, says, "We're a leader in ATCA market and were the first to market an ATCA system based on 10 gigabit per second (Gbps) Ethernet. We argue strongly that 10 Gbps Ethernet should likely win in the competition among interconnect switch fabrics that run on high-end devices. That's why we focused our investments on that, and were first-to-market with the switch we debuted in the summer of 2006."

Henderson adds: "Look at the varied ecosystem of open platforms: ATCA, VMEbus, CompactPCI or PICMG 2.16; it really fragments and segments the players who are providing just boards or components. Some manufacturers provide chassis, others make particular elements such as compute blades, and still others provide whole complex systems. RadiSys' focus has definitely been on offering a complete ATCA solution, inclusive of the chassis controllers, compute blades, DSP blades and software to turn that into a system and allow our customers to create and focus on adding value to our core base platform. That definitely puts us into an elite class of players."

"Indeed, we saw and were enthused over ATCA when it first appeared, even though initial solutions were based on 1 gig of bandwidth on the backplane," says Henderson.

"Essentially, 1 gig of bandwidth enabled players to build a blade server or some bladed architecture for compute platforms; indeed, 1 gig is suited only for specific compute-centric or 'compute plane' applications. Think about where the bread and butter comes from in terms of the Nokias,

Alcatels, Lucent's and the Junipers of the world, it's not just compute plane applications, but it's actually network elements that have both compute and data plane or bare channel processing requirements."

"As you might expect, one key area of differentiation is that RadiSys has not just focused on the compute plane but is creating a portfolio of blades, software and systems that allow our customers to create high performance, wire-speed, secure, data plane processing network elements," Henderson says. "Included in that domain would be media gateways, session border controllers, media servers in the VoIP IMS market, but also elements used in the IPTV market such as B-RAS [Broadband Remote Access Servers], and a variety of different network elements."

"Also, IMS [IP Multimedia Subsystem] is coming on very strong," says Henderson. "All of the network equipment providers [NEPs] and the service providers buying their products are embracing ATCA. That causes the NEPs to create new next-gen products. Now, IMS involves reducing the cost and time-to-market for new services. ATCA definitely helps in that regard and it makes it easier for our NEP customers to build new capabilities and, more importantly, to future-proof them as the market continues to change. After all, IMS is arguably still in its infancy and there's going to be a lot of ongoing changes in network element requirements involving security processing."

"RadiSys has worked on data plane applications and technologies that help our customers make such applications," says Henderson. "Take our Gigabit Ethernet line card, based on Cavium technology. Cavium Networks makes network processors for a variety of applications. But what's particularly great about them is that they do wire-speed gigabit Ethernet processing. We see, both in the IMS world and in our customer base, that more and more of data plane elements must process at wire speed on the data path and do complex processing. I'm talking here about deep packet inspection, wire speed security — the kinds of things you see in session border controllers, RNCs, edge routers, security gateways, and so forth."

"So we're seeing a lot of emphasis in the market in terms of wire speed, high performance security processors," says Henderson, "That's why we recently announced two new products: the ATCA 72xx Series, which is basically a blade with up to 16 of these Ethernet line cards with Gigabit inter-

faces and four Cavium processors, with an Advanced Mezzanine Card [AMC]. We have a play in both ATCA and MicroTCA. AMCs nicely fit right into the MicroTCA chassis, so those cards we're building for the ATCA market are also very much targeted toward the MicroTCA too. You must plan

**"All of the network equipment providers [NEPs] and the service providers buying their products are embracing ATCA..."**

for these things in your design and know that you're actually targeting two different markets, so you have to keep in mind things like power, thermals and various things. But that's been part of our AMC portfolio strategy since Day 1."

Expect some new ATCA releases from RadiSys later this year. IT

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

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## Aculab's Alan Pound

*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 past year was a prosperous one for many companies in the communications space, among them Aculab (<http://www.aculab.com>). Aculab released its IP media processing technology in various form factors and with many new features, and it continued to deliver against its heritage of being the top vendor for worldwide protocol support. Recently, Rich had the opportunity to speak with Aculab's founder and CEO Alan Pound regarding how the company plans to leverage its recent success, including how it plans to grow its new ApplianX product.*

**RT:** Following on Aculab's successes from 2006, what can we expect in 2007?

**AP:** That's right; we had an amazing year last year. We launched our Prosody X IP media processing card in PCI and cPCI. Last month, we were the first hardware vendor to release an IP media processing card for the PCI Express form factor. The next form factor that can be expected from Aculab ([news - alert](#)) is MicroTCA.

In a nutshell, our main focus for 2007 is on video, mobility, and security. These are the three functions that we will be enhancing on our entire Prosody media processing product range. Prosody is available as Prosody X (DSP cards) and Prosody S (host-based); they will each have the same features and functionality, so the choice of DSP or host will be with our customers. Linux houses will be pleased to learn that Prosody S will soon be available under Linux. Finally, Aculab announced last month the introduction of ApplianX.

**RT:** In your opinion, how is the transition from PSTN to IP proceeding?

**AP:** If adoption of Aculab's Prosody X IP-based media processing platform is anything to go by, the transition is progressing well.

There is evidence of a healthy market and solid adoption of IP. There isn't a consumer of 'voice boards' that hasn't developed an IP capability and is not now looking to add video and mobility to their products. As calls originating in IP continue to increase in number, through Skype and others, there remains a need to connect to the PSTN. This is where gateway appliances come in. Sales of gateways are set to grow steadily, for at least the next three to four years, according to some analysts, and that is another sign of healthy convergence. Don't ask me when the transition will be complete, though.

**RT:** What is Aculab's position on the newer interconnect switch fabrics and form factors, such as PCI Express, AdvancedTCA, and MicroTCA?

**AP:** We have envisaged the industry's prompt migration from PCI to PCI Express for quite some time and were the first company to release a media processing and signalling card with PCI Express bus compatibility to the market. This allows our customers to take advantage of the new computer bus benefits — mainly better performance and lower price.

AdvancedTCA and its spin-offs, AMC and MicroTCA, are both compellingly attractive

to us. In fact, the entire ATCA architecture is ideally suited to the IP-centric approach we have taken with our range of media processing and signalling platforms — Prosody X. It is as if ATCA were designed for it. It lends itself ideally to distribution, parallelism and resilience — it is practically perfect. High availability, managed redundancy, and resilience are all strategic development areas for us. Aculab is planning to introduce ATCA compliant products later this year.

**RT:** What differentiates you from the competition?

**AP:** Essentially, Aculab is an R&D company. Our focus is on rising to the engineering challenges presented to us through developing leading edge hardware and software technologies. We focus our resources on continually enhancing and developing our products to give customers who have chosen to develop on our products a good return on investment. At Aculab, we can now provide our customers with a range of low to high density solutions, offering maximum flexibility.

In addition, we support our customers through offering comprehensive pre-sales technical consultancy, customer training services, post-sales and technical support. We also provide them with strong marketing support in taking their Aculab-based products to market. Our customers benefit from the fact that Aculab is a privately owned, long established, debt free company, focused on establishing long term relationships.

**RT:** Which country or region holds the greatest potential for growth for Aculab over the next three years?

**AP:** We have increasing penetration in the Americas, an ever-expanding Europe is our own backyard, but apart from Australia, where we have enjoyed a presence for some time, increasing our footprint in India, Singapore, Malaysia, and China, of course, is probably our biggest challenge. We have some partnership agreements in those territories and are continuing to develop those.

**RT:** You recently launched the new ApplianX product range. Can you explain the strategy behind the launch?

AP: The strategy behind ApplianX was set against the backdrop of a dramatically changing market for hardware- and software-based enabling technologies. A growing pool of solution providers are looking to take advantage of leading enabling technology but, for a number of reasons, do not wish to incur the associated development costs or dedicate the time to write C-based applications. Rather, they prefer to stay focused on their application.

The ApplianX range has been designed with this trend in mind, offering deployment-ready products based on Aculab's award-winning Prosody X IP media processing cards. Each ApplianX product plays an infrastructure role in the converged networks of enterprises and service providers, and as such, can address a number of service provision needs.

ApplianX products share a number of common features that together contribute to a low total cost of ownership along with an exceptional return on investment. This includes the 19" rack-mount presentation, which eases installation and co-existence with other infrastructure equipment. Configuration and administration

is facilitated by the use of an integrated HTML Web server for remote configuration and monitoring, plus support for SNMP, RADIUS, CDRs, and event logging. Extensive standards compliance ensures maximum compatibility with other systems. Resilience and robustness are assured by the use of replicated facilities in areas that are critical, or traditionally prone to failure: dual IP traffic interfaces, hot swap power supplies, RAID arrays when hard disk drives are absolutely necessary, otherwise preferring the use of reliable solid-state Flash memory. Finally, high performance and rich functionality are achieved by design, focussing upon specific tasks within the converged network, and delivering solutions that address those tasks in breadth and depth, rather than attempting to be a 'Jack of all trades'.

RT: What can we expect to see from ApplianX moving forward?

AP: ApplianX will include a range of voice

and video IP gateways, SIP trunking gateways, media servers and associated devices. The portfolio of products will be available in both enterprise class and carrier class presentations of highly resilient, scalable, high availability configurations, with capacities of up to four trunks in a single 1U server and 80 trunks in a cPCI, carrier-class chassis.

The first two products available are the ApplianX IP Gateway and ApplianX VoiceXML Media Server. ApplianX IP Gateway comes with 1, 2, or 4 E1 or T1 trunks supporting a wide variety of E1 and T1 protocols and approvals, plus PBX integration protocols DPNSS and Q.SIG. ApplianX VoiceXML Media Server is a deployment-ready, standards-based media service platform for service center and enterprise deployments that is able to attach to either TDM or IP (SIP) networks and execute applications written to VXML 2.0 and CCXML 1.0. The ApplianX website carries all the latest information on current and planned appliances: ([news - alert](#)) <http://www.applianx.com>. IT

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## Media and Application Servers

Today's service providers and businesses have to deal with tremendous amounts of media content of many types, and they need to push them to various users and subscribers simultaneously upon request. They also have to contend with rapidly changing requirements and requests for new and innovative types of services and applications. Today's triple and quad play services, and the anticipation of IMS-based services, are creating an increased demand for both media and supporting applications — like voice mail, conferencing, network announcements, e-commerce, web portals, and much more.

Incumbent service providers have to balance these new needs with still being able to benefit from their legacy infrastructures. The new crop of next-generation service providers have already deployed IP-based networks and are already looking to capture greater market share leveraging their state-of-the-art technology to introduce enhanced voice and video services. Wireless networks are also on a migration path based upon IP-based WiFi, WiMAX, or 3G standards. Enterprise IT managers also are realizing the benefits of being able to

create and add new applications to their voice services platforms. And MSOs are increasingly completing their triple and quad play portfolios by adding voice and/or mobility to their offerings.

Whether they are looking for media servers to simply push out content, or application servers to offer added features and services — with the added benefit of providing a forum for developing new applications — there are a variety of vendors that offer media servers, application servers, or both. Some have already prepared their products in anticipation of wide-scale IMS infrastructure deployment, whereas others have opted to wait and see what happens.

This month's product round-up features media and application servers, which have become increasingly vital pieces as service providers and enterprises look to complete an IP network puzzle that has many more pieces than its legacy predecessor. While we always strive to provide a complete list, we recognize that we may have inadvertently omitted some, in which case, please feel free to contact us so that we can amend our online roundup.

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# The Key Attributes for Reseller Success with VoIP

By Kent Hellebust

VoIP ([define](#) - [news](#) - [alert](#)) is the hottest, fastest growing service in telecommunications today. Recent research by the Savatar Group shows that over 40% of American businesses are evaluating VoIP for either immediate or future implementation. Services with this kind of market awareness make understandably attractive additions to telecom sales portfolios. However, providing a complete, robust business phone service is no small task; carriers are spending millions to invest in the basic equipment needed to provide service, to say nothing of the years required to create the network needed to deliver the service. As a result, many service providers looking to capture a slice of this burgeoning market are choosing to sell VoIP service through a reseller or agent relationship.

When it comes to purchasing phone service, businesses tend to look at three key criteria: lower prices, an uncomplicated integration process and features they can use to enhance their communications. This is a large part of VoIP's appeal: customers can't help but be receptive to the idea of a model that provides cost savings and superior communications management features without any significant investment or change to their existing infrastructure. Resellers must offer services that meet (and exceed) these customer expectations, and doing so starts with choosing the right service provider.

