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# INTERNET TELEPHONY®

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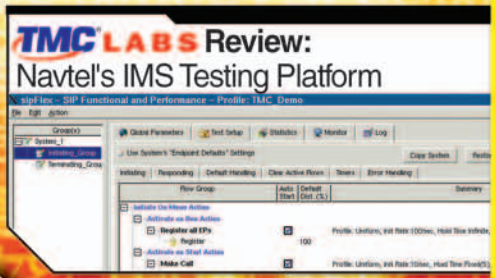
The IP Communications Authority Since 1998™

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Internet telephony is revolutionizing telecommunications through the convergence of voice, video, fax, and data, creating unprecedented opportunities for resellers, developers, and service providers alike. ***INTERNET* TELEPHONY®** focuses on providing readers with the information necessary to learn about and purchase the equipment, software, and services necessary to take advantage of this technology. ***INTERNET* TELEPHONY®** readers include resellers, developers, MIS/networking departments, telecom departments, datacom departments, telcos/LECs, wireless/PCS providers, ISPs, and cable companies.





*By Richard "Zippy" Grigonis*

# Dialogic and Cantata - Together Again for the First Time

As we were going to press, Dialogic Corporation announced it had acquired all of the outstanding shares of EAS Group Inc. which includes Cantata Technology, Inc. (news - alert) which is made up of the former Excel Switching Corporation (news - alert) and Brooktrout Technology, Inc. (news - alert) The results of this union should be impressive.

Back in the heyday of CTI, "computer telephony", or whatever you want to call it, the industry had its Big Three: Dialogic, Natural MicroSystems (now NMS Communications) and Brooktrout, with its promotional calendars illustrated with beautiful drawings of trout (you were expecting supermodels maybe?).

Even though in 1994 Dialogic had acquired GammaLink, the company that had made the first computer fax board in 1985, Dialogic's GammaFax boards were never as popular in the U.S. as Brooktrout's, despite Dialogic's superb marketing under then-CEO Howard Bubb. Fax was Brooktrout's territory, to the tune of nearly 100% market penetration for PC boards in the U.S. Indeed, I can recall my former boss, Harry Newton, yelling to Brooktrout higher-ups that "You're nothing but a <expletive deleted> fax company." There was some truth to this at one point, since their forays into the nascent world of IP were not immediately successful. Eventually, however, leading IP Communications suppliers such as Nortel - then still called Northern Telecom - began to showcase applications developed with Brooktrout's IP Telephony products. Even so, fax remained Brooktrout's strongpoint. The acquisition of Cantata's Brooktrout fax technology by Dialogic should be the equivalent of finding the last piece in a big puzzle.

Throughout the 1990s, like the swallows visiting Capistrano, more than 200 beaming blue-shirted Dialogic employees would descend upon any given industry expo, scurrying about the cornucopia of new technology displayed in the company's mammoth booths and those of its partners, before returning to roost back in Parsippany, New Jersey.

This was the era of fabulous parties. One of my best-remembered visits to the Windows on the World restaurant at the late, great World Trade Center was at a private function for telecom experts and magazine editors held one evening in September 1998 by Howard Bubb and Dialogic. As I wrote in one of my books, "In the days when telecom and the Internet were flying high in the economy, the Dialogic Corporation flew higher than them all. Not surprisingly, Dialogic always held the best parties, called Connection parties, at places such as Gotham Hall in Santa Monica, the Regency Club in Los Angeles and the Rainbow Room in New York. Dialogic would even provide bus transportation from local hotels to the parties, with champagne *hors d'oeuvres* served by waiters on the bus. When it was Windows on the World's turn to host a Connection party, the food and drink were, as always, fantastic."

1998 saw a major investment by Microsoft (quote - news - alert) and 1999 climaxed with a buy-out by Intel. Even as an Intel company, (quote - news - alert) Dialogic (news - alert) was still very much the bellwether of the computer telephony industry and a leading manufacturer of standards-based computer telephony hardware and software platforms, with millions of ports shipped worldwide. Dialogic then re-emerged as an independent company, and now it has acquired one of its long-time rivals.

We wish them the best of luck. IT

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

INTERNET TELEPHONY®
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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 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.