The expansion of the marketplace gives value-added resellers (VARs) a larger number of providers to choose from, but the criteria for selecting a provider has also become more stringent. In the past, selling VoIP was often difficult, complex and time consuming, due in large part to the piecemeal serv-

ice packages offered by the host company. These outdated packages often restricted the sales channel, making it too difficult to approach smaller companies by making selling to those companies largely unprofitable. To avoid this potentially limiting relationship, resellers should seek out providers that offer complete packages, ones including local, long distance, and toll-free networks, applications, online administration options, and marketing and billing support. These hosted package deals not only address end user concerns involving easy transition, they create such good economics that smaller companies return enough margin and revenue to make them worth pursuing, giving resellers an expanded market reach.

VoIP providers should also be assessed for their industry experience and telecom knowledge. Prime candidates should be able to provide examples of their expertise and support structure.

Resellers should look for companies with a proven history of successful customer installs and a list of dedicated clients (preferably ones willing to offer testimonials in regards to ease of integration and customer service).

## Ready To Resell

Once a reseller has successfully chosen a provider, it's time to take their service to the marketplace. The first thing every customer will want to know is, "How is this going to save me money?" According to Yankee Group and AMI-Partners, the cost conscious SMB market consists of over 7.6 million individual businesses, each spending an annual average of \$7,800 in telecommunications. This customer group will be glad to listen to suggestions on how to lower existing business phone costs. Resellers that do nothing more than showcase how little work is required to experience a cost savings (simply replacing a POTS line with hosted





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

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



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VoIP service can save most businesses up to 50% off of their current phone bills) will find a steady influx of customers.

But since everyone in the market can offer substantially lower prices than their counterparts in the traditional phone service world, resellers looking to maximize their investment in VoIP need to stress its other benefits when presenting it to interested clients. Successful agents and resellers will take a proactive approach, explaining to clients that they've not only saved money by switching service, they've gained access to a whole catalog of new call management abilities, such as virtual fax, voicemail, and auto attendant. They've enhanced their existing service without having to change it or invest in it in any way. When the complexity of VoIP engineering jargon is replaced with a simple presentation of real world applications, SMB customers are able to clearly see all the advantages VoIP has to offer.

Through his work with resellers and agents, David Archer, Vice President of Sales for AccessLine Communications, is confident that the SMB market has terrific potential, given the proper approach. "The savings and benefits are undeniable, and as long as resellers can present the facts to customers in the clearest possible way, they should have no trouble closing sales," he explained.

"Customers are primarily looking for two things: lower costs and ease of integration. Feature selection is also important, but resellers shouldn't lead with it. It's better to start by presenting customers with an easy, apples-to-apples cost analysis of what they are paying now, and what they will pay if they switch to a hosted VoIP service. Making it easy for customers to see what they'll save in local, long distance, and international rates alone will help hook them."

He went on to say that, after savings, customers are concerned with the ease of implementation. "No matter how much they may save, they will hesitate if they think their day-to-day operations will be impacted," he said. "It's important for resellers to emphasize that hosted VoIP can be implemented without

requiring changes to their existing infrastructures."

"It's important not to get hung up on trumpeting feature packages in the beginning of the sales process, but there's definitely a place for this discussion after savings and implementation have been addressed. Again, simplicity is the key. Rather than attack the customer with techno-jargon and telecom acronyms, emphasize the practical, day-to-day business benefits of VoIP service: how it expands mobility, how it helps connect a business to its customers, how it replaces bothersome call management tasks with easy, online administration tools."

Uncovering, targeting (and eventually dominating) "niche" markets is also very beneficial to ongoing reseller success. Creative resellers who examine industry trends and look for unique positioning opportunities can uncover a wealth of untapped sales potential. For example, look at the significant and underserved segment that's been created by the advent of the converged offer, those "all-in-one" bundling deals that residential phone subscribers are now being inundated with. Traditionally one of the biggest stumbling blocks of successful business VoIP integration, due to the troublesome QoS issues and unwanted strain on office LANs caused by mixing voice and data, these bundled solutions have actually created a renewed need for an "unbundled" option, one that keeps voice and data channels completely separate. Resellers that seek out businesses in this segment can target *any* business that wants to save money on its voice service, not just those who happen to be looking to replace *both* of its phone and data providers. Uncovering these kinds of exclusive customer segments can account for thousands of dollars in new business for resellers.

### Rethinking The Road To Reselling

The explosion of VoIP's sales potential has also created several new reselling models to choose from, including licensed agent programs (such as interconnects) and reselling through established retail chains. These methods dif-

fer from a wholesale reseller option in that they utilize a co-branded partnership format that stresses both the sales drive of the reseller, and the service strength of the provider.

Success in reselling VoIP in the interconnect channel is viable for two major reasons. First, a hosted VoIP solution easily helps defray customer concerns regarding investment costs, particularly since many customers either don't have or don't want to part with thousands of dollars for a new key system. The second reason addresses the needs of those who *are* interested in investing in a new key system, but can't get approved for financing. Many interconnects are currently forced to turn significant amounts of SMB business *away* for these very reasons; having a hosted VoIP solution with a virtual PBX to offer their clients will help them overcome both of these objections.

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## VoIP's sales potential has created several new reselling models...

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The potential of retail channel reselling also looks promising. Just like with any other product, retailers take hosted VoIP business phone service and offer it to their customers under a recognized brand built on customer loyalty. It's a method that's beginning to gain traction, and there's no limit to the amount of success it can achieve.

With the VoIP market only continuing to grow, resellers who choose the right service provider, establish the correct sales approach, and determine the sales model that best fits their business styles will find a receptive customer base ready and willing to invest in this rapidly developing technology. IT

*Kent Hellebust is CMO of AccessLine Communications, a hosted VoIP service provider specializing in the business market. For more information on programs for agents or resellers, visit [AccessLine \(news - alert\)](http://www.accessline.com) at <http://www.accessline.com> or call 800-914-0777.*



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# Xirrus Wireless Makes the Grade from Viewpoint's Point of View

Founded in 1961 and located in Calabasas, California, Viewpoint School is an independent coeducational college preparatory school with Kindergarten through Grade 12. The school resides on 25 acres in the foothills of the Santa Monica Mountains. With nearly 1,200 students, it is the sixth largest school in the California Association of Independent Schools.

As a leading edge institution, the school feels mobility is a key component to ensuring collaboration within the community and education of its students. In order to facilitate a mobile educational environment, the school deployed a campus-wide WiFi solution to make use of the latest teaching methods, including portable classrooms, flexible study areas, and a wide range of wireless clients, like notebooks, handhelds, and phones. Viewpoint wanted a WiFi network to handle its growing user density, bandwidth requirements, and coverage needs.

## The Old WiFi

Viewpoint had deployed an 802.11b WiFi network across parts of its campus, but in its quest to expand that network, officials quickly realized it would be overly complicated and would likely still be lacking. The existing access points provided inadequate bandwidth, could support fewer than 40 users each, and barely covered 30,000 square feet.

To make matters worse, the network lacked appropriate security to defend against outside threats. There was no

real-time Intrusion Detection System (IDS) or Intrusion Protection System (IPS). Ultimately, they were not convinced Viewpoint's existing network would withstand the additional load from more than 400 notebooks and multiple print servers, or provide adequate security and features the school required.

The IT staff knew there had to be a better way.

## Viewpoint's Requirements

- 802.11a/b/g wireless coverage for 400 notebooks and 6 print servers throughout the 25-acre campus.
- Support for a minimum of 75 laptops spread across 3 classrooms from a single access device.
- Triple Play WiFi for wireless notebooks, security cameras, and event broadcasting.

- Multi-level security to address authentication, encryption, and IDS, IPS.

## The Xirrus Solution

As Viewpoint was exploring its options, it was attracted to Xirrus because of its ability to deliver wireless Gigabit capacity, four times the coverage and twice the range of the existing system, and support for as many as 1,000 users from each AP.





During the evaluation process, Viewpoint's IT staff quickly realized they could easily support three classrooms with a single Xirrus product — deploying and managing fewer devices not only meant the school would save money, but could focus on improving other parts of the network. To wirelessly cover 70% of the campus with more than five Gigabits of high-speed WiFi connectivity, Viewpoint needed only 12 WLAN Arrays (two XS-3900s, nine XS-3700s, and one XS-3500). The deployment also included one XM-3300 Management Platform to centrally manage the entire network, and two XP-3100 Remote Power Systems where A/C was not accessible.

### The New WiFi

With its new wireless network from Xirrus in place, Viewpoint School now is able to provide the student

body, faculty, and even visitors with anytime, anywhere wireless access. It allows users to communicate and collaborate from anywhere on campus — classrooms, lecture halls, student lounges, the library, the cafeteria, or anywhere else they choose to teach, study, and learn. Viewpoint says the improved facilities have enhanced collaboration and increased learning. In fact, Viewpoint now has the infrastructure in place to benefit from the latest communications technologies for education as well as an enhanced campus environment — like triple play services to wireless notebooks, security cameras, event broadcasting, and more.

Viewpoint says that the Xirrus solution has not only met its needs, but has exceeded expectations in terms of installation, capacity and reliability, and TCO.

“We were in search of a better use of our facilities that would encourage collaboration between students and faculty. Xirrus had the best way to maximize our WiFi performance campus wide,” said Paul Rosenbaum, Associate Headmaster & COO at Viewpoint School. IT

*...the improved facilities  
have enhanced collaboration  
and increased learning.*

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# Conferencing and Collaboration for the Enterprise



Taken together as two facets of the same phenomenon, Conferencing and Collaboration was labeled as a “killer app” for decades, and yet its popularity was always subject to slow, steady adoption rates. After the 9/11 attacks, it was predicted that this technology would enjoy explosive growth — in actuality, there was a bit of a spike in usage after the disaster, but it now appears that cheap, high quality broadband and modern, inexpensive IP Communications equipment has had more to do with its recent increase in popularity.

That’s not to say that business are completely unaware of terrorist threats or other business continuity concerns. Indeed, in a 2006 customer survey by one of the world’s largest providers of multimedia conferencing and collaboration services, ([news - alert](#)) Genesys Conferencing (<http://www.genesys.com>), almost 80% of the 586 respondents said that conferencing can potentially help maintain business continuity and team interaction in the event of a major disruption during which workers cannot meet in person. The survey also found that many companies aren’t very prepared for a crisis, with some 60% of the customers reporting that either their companies have no crisis preparedness/continuity plans in place or that they are unaware of them if they do.

Yours Truly recently spoke to Denise Persson, EVP Marketing for Genesys Conferencing, and Tony Terranova, VP of Product Marketing, using — what else? — Genesys Meeting Center, which

is their core application, a 100% IP Communications app that integrates whatever you could possibly need for a virtual meeting.

Founded in France in 1986, and now with presence in 24 countries, Genesys has some experience in this conferencing and collaboration area, having delivered 2.5 billion collaboration minutes in 2006, which works out to 2 million meetings per year or 70,000 meetings per day, up over 25% from 2005. The Genesys Meeting Center interface has been translated into 8 languages. Much of Genesys’ business, however, is done in the U.S.

“In terms of multimedia we refer to the integration of voice, web and desktop videoconferencing service into one application,” says Persson. “As an innovation-driven company, Genesys does all of its own research and development internally. We’ve developed true multimedia collaboration using AJAX technologies that’s firewall friendly as well as of low bandwidth. Genesys started out

as an audio conferencing provider, and then we scored a number of ‘firsts’, such as the first to launch an automated audio conferencing service (1988); the first to launch PC-based audio-control software (1994); the first to launch audio-web-video integration (2000), the first to launch the multimedia minute (2003). Genesys Meeting Center is deployed on over 300,000 desktops. November 2006 was a record month with 80,000 web meetings.”

Genesys’ solutions require no downloads, no Java Virtual Machine, no disabling of pop-up blockers. Only a web browser is required, such as IE 6.0 (Windows), Firefox 2.0 (Windows, Linux), or Safari 2.0 (Mac).

There are many other reasons for enterprises to love Genesys Conferencing.

“When we’re chosen by an enterprise as a service provider, we have an implementation team that kicks into action quickly and works with our customer so that everyone in that company gets an account and is up and running quickly,” says Genesys’ Tony Terranova. “We provide training and various roll-out services. We pride ourselves on cus-



tomter service, having a 24/7 global help desk with local language support. The help desk hands both audio and video — many of our competitors have different help desks for different functions.”

“We’re also adept at customization, since every large enterprise has unique needs,” says Terranova.

“We have flexible pricing options but our main pricing option, and the one that’s most popular, is what we call the Multimedia Minute,” beams Terranova. “This is a single per minute rate, whether you’re using audio, the web, video or all three combined simultaneously. So, there’s no incremental charge if you add web functionality.”

The latest reason for enterprises to gravitate toward Genesys Conferencing is the launch of Genesys Meeting Center 4.0, a brand new Windows-based platform.

As Terranova explains it, “Once again, it’s designed specifically for large enterprises. It’s also designed from a large enterprise perspective to be very IT-friendly: easy to deploy and centrally-administer. Over the years we’ve found

that, with large enterprises, obviously many of them are locked down, and we’ve worked with a number of IT directors over the years to really perfect how they can deploy Genesys Meeting Center across their desktops and to the end users.”

“Version 4.0 is very bandwidth friendly,” says Terranova. “It takes up no more bandwidth than if you surfed the Internet. We have about 20 percent or 30 percent more bandwidth efficiency with 4.0. There’s also several levels of security through the system.”

Polycom (<http://www.polycom.com>), which first gained public attention with its superlative triangular conference phone many years ago, also follows trends and other happenings in this industry like a hawk.

Polycom’s Joan Vandermate, VP of Marketing, Polycom Network Systems Division, sees the following trends: “High definition [HD] is being adopted faster than we anticipated. Customers love it. There’s also a lot of interest in telepresence, which is raising the awareness level of video among C-level executives. There’s also interest among carriers

for video mobile applications — 3G-type stuff. And there’s continuing interest in integrating video into core unified communications environments, making video an extension of the phone or presence-based collaboration applications, such as IM, softphones, web collaboration, and so forth.”

“All of these dynamics are driving the need for a new platform that can support both the high computational requirements of HD and telepresence,” says Vandermate, “as well as the scale and integration flexibility required for mobile and desktop video applications. Polycom’s RMX 2000 is our solution and is also part of an IMS [IP Multimedia Subsystem] strategy.”

The RMX 2000 Real-Time Media Conferencing Platform to which Vandermate refers is a sophisticated IP-based platform for easy multipoint conferencing. It’s built on a powerful rack-mount computer constructed using the Advanced Telecommunications Computing Architecture (AdvancedTCA) form factor. The RMX 2000’s modular IMS-ready design makes it highly scalable and gives it the ability to handle next-gen conferencing application deployments. Initiating and joining an RMX 2000 conference is simple: users access on-demand meeting rooms which come pre-configured. The RMX conferencing platform supports many video resolutions (CIF, standard definition, and high definition). It can scale from 20 to 80 ports.

“As video is moving to IP,” says Vandermate, “it is becoming more of an IT responsibility — it’s moving away from A/V specialists. IT wants systems that work seamlessly in their IT ecosystems, and our RMX is designed for this. Also, video is driving interest for IMS in the enterprise, particularly among large, global customers. We are seeing interest in both the AdvancedTCA platform and IMS capa-



bilities of the RMX 2000 among large enterprise customers. Our sales teams had originally not planned to talk about IMS within enterprise accounts, but we are in fact seeing interest.”

Support for HD (High Definition), scalability and ease-of-use seem to be the watchwords these days for advanced conferencing systems that use video. Take the MCU 4500 from Codian (<http://www.codian.com>), for example. This, the latest of Codian's ([news - alert](#)) Multipoint Control Units, enables users to partake in full-motion HD continuous presence conferencing with a mix of SD (Standard Definition) and HD endpoints. It is said to have more than 10 times the per-port processing capability of competing conferencing platforms. When running in HD mode, Codian's video conference bridge should be well-suited for such applications as telemedicine, distance learning and corporate training, all of which demand transparent telepresence along with the flexibility to communicate with various types of endpoint hardware. The MCU 4500 can handle up to 720pixels at 60fps running under H.264, anticipating the next generation of endpoints.

The MCU 4505 serves 12 video participants, with 12 more voice participants that can be added. The MCU 4510 serves 20 video participants, with 20 more voice participants. The MCU 4515 serves 30 video participants and 30 more voice users. Finally, the MCU 4520 serves 40 video participants and 40 more voice users. You can view a live demo of Codian's HD technology at <http://www.codian.com/demo>.

### Converged Conferencing and Visual Sharing

The concept of ease-of-use in conferencing and collaboration is a big one among service providers and those who develop the underlying technology. Once inexpensive broadband became available, one of the last challenges to make any IP Communications application popular is to make it easy to use.

Take [WebDialogs \(news - alert\)](#)



Codian's MCU 4500 is based on Codian's Universal Port technology, delivering complete compatibility with standard and high-definition environments, regardless of codec or connection speed. The MCU 4500 can handle up to 720 pixels @ 60 fps, anticipating the next generation of endpoints.

(<http://www.webdialogs.com>), which has been in the web conferencing space since the middle of 2002, with a technology called WebInterpoint, which WebDialogs offers to conferencing service providers. According to Waynehouse Research, WebDialogs WebInterpoint is the most widely-deployed private-label, re-branded web conferencing solution in the market.

Lou Garcia, President, CEO and Director of WebDialogs, says: “Back in 2002 we looked at the phenomenal growth — about 35 percent a year — of the automated conferencing market, more popularly known as the ‘reservationless’ conferencing market. We said at the time that we wanted to offer service providers a web conferencing technology that is really well-suited to this fast-growing, automated conferencing market. So we came up with WebInterpoint, and we made it so that the service providers could re-brand it, and then we gave them a tool that was easy to use, but sufficiently feature-rich so that the providers could package and promote it with their service.”

“We work with half of the top ten conferencing service providers globally,” says Garcia, “but we also have experience with small, mid-size and regional service providers. That experience has

given us a real insight into where we think the market is going.”

Garcia drills down: “What I'm really excited about — and I spoke about this at your ITEXPO West conference — is the whole notion of ‘converged conferencing’, which is the ability to enter into a multimedia type of conference experience completely on-the-fly, but generally as a result of using presence and Instant Messaging [IM] technology. As all of these different IM platforms — some hosted, some premise-based — get used in the market, there's now an ability to escalate from presence to IM, and then from IM to VoIP-based conferencing, and then to extend that to include both web and videoconferencing. You could say that ‘web conferencing is to audio conferencing as visual sharing is to instant messaging and VoIP’.”

“In other words,” says Garcia, “a web conference such as ours or WebEx’, or whomever, is almost always used in conjunction with an audio conference call. So, even though the delivery platforms may be automated in a sense, the fact is that conferences are still planned; they're ‘scheduled appointments’ on people's calendars. But in the world of converged conferencing, I might have my presence showing that I'm online; you and I may be co-presenting next month at an ITEXPO East conference somewhere, and you may say, ‘Hey, it looks like Lou is online. Let me ping him and ask him if

**“People will increasingly run their lives through their presence and their IM, the enabling technologies for all of this.”**

he's there,' and I respond, 'Yes, I'm here,' and you ask, 'Lou, you want to talk?' and we just enter into a Skype call. After a minute or so, we may realize that we need, say, Rich Tehrani in the conversation too to talk about the format. We see that Rich is online and we bring him into the call. Then I may say, 'Hey guys, this is what I'm thinking about presenting at the show,' and I escalate this so that all three of us can collaborate on a PowerPoint presentation. That's what I mean by convergence. Notice how the platform that initiated the multimedia conference experience wasn't some Outlook scheduling event, and it wasn't an email that was circulated around a week ago; rather, it was this amazing little thing called 'presence' that initiated an IM and then we escalated that to voice, and the web, and then we tied in one or more people.”

“My core message is that, in this world, I think you need a level of simplicity for sharing information and collaborating on data,” says Garcia. “It must so simple that it ‘just works’ without any training whatsoever. That type of technology I refer to as ‘visual sharing’. I think the best evidence of that in the market today is our Unyte Product [<http://www.unyte.net>]. Unyte ([news - alert](http://www.unyte.net)) is a certified Skype application that enables real-time collaboration through visual, desktop sharing. Since we went into beta in February 2007, we have over 200,000 users. Unyte makes it very simple right now for Skype users to escalate their chats and Skype VoIP calls to include a visual sharing component. That's the distinction between web conferencing and our WebInterpoint with visual sharing and Unyte.”

The key point here is that I believe that we're sort of 'on the cusp' of a major change,” says Garcia. “The web conferencing companies such as WebEx, Microsoft, Citrix and Adobe may be vulnerable in their customer bases when it comes to folks who are not 'power users' of their technologies. Time and again I learn that people are only using a small fraction of those

platforms' capabilities, whereas I think that if you just want to quickly have a two-to-five person meeting — you want to share some Excel information, or you want to co-browse something that's behind the firewall, or you want to jointly run an application, or do a software demo, or go through a PowerPoint presentation — you don't necessarily need WebEx or Adobe or Microsoft LiveMeeting for that. You may just need a very simple-to-use, secure product that just works without any software at the endpoints. It's really like a Web 2.0 product that has a heavy AJAX experience and gives the user what they need on their desktop without any client software running. And that's what Unyte is.”

“In short, I think we're moving from being in a sort of 'by appointment' kind of conferencing environment to one where we do things more contextually and 'on-the-fly,’” says Garcia. “People will increasingly run their lives through their presence and their IM, the enabling technologies for all of this.”

Such “on demand” convenience and cost efficiency are also imbued in the conferencing offerings of ([news - alert](http://www.globalcrossing.com)) Global Crossing (<http://www.globalcrossing.com>). Their collaboration services include the expected triumvirate of audio, video and web-based conferencing tools for boosting productivity while reducing related meeting expenses.

For example, Global Crossing's Ready-Access Video service allows users to simultaneously display presentations and high-quality video, thus coalescing the benefits of videoconferencing and web conferencing into a single screen. Ready-Access Video gives users real-time content control and supports on-demand multi-point video bridging, integrated recording, streaming and broadcasting, web-based presentations and archiving. Meeting participants can connect to a discussion through a standard videoconferencing system by phone and the web, or by watching a full video stream at their computers. A reservationless Personal Identification Number (PIN) system

allows users to start videoconferences as easily as if they were initiating Ready-Access audio conferences.

Global Crossing offers Ready-Access Video in partnership with IP technologies provider Applied Global Technologies (AGT). Ready-Access Video and IP Video are applications that dwell within Global Crossing's converged IP offer, which supports ISDN and IP-based endpoints for videoconferencing services.

Bringing It All Together, Wiki-Style

Central Desktop (<http://www.centraldesktop.com>) is an independent wiki-based collaboration tool designed for business teams. Often compared to JotSpot (recently purchased by Google), Central Desktop requires no configuration or programming. It's been called the “wiki without the wiki.”

More than 12,000 users around the world use Central Desktop technology, including engineers. Interestingly, Central Desktop was recently chosen by *BusinessWeek* readers as the number two collaboration tool behind Wikipedia and ahead of JotSpot. It's a natural — a 100% web-based collaboration tool with integrated web conferencing capabilities. There is no software to install or download, and Central Desktop can be accessed via Internet Explorer, Firefox or Mozilla browsers, from just about any location. Their On-Demand Model appears both affordable and scalable. Version-tracked files and documents can be stored in a full-text searchable environment (PDF, Word, Excel, PPT, HTML and Saved Bookmarks). Corporate project calendars can be shared and syndicated via

iCal and RSS. Real-time collaboration can occur both inside and outside the enterprise firewall.

Isaac Garcia is co-founder and CEO of Central Desktop. He says: "We're a small team collaboration software company that provides collaboration solutions to teams in the small and medium-sized [SMB] market. However, we do reach quite a bit into the larger enterprise market too; we have several Fortune 500 companies and Global 2000 companies using our tools, but in those cases our software is used by small teams within those companies — pockets of 25 users here, 50 there, and so forth."

Garcia continues: "Many times, to the dismay of the people with whom I often speak, I say: 'Fundamentally, there's nothing new under the sun that I'm going to talk to your about or show you today.' This is not necessarily new technology. As a collaboration platform we are a wiki-type platform; that's how we do our traditional collaboration. Well, the wiki technology concept has been around for almost 12 years now. We have web conferencing integrated into our tool now, and hey, that concept has been around for decades. However, 10 or 15 years ago these concepts just didn't work well — or at all — in a circuit-switched environment. Now they do. The point is that these ideas have been around for a long time."