**Mobile Marketing It's All About the Brand**
Mobile marketing today is a largely untapped revenue stream, but it offers tremendous opportunities for mobile operators to create partnerships that allow advertisers to cost-effectively communicate with customers and prospects. There are several factors that have converged to make now the time right for more advanced and pervasive mobile marketing-if mobile operators are prepared to handle the new business models this opportunity can create.
www.tmcnet.com/1262.1

**Retailers Can Maintain a Competitive Edge Using Business Communications Platforms**
The advent of e-commerce and the emergence of big-box retail chains have radically transformed the retail industry. And the Internet itself has fundamentally altered the way in which consumers make purchasing decisions, often to the detriment of traditional retailers.
www.tmcnet.com/1263.1

**A Win-Win End to the Dumb Pipe**
A recent study forecasts mobile advertising revenue will reach $14.4 billion by 2011. That is an astonishing 10 times greater than the current $1.4 billion in only four years! Looking more deeply into the study, however, should send shivers down the spines of wireless carriers. Over three-quarters of the $14.4 billion will never touch the carriers' income statements. Forty-eight percent will go to Web content providers and another 28 percent will go to search services. That's how you spell "dumb pipe!"
www.tmcnet.com/1264.1

**Small Business VoIP: Is it an Elephant or Gorilla?**
Understanding and succeeding in the SMB market means figuring out exactly what small means. I frequently hear companies fretting over the small business market. Yet, it's little wonder that it's such an elusive beast to tame when we can't even decide what "small" actually means.
www.tmcnet.com/1265.1

**Why Do-It-Yourself Doesn't Work**
According to the principles laid out by Geoffrey Moore in his book, Crossing the Chasm, the home-based agent model is clearly in the early adopter phase. Creating a virtual call center, staffed completely with agents working from home, is definitely an innovative concept. And, although these centers have been providing quality service for over 10 years now, the concept still takes some explaining to new prospects.
www.tmcnet.com/1266.1

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

**Achieving a Successful IP Telephony Transition**
Establishing a plan to transition voice communications to the data network is a complex process with many uncertainties. This paper examines some of the challenges businesses face when planning their transition to IP telephony and will reveal the many advantages of using analytics before, during and after the convergence process.
www.tmcnet.com/1267.1

**Hit A Femto Home Run: Serve Your Customers, Protect Your Network**
Femtocell technology is rapidly carving a niche for itself as a legitimate path to FMC, but what do network operators need to do to prepare for it? But just how big will the impact of femtocells be? What are the advantages of backhauling cellular signals over an IP network from a consumer standpoint? For the network operator? What are the security risks, service delivery expectations and scalability requirements that need to be met to deploy femtocells on a large scale?
www.tmcnet.com/1268.1

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**TMCnet's SIP Community**
Today's IP Communications world is moving fast. Innovation is being driven on many fronts, and at the heart of so much of this activity is the session initiation protocol or SIP. For the latest news, interviews, and commentary on the multitude of innovative SIP-based multimedia applications and hardware flooding the market, visit TMCnet's SIP Community regularly. Sponsored by CounterPath.
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# Product Round-up: Security Solutions

We live in an age in which we have at our disposal communications tools that were unimaginable during our high school years, when a Sony Walkman that could play cassettes and came with an integrated AM/FM radio was the coolest technology. Now, we have cell phones that IM, email, download, play, and store music, take pictures and video, and even connect to our corporate IP PBXs in some cases. Yes, the means we have to communicate today, using voice, text, or video, bring the communications experience to a new level, especially in light of Microsoft's OCS launch.

Unfortunately, with the advances in IP-based communications, comes a parallel growth in the tools available to those who would seek to exploit new technologies for illegitimate ends. Which means network operators, businesses, consumers must all be keenly aware of the threats that lurk, and must be prepared to take appropriate measures to ensure their networks are secure.

Naturally, as with any other communications network element, there are numerous solutions available, all of which are ultimately designed to help prevent business disruptions, revenue loss, and other damages resulting from security breaches. There are hardware solutions, software solutions, data security solutions, others that security VoIP networks, those that control border traffic, those that sit in the core, and more. And, of course, there are all-in-one end to end security solutions.