"Although we're a small company and there's a lot of crowding and noise in the SMB collaboration space," says Garcia, "it all comes down to execution. This technology has been around for a long time, but few companies have been able to execute it well. We're excited because we're one of those companies"

"In many ways the collaboration space can be a bit frustrating," says Garcia. "Essentially, telephony reaches into call centers and supports how dispersed teams talk to each other, which is nothing new. But at the same time it's an interesting space to be in, because various aspects of it are now always

changing; it's so dynamic. For example, one of the most used peer-to-peer tools for telephony, at least in the SMB market, is a free service now provided by eBay, which we all know as Skype. It's both odd and frustrating, but it's very exciting too."

"As for our traditional collaboration stuff, says Garcia, "we provide light-weight project management, tools for dispersed teams that collaborate with each other and share such things as files and calendars. We have some interesting twists to these, but I think what's more interesting is that we've integrated web conferencing as part of this collaboration platform. We see very few companies doing this kind of thing."

"As collaborators, we need different tools for different situations," says Garcia. "That's why we resort to different solutions. I've always experienced the frustration of, 'I'm going to write a document here, I'm going to schedule my calendar there, and how does that work with my web meeting tool that I'm using? Does it work with the other clients?' Things like that. Applications tend to be compartmentalized. What we're doing with Central Desktop is to meld synchronous and asynchronous collaboration concepts together. By asynchronous I refer to traditional collaboration, which we provide as a platform and web service. By synchronous tools, I mean Web Meeting and Web Conferencing. We feel that it's the easiest way to replicate that *ad hoc*, 'walk-into-your-office-to-show-you-something' environment on your desktop. We enable that quick face-to-face, 'I need to quickly show you a document,' environment for example, and bingo, here it is."

"Our concepts of web conferencing revolve entirely around how teams share information," says Garcia. "It's much less about 'Please use our web conferencing tool for presenting to your sales team'. There are plenty of other tools that already do that, and they all segment their technology."

"We do free conference calls," says Garcia. "We provide the number and

automate the dialing numbers to synchronize with the web conferencing. We handle that through Central Desktop. So you eliminate having to coordinate all of these different pieces. That's what we're trying to bring to SMBs."

### Integrating It All

Dimension Data ([news - alert](http://www.dimensiondata.com)) (<http://www.dimensiondata.com>) is a global solutions integrator. They have several practice areas, including a converged communications line of business, security, co-routing and switching, a data center and storage practice, and a call center-specific practice. Collaboration and conferencing comes under their converged communications line — this includes such things as IP Telephony, Cisco MeetingPlace, legacy video installations, and so forth. Dimension Data works with major technology vendors such as Cisco, Microsoft, Tandberg and Nokia to construct practical solutions.

Shaun Struckmann, Senior Solutions Architect at Dimension Data, says: "In the conferencing and collaboration space, the options are huge right now. One challenge customers face is that there are so many options. We've all heard about collaboration and we want to use it. But it's just as if you were to go to an electronics store and you look at a table full of PCs ranging from \$400 to \$2,500, and you need somebody to explain the differences. Dimension is really good at that kind of thing. We use consulting engagements to determine what the customer is really looking to do with a technology, what their requirements are, and their budget, obviously. The options could be Cisco MeetingPlace, the rich media collaboration platform, where you can do full video, web collaboration and integrate it with your email and your Outlook calendars. Then there's also 'lite' versions of these for customers who don't want as much integration, or possibly not video, such as Cisco MeetingPlace Express. And there are legacy video systems and people who just want a pure, point-to-point video, such as a Polycom or Tandberg endpoint, where they just put a camera and a microphone in a



room and you've now got simple, traditional videoconferencing."

"As for trends," says Struckmann, "because the cost of bandwidth is dropping, we're seeing a lot more customers come to us and say, 'We're ready now. We have the bandwidth available. We know we need it. Tell us what our options are and how we can get things done'."

"Several years ago, bandwidth was probably the biggest issue," says Struckmann. "It was expensive and customers couldn't justify the cost of adding ISDN lines or other things needed for legacy point-to-point videoconferencing. Nowadays, the cost of landline bandwidth has dropped, so customers are saying, 'Hey, we have this bandwidth, we've heard about converged communications, and we want to use our existing infrastructure. We've already deployed VoIP technology in our organization and we're happy with it. So what's the next step?' Well, the next step is to add web collaboration, videoconferencing and those types of options."

"The biggest compelling factor seems to be the web collaboration," says Struckmann. "It's being used much more than ever before. I attend

many conference calls now where the presenter has his PowerPoint slides, and we're listening to him present his solution or his sales pitch, and then he just clicks over to a demonstration of what he's using. So it's a very powerful tool. We don't have to fly to a lab somewhere and see a product. You can actually see it working live right on the screen."

"Telepresence is also getting a lot of traction," says Struckmann. "With products such as Cisco's TelePresence Meeting 3000 and 1000, meeting participants can pick up on non-verbal cues normally difficult or impossible to discern with traditional videoconferencing, but easy to discern on Cisco's system with its 65-inch plasma screen, full-duplex microphones, enhanced video, balanced acoustics and other high-tech items that conjure up the feel of face-to-face, lifelike communication."

Conferencing and collaboration tools are becoming more and more familiar to workers throughout the world. For home office workers, the days of sitting around unshaven in a bathrobe are numbered. You are warned! IT

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

**"The biggest compelling factor seems to be the web collaboration," says Struckmann. "It's being used much more than ever before..."**

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# VoIP Security:

## Encryption is not a Panacea

While high-profile [VoIP \(define - news - alert\)](#) security breaches and attacks are currently rare (or, at least, rarely reported), there is a strong focus on VoIP security of late. In fact, in the October 2006 issue of *IMS Magazine*, Seamus Hourihan, the Acme Packet vice president of marketing and product management, authored a story that focused on the shortcomings of next generation architectures such as 3GPP IMS and ETSI TISIPAN in addressing security. While standards groups define functional elements and interfaces designed to deliver interactive IP communications, they have yet to fully define the functions needed to protect the IMS core. Consequently, security is highly dependent upon the products you select and how you deploy them.

Encryption is an element that standards groups — 3GPP, ETSI and PacketCable — do address as part of their functional architectures. While encryption is a key part of any approach to building secure and trusted VoIP networks, it does not solve all problems. There are numerous threats and attack types that encryption does not mitigate or prevent. The threats are real and the solutions multitudinous and complex. Encryption should be viewed in the context of a greater and more comprehensive security framework.

### The VoIP threats

Many articles have been written explaining the threats to VoIP, so they will be only briefly outlined here. The main attacks, presented in descending order of significance of impact to a service provider's network, are:

**Denial of Service (DoS) attacks:** Malicious attacks designed to cripple a network element or an endpoint by

overloading it with calls or service requests. In addition to purposeful attacks, non-malicious overloads (e.g., a registration flood after a power outage or increased call volumes due to *American Idol* televoting) can also cause increases in call signaling rates that exceed what the service provider infrastructure can support, resulting in network conditions that are similar in effect to DoS attacks.

**Viruses and malware:** Computer viruses, worms, Trojan horses and other malware can infect phones and softswitches and other IP communication devices—just as they can computers and servers—and degrade performance or completely disrupt service. As devices become more sophisticated with distinct operating systems, malware also serves as a way to subjugate devices and launch DoS attacks that piggy back on top of encrypted links.

**Service fraud:** Toll fraud, malicious



intrusion or service theft may take the form of an unauthorized user gaining access to the VoIP network by mimicking an authorized user or seizing control of an IP phone and initiating outbound calls. Other options include bandwidth stealing or voice calls turned into video calls without authorization (or service provider compensation).

**Identify theft:** includes the uses of phishing and “man-in-the-middle” to acquire the identification information of a subscriber to gain unauthorized access to services and information.

**Eavesdropping:** The ability to listen in, record or redirect calls is possible in VoIP networks, just as it is with TDM calls. This is a concern not only because of personal privacy violations but also because sensitive information can be compromised and exploited.

**Spam over Internet telephony (SPIT):** the delivery of unsolicited calls or voice-mails could inundate networks, annoy subscribers and diminish the usefulness of VoIP networks.

### What Encryption Addresses

Encryption is a necessary part of any security solution, but it is not able to address all the threats outlined above. The four functions of encryption are:

**1. Authentication:** verifies identities of senders (via digital signatures or keys), which reduces theft of service as service providers can authorize only legitimate paying subscribers to use services



**2. Non-repudiation:** guarantees that the sender of a message cannot later deny having sent the message and that the recipient cannot deny having received the message; this can play a role in reducing service fraud

**3. Integrity:** ensures the message has not been altered during transmission which prevents tampering or modification and mitigates man-in-the-middle attacks

**4. Confidentiality/privacy:** ensures that information is accessible only to those authorized to have access (usually only sender and receiver) which ensures user privacy and mitigates ID theft

There are numerous encryption options for VoIP, including the widely known IP Security (IPsec), Transport Layer Security (TLS) and Secure Real-Time Transport Protocol (SRTP). However, there does not appear to be a clear answer from handset manufacturers, service providers and enterprises on which of the following options will prevail:

- SIP-TLS for signaling only
- SIP-TLS for signaling and SRTP for media
- IPsec for signaling and media
- IPsec for signaling and SRTP for media
- Proprietary schemes for signaling or media (e.g., Skype)

Each of these protocols has its own authentication options, encryption algorithms and key exchange mechanisms.

Due to these differences, there are significant trade-offs associated with performance, scalability, interoperability and manageability between the protocols. For instance, IPsec is the more versatile, yet more CPU-intensive, of the encryption technologies as it allows for encryption of signaling only or a combination of signaling and media. Yet, IPsec's reliance on IKE PKI for key exchange is very complex and is a challenge for scalability and manageability.

The use of encryption also begs two further questions: 1) what to encrypt: signaling or media or both and 2) where to encrypt? VoIP signaling is more important to encrypt as it provides a way to find specific conversations and the context of the conversation—the who, when and where of that conversation. Without context, media content is less useful, as it cannot be associated with specific called and calling parties, especially when a back-to-back user agent (B2BUA) is employed at the service provider edge, making all media appear as if it is being terminated at a single point. Regarding where to use encryption, service providers should balance considerations of where the risk is the greatest with cost and performance. Risk can be assessed by looking at what networks are trusted and the nature of the communications. Encryption can be employed at the following locations:

- Endpoint to endpoint

- Endpoint within the LAN (wired or wireless) to the WAN boundary
- WAN boundary to service provider edge or to WAN boundary at another site
- Within the service provider's own core network
- Interconnect border between service providers

For service providers, the most cost-effective and least impactful in terms of network demands is letting the endpoints encrypt on both ends.

Limitations and drawbacks of encryption

What encryption does not do is authorize service usage, control access to or hide network elements, control flow of signaling messages or RTP packets, or inspect packets for malicious elements. Encryption alone does not prevent DoS attacks or network downtime and call quality degradation due to non-malicious overloads. Its role in providing an authentication architecture does play a critical part in initially validating legitimate users from fraudulent ones, but even valid callers can launch DoS attacks—either purposefully or via a compromised endpoint. A normal encryption framework assumes that once a device is authenticated, it is “behaving nicely,” which may not be the case for an infected or compromised device. Encryption does not monitor nor react to user and endpoint behavior.

Encryption is somewhat limited by the capabilities of the endpoints themselves. Endpoints can become infected and transmit viruses or malware through authenticated tunnels or, without proper acceleration, can be severely affected by the processing required to encrypt or generate keys.

In addition, service providers should consider the costs to performance, scale and capital budgets that are involved in employing encryption in their network. It's not a free addition to the network



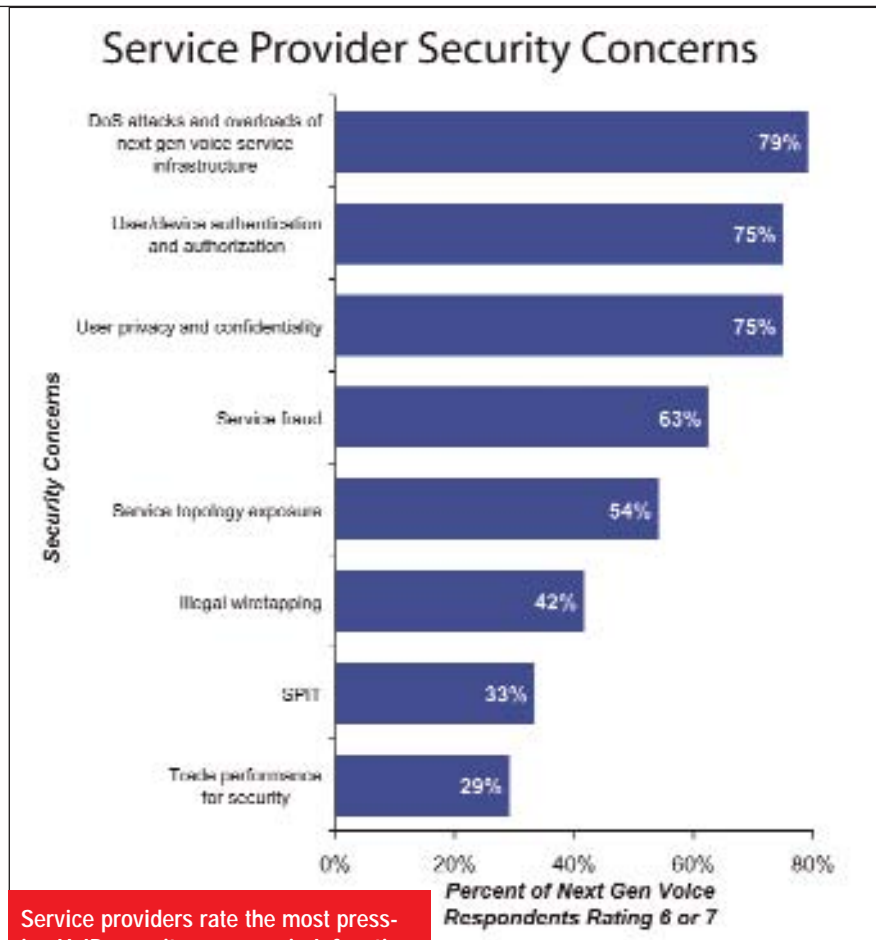
and the complexity of encryption exacts its toll on network elements' processors and their ability to service requests. Encryption within the network is best suited to be handled in hardware so as to scale to hundreds of thousands of sessions while not adding to the latency or degrading the call quality. Management of encryption key infrastructure can also be operationally burdensome and quite costly.

VoIP security requires a comprehensive approach

DoS attacks, one of the most significant threats to service provider networks, are not fully prevented by using encryption. A dynamic user trust model to fortify the initial authentication performed with encryption provides a greater degree of protection. To prevent both DoS attacks and non-malicious overloads, border devices with dynamic permit and deny lists based on trust binding with individual sessions could be used to protect the network against those attacks. The trust binding between the session and the network is based on the behavior of the endpoints. Complemented with hardware-based access control, policing and rate-limiting, these border devices are designed to allow service providers to prevent attacks from impacting their service core by detecting them at their network's border. The border elements employed should be able to protect themselves from attack as well as the equipment in the VoIP or IMS core—equipment that's delivering revenue-generating service.

A thorough approach to security also involves having the network edge provide full topology hiding and a Layer-3 double-NAT mechanism, so that internal VoIP equipment addresses can be private or unadvertised outside of the service provider's routing area, and thus become unreachable. This disintermediation of the network—hiding and separating the topology from peering partners and customers—is designed to make it more difficult to attack the service provider's infrastructure and to use SPIT to target subscribers.

In developing a comprehensive secu-



Service providers rate the most pressing VoIP security concerns in Infonetics Research's Service Provider Plans for Next Gen Voice and IMS 2006.

urity approach, service providers should consider other key issues, such as:

- The ability to differentiate between legitimate and malicious registration floods so as to quickly reconnect subscribers after a network event but prevent DoS attacks
- VPN separation to maintain security isolation between VPNs for corporate customers
- Anonymize all user information to protect subscriber confidentiality
- VoIP packet payload inspection and attachment stripping to thwart viruses and malware
- Monitor, report, and record security attacks, attacker info, and provide audit trails for investigation

Optimally, all these capabilities should be delivered at wire-speed and not add signaling or media latency or affect legitimate call quality. This requires purpose-built hardware designed for processing encryption as well as preventing DoS attacks.

### Conclusion

Encryption is a key element of VoIP and is defined by a number of next-generation architectures. It plays an important role in preventing service fraud, ensuring user privacy and delivering an authentication method to differentiate legitimate customers from hackers. However, VoIP security designs should not stop there. Comprehensive VoIP security needs to address more than what encryption technologies such as IPSec, TLS or SRTP solve. There are threats that other technologies—such as access control lists, signaling rate limiting, topology hiding—are designed to thwart and stop. All of these security elements, together with hardware acceleration, should be considered when developing a security framework designed to allow a network to scale smoothly without affecting the quality of legitimate calls. IT

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# VoIP Peering Revs Up

As Voltaire said, “If you wish to converse with me, define your terms.” (He later admitted he was actually quoting John Locke, but that’s another story.) Of the many definitions of VoIP peering, John Longo of *Heavy Reading* proposed the following: “VoIP Peering is the interconnection between the originating [the one with the calling customer] and the terminating service providers for the completion of a seamless session between subscribers on their networks. Third Party resources — transmission, switching, database or otherwise — may be used to facilitate the session connection.”

When talking about VoIP Peering, we must remember that it is a two-sided coin. One side involves service providers directly connecting with other service providers. The other involves enterprise-to-enterprise peering which reduces service providers to simply providing a dumb pipe over which operate the applications managed by the enterprises themselves.

In both cases, peering eliminates the involvement of PSTN and multiple unnecessary IP-to-TDM and TDM-to-IP conversions. There’s a strong belief that by cutting out multiple parties (“middlemen”) to handle a call passing through the PSTN, you will lower your termination costs. Peering does not mean *free*, however. That’s a separate commercial discussion, particularly when two service providers are peering with each other.

Potentially, since we’re talking about a flexible IP network, a service provider or carrier could come up with new IP-based services in a peered environment, which can generate new revenue streams, and so on.

Any way you look at it, there are reasons to establish peering between enterprises or between service providers.

Even so, VoIP Peering is not as simple to do as generic IP Peering. The rules of the game for IP Peering are much simpler: An IP address is never ported from one person to another. Instead, an ISP is assigned a range of IP addresses, and no one can pluck a number out of the middle of this range and take it somewhere else. Hence, “addressing” in the Internet is very clear and well-specified. Moreover, the Internet allows anyone to reach anyone. Any security and access control are the responsibility of the user and their browser — they decide whether or not to look at a particular website.

**VoIP (define - news - alert)** Peering differs in that the address — which is the telephone number — is not necessarily in an “official” range. The number could have been ported, as are many fixed line numbers. Voice service providers aren’t conventionally-regulated entities that are assigned numbers, so there is no official source of information on what telephone

numbers a particular service provider operates and maintains for its customers.

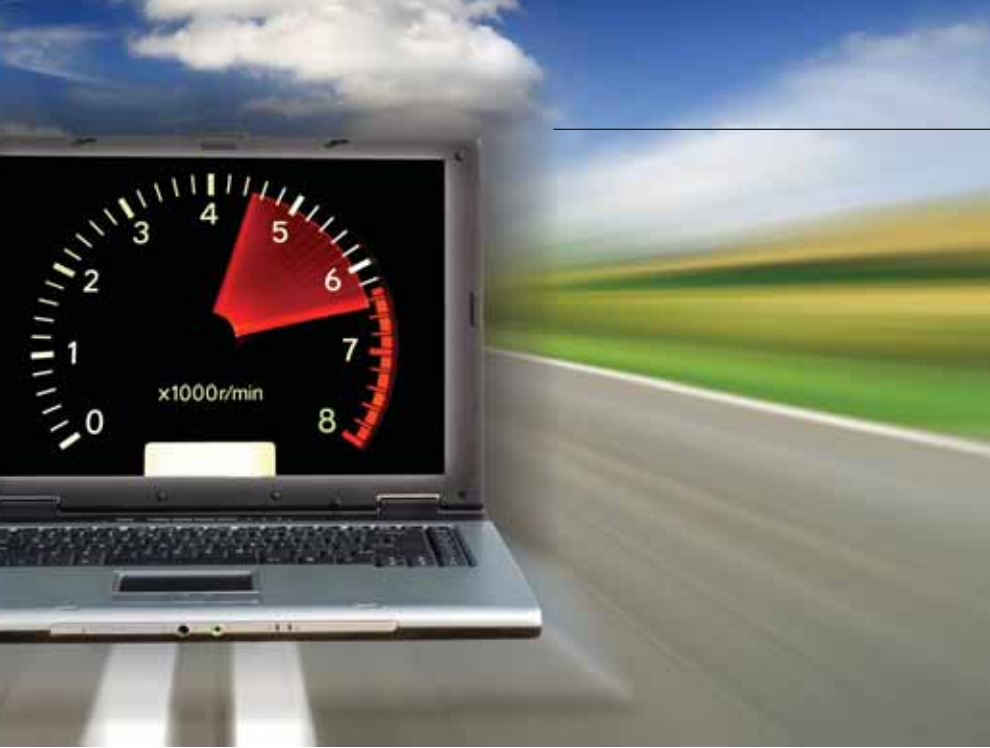
Another aspect is that most VoIP end users expect the providers to manage security, which means that they don’t want unwanted calls in the middle of the night from some spammer offering Viagra. Instead, users expect their service providers to somehow manage such a problem out of the system, which obviously is not the case with the Internet in general. This alone makes the establishment of VoIP Peering connections much more complex than they are in the IP Peering world.

For peering among service providers, the following sequence of events usually occurs:

1. Provider A provides its telephone numbers and routing information.
2. Provider B loads that information into an ENUM [Electronic Numbering] transaction server.
3. An outgoing call from a customer of Provider B queries the ENUM server for matches to the phone number.
4. Successful matches provide the routing information.
5. Calls are routed over an IP connection to Provider A, which terminates it.

In this scenario there is an implied need for each provider to supply telephone numbers and routing information to every other provider or carrier with which it wants to peer, and to keep that information up-to-date.





## Bye, Bye, Middleman

Major carriers are now getting their feet wet in the VoIP Peering world. For example, [Global Crossing \(news - alert\) \(http://www.globalcrossing.com\)](http://www.globalcrossing.com) has hatched some VoIP Peering solutions for both carriers and enterprises.

Anthony D. Christie, Chief Marketing Officer and Executive Vice President of Global Crossing, says: "From our standpoint, we're very enthusiastic about VoIP Peering, because it plays right into what created our network for — to be disruptive to traditional price models and industry structure models of the big incumbents without having an irrational effect on our balance sheet. We've been dealing with VoIP for seven years now, and we have appreciably all of our minutes on our VoIP backbone today."

Christie elaborates: "Last year we launched two offers: our VoIP Community Peering offer for Enterprises and our VoIP Community Peering offer for Carriers. We went down a path with SunRocket that we've announced. SunRocket is a leading U.S. Internet phone service provider and together we've implemented a high-performance VoIP peering solution yielding excellent end-to-end IP connectivity for IP services, and of course it bypasses the usual usage fees associated with completing calls over the PSTN. We're also doing this with a couple of other players, but we haven't announced them yet. They all involve what I'll refer to as a kind of 'virtual peering fabric', where we're taking,

say, SunRocket's actual dial plan and we're storing it in our softswitch. SunRocket is using our outbound VoIP services and our DID local services, so for virtually any customer that's calling another customer in the SunRocket universe, as that call traverses the Global Crossing network, it's an unmetered call — an 'on-Net' call, if you will."

"We've also done a deal with Stealth Communications that essentially connects their network to ours," says Christie, "so that carriers and enterprises can have a much broader footprint to connect to Stealth Communications' VPF [Voice Peering Fabric, an ENUM-enabled, distributed Ethernet fabric that allows providers to buy, sell and route voice minutes and telephony related-services among themselves by directly connecting to each other, avoiding unnecessary delays and relays.] and through Global Crossing's network. So we're interconnected with Stealth but if there's a player, enterprise or carrier that wants to connect to Stealth but a node is too far away, or there are questions around connectivity, mediums, and things of that nature, then they can come to Global Crossing and we can give them an MPLS connection right into the Stealth VPF. We're also exploring to see if there are other ways for us to leverage some of the stuff Stealth has done. They've got a pretty large ENUM database and they've got a pretty fast-growing business model."

"In the longer term," says Christie, "we really don't see the role of the intermedi-

ary being as strong as it is today. The reason that the intermediaries and the VPFs that are there do exist is because there is an absence of a concrete standard around ENUM and we actually see, in the intermediate-to-longer-term, a model very similar to what the Internet peering model is today. We have Tier-1 peers; Tier-1 is categorized based on the breadth and quality of the network and whether or not it pays for peering. There's a sort of self-enforcing nature, if you will, of the Internet as we know it today, and we see the same thing evolving in the VoIP Peering world. While intermediaries are an important stop right now to get the energy and access around VoIP going, they'll probably play a lesser role in the longer term. That's how we view it. We're extremely bullish on the concept."

## Where is Everybody?

Another major player striding into VoIP Peering arena for service providers is Arbinet (<http://www.arbinet.com>). [Arbinet \(news - alert\)](http://www.arbinet.com) provides a huge marketplace through which service providers can buy and sell mainly voice minutes. Their 693 customers include all top ten international carriers, eight of the largest prepaid calling providers, and they trade about 1.2 billion minutes every month, 44% of which are mobile and 30% of which are VoIP. They also convert about 330 million minutes every month between IP and TDM networks. They're probably one of the most interconnected companies in the world.

Their basic model is that a service provider connects to one of their POPs using TDM or VoIP, and they buy termination from Arbinet, which then turns around and finds the appropriate sellers to provide that termination, routing the call between the originator and the terminator across Arbinet's platform.

Surprisingly, Arbinet discovered that the whole world was not yet beating a wide path to the doors of VoIP Peering providers.

Steve Heap, CTO of Arbinet, says, "Interestingly not a great deal of VoIP

Peering is taking place. It's not yet an enormous opportunity to many service providers. The first reason is that if you look at the U.S., about 0.25 percent of the total traffic is VoIP-to-VoIP, and so if every provider peered with every other provider, at best only 5 percent of a provider's package would be peered. Second, if you look internationally, it's even harder to justify investing in the infrastructure for VoIP Peering. What's the interest in peering between some VoIP customer in Spain and another in Finland? Not a lot. And third, it's hard work. You've got to identify partners and you've got to trust them with your numbers, because you don't want them to phone up your customers and persuade them to move to their service. Do you trust someone who lets customers sign up for free? Because, potentially, that's where the SPIT would come from."

"Moreover, the provider still needs to agree on a commercial interconnect with its peers," says Heap. "It needs to agree about IP addresses, it needs to set up transport, exchange numbers with the peering providers, route test calls, do a query of outgoing calls, and if you may have to be prepared to do bill-and-settle."

"So, it's not a slam-dunk," says Heap. "Providers don't say, 'Oh, let's peer!' since there is a whole series of things you've really got to do behind the scenes."

"There are alternatives out there. There are peering communities, such as XConnect [a huge neutral provider of VoIP peering services and operator of the XConnect Global Alliance, which recently launched their DirectRoute service, enabling wholesale carriers to profit from Layer 5 VoIP Peering] or the Stealth Communications service called VPF [Voice Peering Fabric] to some extent. If a provider joins one of those, it gets one connection to the community and it gets access to everyone else. Such peering communities can provide number sharing mechanisms. Some, like XConnect, provide a measure of security.

But, as Heap explains it, VoIP Peering Communities have their Pros and Cons. Here's his list:

Pros:

- One connection to the community gives you access to all other members.

- Provide number sharing mechanisms via private ENUM Registry.
- Often provide signaling relay functions and some security.

Cons:

- Must agree to the rules of the community.
- Zero termination fee for accepting calls to your customers.
- Must accept calls from all other partners.
- VoIP only — so community of interest is still limited.
- No ability to organize direct peering with a partner using private ENUM system.
- No ability to reach members of another community.
- Your numbers are in a privately held company's systems.

"Arbinet thought it too could create a community," says Heap, "since everybody trusts Arbinet and we're a neutral, independent company. But as we thought about it, we asked ourselves if the industry really wants lots of little isolated communities popping up. Instead, we came up with what we think is a better idea. We first asked ourselves, 'If VoIP Peering has such clear benefits, why restrict it to VoIP?' After all, VoIP is only a technology, not a lifestyle. So, why not form a peering community between service providers that's independent of the technology used to reach the end user? When you do that 100% of the peered traffic can travel between service providers. There are still no intermediate carriers and no unnecessary conversions, so the quality is at its best. Additionally, each service provider can now evolve at their own pace to VoIP. Moreover, the service provider who 'owns' the called customer decides — as now — whether a termination fee needs to be paid — many medium and large service providers get a termination fee now and a change of technology won't cause their finance group to say, 'Oh, let's give up this revenue stream'. So if they decide they want to have a termination fee then obviously they can maintain that. In a peering community that makes sense, you simply pass that termination payment from the far end to

the originating party. You wouldn't add your own margin cost to it."

Heap continues: "There are other issues as well. How does a provider share numbers? How does it handle the querying of calls? How does it handle VoIP-to-TDM conversion? How about security, routing, transport, commercials and settlement? Thinking about how to deal with this also gave us more ideas when we at Arbinet developed Arbinet PeeringSolutions."

"To share numbers, for example, we formed, about 12 months ago, a non-profit, non-stock company called SPIDER Registry, that's managed by an industry board," says Heap. "The SPIDER Registry's sole job is to enable the sharing of numbers and routing information. Once a service provider passes its numbers into SPIDER and decides to share those numbers with someone else, SPIDER then synchronizes the numbers and the routing information into an ENUM server belonging to that other player. There is no charge for creating an account, putting numbers in, setting up peering relationships or downloads, but there is a fee for each successful query against SPIDER-provided numbers which returns a VoIP address, in effect."

Nuts and Bolts

As VoIP Peering increases among both enterprises and service providers, the infrastructure will have to handle yet another phenomenon, the rise of IMS (IP Multimedia Subsystem) a common service architecture that's being built for all the world's wireless and wireline networks. Can all of the world's network elements serve both these masters with their usual aplomb?

Over at [NextTone Communications](http://www.nexttone.com) ([news - alert](http://www.nexttone.com)) (<http://www.nexttone.com>), Nick Turner, VP of Product Marketing, says: "There are specific rules in carrier-to-carrier peering which need to be handled by a Session Border Controller on behalf of the IMS network. For enterprise peering, you have a different set of problems and complexities. You've got more variances or difficulties in the IP realm. Private IP addresses,

public NATs, VLANs, 'realms', and so forth can cause problems. Softswitches and IMS networks really don't have much in their plumbing to handle these things. Fortunately, an SBC's job is to normalize things into something the IMS infrastructure can understand and relate to. And that's in addition to the commonly understood security aspects that we all know and love about SBCs."

At Cantata Technology ([news - alert](http://www.cantata.com)) (<http://www.cantata.com>) one of the world's leading independent providers of enabling communications technology, James Rafferty, Senior Product Manager, says: "At the 10,000 foot level, certainly the driver pushing companies into VoIP Peering is that, as VoIP is taking off, you have various 'islands' of VoIP forming. Traditionally, the way you'd connect up those islands would be through the PSTN and a series of exchanges would occur to accomplish that. One of the business drivers for VoIP Peering is to have the different VoIP players start to try and work together more so they can bypass the PSTN connection. In practice, it's somewhat messier than that, but for a company such as Cantata, it's a terrific opportunity, because we're seeing a lot of need to basically tie together different types of signaling and media, and that's what we do with our products."

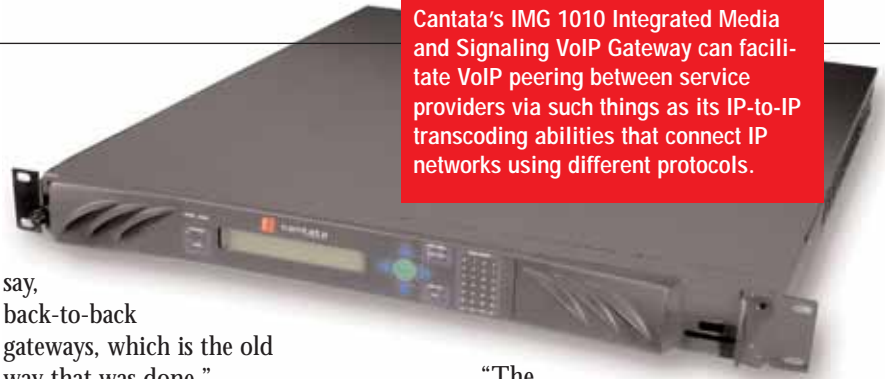
Scott Wieder, Cantata's Director of Marketing Development, says, "One of the necessary evils in this area is transcoding. There was a theory that went around some time ago to the effect that everyone would settle on using just one or two voice codecs, such as something in the G Series [e.g. G.729] or the newer ILGC [Internet Low Bitrate Codec], and you wouldn't really need to do transcoding as you sent traffic back and forth between carriers. But that's not how things are playing out, not at all. There will apparently always be a need for some kind of transcoding. This is one area where peering service providers are calling on a product such as our Cantata IMG to do IP-to-IP transcoding without having to go through a TDM connection such as,

say, back-to-back gateways, which is the old way that was done."

"The wireless guys have their own codecs," says Wieder, "and codecs such as ILGC are starting to appear and proliferate, and so there's the need to have some 'Rosetta Stones' out there to translate between them. In a similar regard, if you look what organizations such as the IETF are doing in the peering space, most of the focus there is on SIP [Session Initiation Protocol] and yet there's still a lot of H.323 networks out there. So there's a need to make good as far as signaling is concerned, too. This is an area where the SBCs [Session Border Controllers] can definitely come onto the playing field, because if there is a need to arbitrate between, say H.323 signaling and SIP, then that's most typically being done through an SBC."

"Even with VoIP Peering occurring, there are still many calls that need to connect to the PSTN," says Wieder, "so we at Cantata continue to experience customer interest in our SS7 capabilities in particular, to help make those connections. SS7 capability has two aspects that this crowd is paying attention to: One is the basic SS7 connectivity, as can be found in SS7 ISUP [ISDN User Part], which is what we offer directly in our IMG 1010 Gateway. That's a popular combination. Second, one of the reasons SS7 gets used is for local number portability and TCAP database lookups [TCAP, or Transactional Capabilities Application Part enables deployment of Advanced Intelligent Network services by supporting information exchange between signaling points] and stuff like that. Cantata has another product called the MSP [Multi-Services Platform], an application platform with a multi-layered SS7 stack allowing people to set up their own SS7 lookups and handle local portability lookups that traditionally have been the provenance of SS7 technology."

Cantata's IMG 1010 Integrated Media and Signaling VoIP Gateway can facilitate VoIP peering between service providers via such things as its IP-to-IP transcoding abilities that connect IP networks using different protocols.



"The VoIP Peering guys have a lot of interest in doing these types of lookups on the IP side through something like ENUM," says Wieder, "so we're getting interest from companies in finding ways to start managing the transition of that kind of data going from SS7, where it is today, over in the direction of IP, particularly where two conversing parties are both on VoIP networks."

"But the biggest thing about peering is that, in practice, it's mostly about business," says Wieder "You don't really have peering until you have a business arrangement. So this is one of the reasons why things such as the VoIP Peering Fabric [VPF] have been coming along and been enjoying some popularity, because they offer an 'umbrella' or a 'dating service' for carriers to get together and then essentially enter into a bilateral or multilateral arrangement called a federation. This sets the rules of engagement as to how the actual business side will work. Once the business side is taken care of, the actual technical connection between carriers can take place."

VoIP Peering has yet to explode, but it is sizzling. Within a few years it will be as commonplace as IP Communications itself.

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

#### The following companies contributed to this article:

Arbinet  
<http://www.arbinet.com>

Cantata Technology  
<http://www.cantata.com>

Global Crossing  
<http://www.globalcrossing.com>

NexTone Communications  
<http://www.nextone.com>

Stealth Communications  
<http://www.stealth.net>

SunRocket  
<http://www.sunrocket.com>



# Deploying Peered IP PBXs:

## VoIP Strategies for Businesses with Multiple Locations

Businesses are constantly looking to new technologies to reduce costs. It's expected of VARs and system integrators that any rollout of new technology should both save money and provide better services. VoIP technology is no exception to this rule, and reduced monthly communications bills are a big lure for businesses to adopt VoIP. Businesses with multiple office sites are particularly good candidates for using VoIP technology, by using the ability to connect phone systems at each location together over the Internet. The upside is quite compelling: free calls between sites, and no need for expensive services from the phone company such as frame relay. Instead, by relying on technologies such as SIP, all that's needed is your existing ISP connection. SIP is an open standard and so IP PBX systems that are SIP capable should be able to "talk" to each other directly, without intervention by a service provider or external carrier. Peering IP PBXs together allows them to work cooperatively.

Unfortunately, there's been some reluctance to adopt VoIP by small and medium businesses (SMBs), either due to uncertainty about this new technology, or because of some anecdotal horror story of a failed implementation.

Hype and FUD are the enemies here. VoIP ([define](#) - [news](#) - [alert](#)) had been hyped to be the answer to everything. Free unlimited perfect phone calls? How can anything live up to that reputation? Simply mention VoIP now, and you're sure to get groans from just about anyone. It evokes memories of expensive and failed deployments, poor quality calls and general confusion. Despite

these horror stories, the benefits from VoIP are real, and by following a few simple rules, it's actually quite easy to avoid becoming another horror story.

First, go for the low hanging fruit. Position your VoIP strategy and rollout to first address segments that are the easiest to implement, and provide the greatest gain. Where is the low hanging fruit in VoIP? Internal VoIP and peered IP PBXs. A lot more has been made of peering a PBX with a VoIP service provider that terminates calls out to the PSTN. While the VoIP service providers' marketing departments would like you to believe that using their serv-

ice is the end goal in VoIP deployments, many VoIP systems are successful without ever subscribing to these services. Internal VoIP involves using IP phones in conjunction with a local network to communicate with a hybrid PBX that may then connect to standard analog or T1 lines. Peering PBX systems together allows sending calls between them over the Internet without using a service provider, allowing locations to communicate for free.

Another rule to follow is to go for the incremental rollout. By taking small steps, businesses can feel more comfortable about the technology before jumping fully into a pure VoIP setup. A first step would be purchasing a hybrid VoIP PBX. Hybrid means that the PBX can link with standard analog or T1 lines, as well as VoIP devices. This PBX could connect to a business' existing PSTN services without having to sign any new service contracts. After two sites were using VoIP PBX systems, they could then take the next step of peering them together. This step is the easiest, because it does not require additional equipment, and usually does not replace any existing peering setup. Only as a final



step do companies need to explore commercial VoIP service providers, whose usage can be on a limited basis, and only where it is cost effective.

The final consideration when peering two locations together with VoIP is to ensure that the equipment is installed on a network that is ready for it.

Most VoIP failures can result from the network they were deployed on, not necessarily the VoIP equipment used. However, it's easy to succumb to the marketing machine of network hardware vendors and believe that purchasing expensive network gear can solve this problem, but it's not as simple (or expensive) as that. When peering two VoIP systems together, the best insurance one can take against network issues is to limit the number of network hops between the two sites— fewer hops, fewer points where problems can occur.

The best solution would be a point-to-point data T1 between the two sites; however, the cost of this can negate much of your potential savings from using VoIP in the first place. A more cost-effective approach is to ensure that both sites use ISP services from the same carrier, preferably one that has a

national backbone. By staying on a single ISP's network, you can ensure a minimum number of hops, and can avoid potential bottlenecks at peering points between different bandwidth providers.

Another consideration is ensuring that enough bandwidth is available to handle the desired number of simultaneous calls. A good rule to follow is that an uncompressed SIP call takes 90 Kbps (So your client needs to handle 10 calls inbound and outbound calls to and from the peer at peak times? They'll need 900 Kbps of bandwidth available to handle just their phone calls). Compressed codecs such as G.729 can be used to increase the number of calls you're able to fit over your Internet connection. This usually isn't necessary except when dealing with small remote sites (or home workers) with low-end DSL connections.

What about that expensive network equipment? Most of it can be avoided. It's tempting for network administrators to purchase expensive managed switches to implement link-level QoS, VLAN tagging, and a host of other largely unnecessary complications. In practice,

simple unmanaged switches can service a VoIP network wonderfully, and it's largely unnecessary to segment your VoIP equipment from other systems in a LAN.

One piece of equipment that does really matter in a VoIP deployment is the router; however, it's a good idea to resist the temptation to purchase a router that's loaded with features that you may not use. Many router manufacturers value features over stability, and often things like router-level virus filtering can inadvertently block valid VoIP traffic. The most egregious feature-laden routers even prevent you from disabling some functionality, which in the worst cases will put you on the waiting list for a firmware update to fix a feature that you don't even use. It's also not necessary to buy a router with built-in VoIP capabilities. Most SIP-aware routers can actually cause huge problems with modern VoIP equipment, which has outgrown the need for any router-level assistance.

One important feature that you will want to make sure is supported by your router, is QoS. Router-level QoS can ensure that voice traffic has priority over large downloads that may saturate your Internet connection. However, QoS is becoming a common feature these days, even in some very inexpensive home routers. All in all, the best rule when purchasing network equipment for VoIP is to keep it simple.

If it sounds like sacrilege to suggest that top-of-the-line network equipment is unnecessary, keep in mind that in most cases fiddling with all of those complicated settings is akin to being prepared to swat at flies when you've got an elephant in the room to take care of first. In a thousand locations, I've never encountered a problem with a VoIP deployment that needed to be solved with a fancier router, but I've seen plenty solved by actually removing unneces-

sary network equipment that was trying a little too hard to do the “right” thing with VoIP packets.

With all of the rules for a successful VoIP strategy in place, what sort of accomplishments are possible? Consider these examples of what can be done with peered VoIP systems:

**Multiple Location/ Branch Office Least Cost Routing:** If a call is placed to Los Angeles from a phone connected to the PBX in New York, the PBX in New York determines that the call would be better (more inexpensively) handled by the PBX it is peered with in Los Angeles. The New York PBX then routes the call using SIP (this leg of the journey is free) to the PBX in LA and from there, the LA PBX routes the call to the intended “local” LA phone number. Think of how many phone calls made by businesses with multiple loca-

tions fall into this type of category — for most, the answer is probably a fairly significant number because business contacts are usually clustered around the companies’ locations. Deploying a solution like this could have a huge impact on long distance bills.

**Multiple Location Interoffice Calls:** Peered PBX systems can dial between each peer seamlessly and for free (because the call doesn’t need to be terminated to the PSTN, there’s no carrier or service provider to pay). To call an extension on the Tokyo PBX from an extension on the Orlando PBX, a user would simply dial as if the Tokyo extension were in their own office. This scenario is the one that most customers are looking for when they’re moving to an IP PBX solution. Office-to-office calls can be an enormous expense and one that simply disappears with a PBX that

supports peering.

**Multiple Location Intelligent Routing:** Similar to the least cost routing example, if a call comes in to your sales line in LA from a caller in NY, the LA PBX can hand the call off to the sales line on the PBX in NY, with-

out having to prompt the caller with a menu asking which region they’re calling from or any other kind of manual intervention. If the peered IP PBX systems support this type of routing, there is a subtle, but very expensive-looking benefit in the customer service arena.

**Peering provides an excellent way to introduce VoIP to a client, with little risk that they will experience poor call quality, so long as... their network is ready to handle the additional traffic.**

These examples show that there are several ways that a business can benefit from VoIP without rolling out a 100% VoIP solution. In each of the above scenarios, inbound and outbound calls to each location could be handled by POTS lines. This style of deployment allows for incremental shifts when the decision makers are ready and comfortable with taking the next step to using an ITSP for outbound calls, and the step after that, using an ITSP for inbound calls that will complete their transition to entirely VoIP.

Peering provides an excellent way to introduce VoIP to a client, with little risk that they will experience poor call quality, so long as adequate steps are taken to ensure that their network is ready to handle the additional traffic.

With a properly prepared network, good rollout plan, and some basic equipment, a VoIP deployment involving multiple locations can be incredibly successful in every measure. Clients should feel they are getting more for less, and instead of sharing a horror story with everyone they come in contact with, they can start spreading their good news: that rolling out VoIP across their locations has made a positive impact on their business. IT

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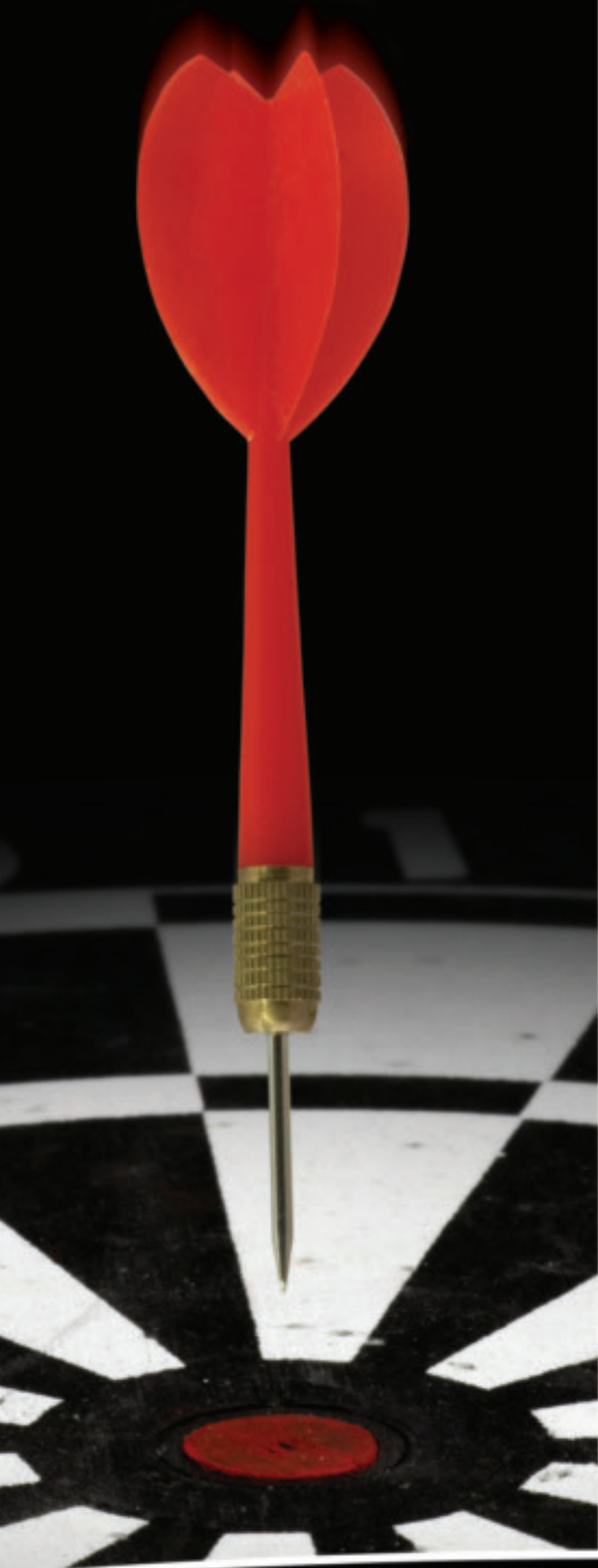
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# Next Steps for Voice over IP:

## Evolving from Collaboration to a Service-Oriented Architecture (SOA)

At a recent industry conference, I was struck by the number of vendors, influencers and customers that were singing the praises of Voice over IP (VoIP) communications as a real and tangible business tool. Many of these companies and individuals lauded the applications that are optimized in an IP environment, most notably unified communications, presence management, collaboration and mobility tools. A growing number of companies — and even some vendors — are starting to experience the tangible impact that these applications can have on most fundamental business processes, such as generating revenue, streamlining operations, enhancing customer service, and certainly, controlling costs. It is a welcome sign that more and more customers and users are appreciating VoIP for these profound business benefits, and not just as a mechanism to transport voice over a data network.

What also intrigued me was the notion that, as robust and powerful as all of these tools are, it appears that collaboration applications have captured the most mind share among customers. It's easy to understand why. IP technology now enables businesses to seamlessly conduct audio and video-conferences at any time, with any number of participants, as long as they have a broadband connection. White boarding, document sharing and remote support are other examples of tools that overcome the traditional barriers of time and geography. Through IP-based collaboration solutions as they exist today, a remote office, by definition, can be at any location with Internet access — airports, hotels,

restaurants, coffee bars and so on. Translated into the lexicon of business, collaboration means real productivity and efficiency gains.

And, we're just seeing the tip of the iceberg.

### Enter SOA

Giving people the ability to work together, in real-time, while hundreds or thousands of miles apart is certainly a major achievement, and one worth getting excited over. But in reality, with the pace of technological innovation that permeates enterprise communications, we're only starting to comprehend how we can redefine the impact on business processes through IP communications.



Service-Oriented Architecture (SOA) is rapidly becoming the *raison d'être* for IT professionals and technology visionaries around the world. It is the concept of linking previously disparate business processes together to interoperate cohesively — almost intelligently — to improve the speed of business, the productivity of business, the efficiency of business, and above all, the profitability of business, in ways never before experienced. And IP communications is now regarded as a key link in the performance of service-oriented architecture.

At a high level, SOA is similar to IP collaboration tools, but in an automated manner. It's built on software that speaks to and with other business applications. While SOA relies heavily on standards, it is a fundamentally different approach to standards than is typical in telecommunications products. In telecom, to prove interoperability between communications devices, we make sure that two network elements have implemented compatible versions of the same protocol stack: in essence, that they speak the same language. With SOA, we don't have to prove interoperability in



order to get two applications working together. Instead, we standardize the way we describe the exchange, rather than the exchange itself. With this approach, it is straightforward to build connectors between applications that don't share the same protocol. SOA is fluid and flexible in nature, ready to address instantaneous changes to business needs.

How does SOA work in a practical sense? Consider a manufacturing company. As with most well run companies, this particular business relies on multiple constituencies, including its employees, suppliers and customers. In traditional business practices, a plant would receive an order, pull together the necessary materials, conduct the work and ship out the finished product. Accounting, billing, shipping and other tasks would be performed, and the project would be completed.

In this scenario, every business process relied on communication among employees. Certainly, nobody can fault this approach to operate a business. Communications is key. But what if

there was an issue with the supply chain? Or a machine was broken? Or an incorrect invoice was generated? Again, the company can rely on its workforce to identify problems, correct them and pass information down the chain of command, but in reality, this can be a long and cumbersome solution. In today's economic environment, businesses rarely have the cushion to circumvent problems once they make themselves known.

Service-oriented architectures promise to integrate the entire suite of VoIP communications services with business processes and business applications to improve the execution of vital tasks, such as troubleshooting and addressing problems. To illustrate, consider a database application that manages raw materials. It can interact with the appropriate personnel when suspicious inventory conditions arise, by invoking the IP communications system in order to open an instant message session or initiate a phone call. With VoIP, the application might deliver a report to the person via an IM screen pop, or get feedback via an IVR application,

depending on the location of the person, their current availability and their available modes of communication. This is more than an automated process: It becomes a process that can tap into the chain of command, and tap into human knowledge, whenever it encounters conditions it cannot process, using real time communication infrastructure. VoIP provides SOA with the solution to the classic science fiction 'does not compute' problem: the robot that self-destructed when encountered by a paradox, had it SOA, would simply have asked for guidance and then moved on.

On the front end, a customer may be calling into a contact center to check on a shipment. Through a single portal, the agent can not only track the package, but also retrieve the customer's payment history, share screens of recent purchasing activity and initiate a conference call between the customer and the finance department. Though all of this information may reside on separate databases on geographically disparate servers, SOA pulls it together into a single location for easy access.

#### Just The Facts. . .

Successful companies are usually dynamic, ever-changing entities that can adjust to evolving market conditions, customer preferences, the geo-political landscapes and just about any internal and external factor that may or may not be planned. SOA recognizes that static IT infrastructures place businesses at a distinct disadvantage. SOA, in contrast, can be organized and configured and re-configured to support a process undergoing evolutionary improvement. SOA delivers the agility and flexibility that customers need to properly manage change.

In order for a communications infrastructure to play an active role in SOA, it needs to behave just like any other application within a data-centric busi-



ness infrastructure, which in essence means the components must be standards-based. From an IT perspective, the data infrastructure is by its very nature optimized for the plug-and-play, fluid world of SOA. There is a lot of commonality in the standardized way certain ERP, CRM and accounting databases perform. Standardized signaling interfaces like Session Initiation Protocol (SIP) provide a basis for the requisite interoperability at the component level. Through SIP, the conference server can receive an event notification and then, depending on the nature of the specific event, can initiate that telephone call, instant message, e-mail, and any combination thereof, to the appropriate parties in near real-time. The application offering the communication interface to the SOA utilizes these standard VoIP protocols to bring together complete communication services that touch on multiple components.

The use of SIP and other standards is important not only in an application sense, but for communications devices as well. Since employees have their own preferred methods to communicate, it is vitally important that the phone, PDA, softphone and other endpoints can work seamlessly within the SOA environment. Where applications deliver data, VoIP will deliver communications services.

Of course, with seamless interoperability comes a laundry list of security questions, most of which can be answered by extending a company's own unique security procedures into the network. Governing entry into SOA is an issue that most companies handle right from the onset of deployment, usually through encryption authentication and standards-based security protocols.

Redundancy and disaster recovery are other topics that come up often. Again, businesses relying on IP technology already have a head start on decentralizing their network components, so a network failure solution in a service-oriented architecture can look very much like

any other redundancy plan that is built as a data-centric network.

### SOA and Web Services

Service-oriented architectures are not limited to interoperating only with other applications that reside within the enterprise infrastructure. These are basically computer-to-computer interactions, or business-to-business interactions, and the implications for the enterprise market are immense.

But there is also another side to SOA, human-to-computer interactions, that adds a whole new dimension to how businesses can create new opportunities for SOA to work in combination with web-based services that often result in exciting, new applications.

For example, we continually see more “mashups” entering the market. By definition, these mashups occur when “two worlds” collide, or when two completely independent web portals are combined to create a new solution. Imagine a possible mashup between Google maps and a local realtor's website, much like ([news - alert](#)) <http://www.zillow.com>. The mashup could depict an area map overlaid with recent home sales. If a buyer is looking to purchase a house in a particular neighborhood, the communications component of the SOA could initiate a cold-calling campaign to residents in that specific area to targeted homeowners, notifying them that there is a buyer interested in their property. Through the portal, the realtor could share the prices that similar homes in their neighborhood have sold for, and how to contact the realtor if indeed they are interested. In this scenario, the speed to market becomes faster and more efficient, while saving the realtor's time in securing listings and locating and qualifying potential buyers.

Or it could be the combination of a local weather website and golf course. A mashup application could be designed to inform customers what the specific conditions will be during their round of play. If a thunderstorm is forecasted to cause a lengthy delay, customers who

## SOA delivers the agility and flexibility that customers need to properly manage change.

have not yet arrived at the course can be notified through a variety of mediums to re-confirm or re-schedule their tee times.

The possibilities are boundless through Web Services and SOA.

In this dynamic environment, communication tools such as presence management, collaboration, instant messaging and voice communications can be tightly integrated with web-based services into new desktop applications. This more focused, relevant and productive use of such previously disparate tools can serve businesses in a multitude of ways by enhancing the customer experience, improving efficiency and maximizing existing resources.

### Conclusion

Collaboration as we currently define it in the IP environment — empowering people to work together in real-time — is gaining well-deserved traction in the market. But the productivity improvements that we're now experiencing may pale in comparison to the efficiencies that will emanate from SOAs that leverage these VoIP services.

Once again, IP technology is finding a way to re-invent itself and become even more integral to business processes. IT

*Jeff Ford is Chief Technology Officer of Inter-Tel. ([news - alert](#)) For more information, visit the company online at <http://www.inter-tel.com>.*

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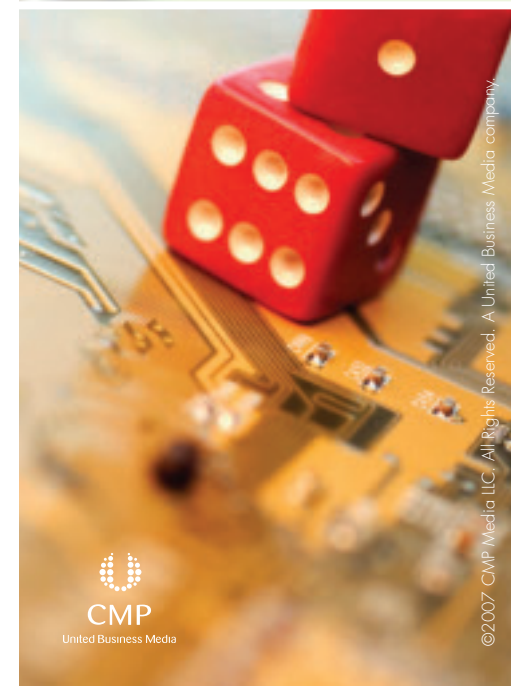
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By Greg Galitzine



## Alcatel-Lucent Gets Serious About the Enterprise

“Serving the enterprise market is central to our vision of enriching people’s lives by transforming the way the world communicates.”

So said Pat Russo, the Chief Executive Officer of newly merged [Alcatel-Lucent](#) ([quote - news - alert](#)) at the outset of that company’s annual Enterprise Forum held February 14-16 in Paris.

Addressing the assembled crowd of media, analysts, customers, and partners, Ms. Russo spoke about Alcatel-Lucent’s “. . .commitment to our customers and our commitment to



the enterprise market overall.”

She spoke proudly of how the company’s enterprise business recorded around €1.4 Billion last year, and how that represented a 15% growth rate versus the prior year.

Perhaps most importantly, Ms. Russo spoke of the company’s commitment to the enterprise market. “I want to be very clear in conveying that there is something about which there is no uncertainty,” she said, “and that is our commitment to — and the importance of — our enterprise business and the enterprise market.”

Hubert de Pesquidoux head of the Enterprise Group of Alcatel-Lucent shared many of Ms. Russo’s sentiments, especially as regards the level of serious commitment that he and his team are bringing to the enterprise market.

Said de Pesquidoux, “When [former Chairman and CEO, and current member of the Board of Directors] Serge Tchuruk and Pat Russo asked me to run the enterprise group, I said yes with one condition: ‘We have to be serious. We are here to play, and to win, and not to be a medium player.’”

During a press conference at the Alcatel-Lucent Enterprise Forum, de Pesquidoux was asked about the perception that Alcatel-Lucent is stronger in Europe than in other geographies. He told the crowd that, “Yes, we are very strong in

Europe, it’s a key market for us, but it should be noted that we grew in 2006 by 22% in North America, which is the largest enterprise market on the planet.”

“We are going to invest, and we will add more resources to this market,” he insisted.

To drive home the point that Alcatel-Lucent was serious about addressing the enterprise market in 2007 and beyond, de Pesquidoux referred to a quote from Baron de Coubertin, of International Olympics fame, who is well-known for saying, “What is important is to participate.”

Well, according to de Pesquidoux, “That’s wrong. What is important is to win. And we aren’t in this game just to play, have fun and participate. We are dead serious about winning, and winning big in this market.”

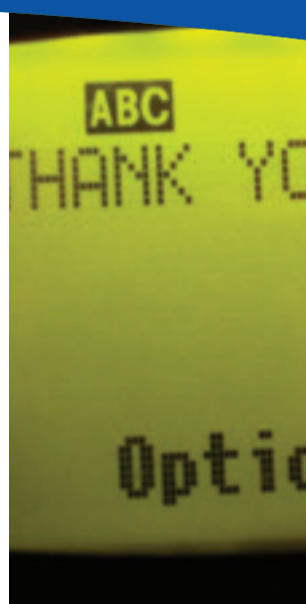
“So what we have to do is to make people understand that we are very seriously committed to this marketplace. . . that we have to put the energy, focus, investment, and resources into this market, and to change the way we go to market and we sell.”

All in all, Alcatel-Lucent knows how to put on an event. Considering the fact that 3GSM Congress was taking place at the same time, it must have put a strain on the company’s PR and organizational resources. Nevertheless, I’m told that over 7,000 people — partners, customers, press and analysts, and potential customers — attended the Paris event.

It remains to be seen what will come to pass regarding Alcatel-Lucent and their surge into the enterprise market, but suffice it to say that the company will not fail for lack of trying. Much of their product line is in place, and de Pesquidoux touched on the fact that the firm will need to focus on outreach as well as re-deploying the resources to help evolve and empower their sales force. They face some stiff competition as they set about attempting to conquer the enterprise market, but then again, any prize worth having is usually worth fighting for.

*Greg Galitzine is Group Editorial Director for TMC’s IP Communications Group.*





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