Whether you deploy a combination of solutions, or a single security system, the key is to safeguard your network from attacks and abuse. As communications solutions become more complex, more integrated, more interoperable, the need for reliable security becomes more paramount than ever.

We have compiled a list of security solutions vendors of all types for you to begin your work. You'll find a wide variety of solutions, and likely one to fit your needs - use this as a starting reference, and please contact these vendors for more information.

Also, be sure to check out Rich Tehrani's Executive Suite on page TK for an interesting conversation between Rich and Narus' CEO Greg Oslan.

| | | |
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By Rich Tehrani

# What eBay Should Do with Skype

OK, I was wrong. Really wrong. Over a billion dollars wrong in fact. Why? I believed eBay and Skype had a solid strategy to turn hundreds of millions of people who have downloaded this ubiquitous Internet calling software into paying customers.

It seemed to me that a community of over a hundred million users could be tapped to generate revenue which at a traditional tech multiple would be worth billions of dollars. After all, I use Skype. I have an account and I pay the company money each month. It would seem, however, that I may be in a more unusual situation than I presumed.

I have called Skype (www.tmcnet.com/1256.1) the only company in VoIP (define - news - alert) innovating and they have done a great job adding features and functions to their package. It would seem obvious that innovation doesn't always translate into dollars. Proof of sorts comes from the fact that eBay just wrote down over a billion dollars (www.tmcnet.com/1257.1) - saying they overpaid for the Internet telephony company. Worse - Niklas Zennstrom admits eBay overpaid for Skype (www.tmcnet.com/1258.1).

So it seems the co-founder of Skype - Zennstrom - and virtually everyone covering the company in the financial and communications press thought that Skype was worth far less than the $3 billion or so that they received in total.

I really got this one wrong, it seems. So I do apologize to my readers.

But if Zennstrom felt from the beginning that the company wasn't worth this excessive price, then it may explain why he really didn't try terribly hard to generate the revenue necessary to meet this lofty valuation.

Last night, as I was falling asleep, I started to think about what the company could have done - and still should do - to generate revenue and increase value for shareholders.

I may just be eternally optimistic but I support my argument with hard facts and valuations of similar companies.

I may be wrong on every point below but not trying to innovate can be far worse for shareholders.

In the end, any company is worth what its leaders can make of it and this is directly correlated to how much they deem the company is worth. Disruption means nothing to shareholders if it cannot be monetized.

What have I learned from all this? If a CEO doesn't believe a company has value - it doesn't. Trouble is - until this past week we weren't aware of this crucial bit of information with regards to Skype. (news - alert)

So here is my list of things eBay (quote - news - alert) and Skype should be doing and yes, Meg I am available for consulting if needed as I still believe there is a great deal more value in this company.

1. Enhance the social network capabilities. Skype currently is in a good position to expand into social networking via Facebook-like features. They have added some community services but not enough to be taken seriously as a real social network. Some analysts place Facebook's value at $100 billion (www.tmcnet.com/1259.1). This is obviously an area the company should be going after more seriously.

2. Show some ads. Let's see if I understand the situation. You have over 5 million users on your service almost every moment of every day. You need to increase revenue. Your answer? Show no ads. If I were eBay I would be flashing product listings in front of Skype users as often as possible. If this doesn't make sense, why not show Google ads like everyone else in the world? It is tough to see where this isn't a $100 million/year revenue opportunity - this amount may seem high but think about how long people use Skype each day and consider that you can flash new ads in front of users constantly. Moreover, probably $90 million would flow to the bottom line. eBay's P/E ratio is currently about 40, so this amount of earnings could translate into about $3.6 billion in market capitalization. Not showing ads is something I can't understand.

3. Enter the enterprise VoIP market. Cbeyond has a market cap of over a billion dollars (www.tmcnet.com/1260.1) and provides hosted communications to just a few cities in the US. Zennstrom first told the world at Internet Telephony Conference & Expo (www.tmcnet.com/1261.1) that Skype was very popular in the business space. Why was this never monetized in a formal manner?

4. Provide paid recording capabilities. With the regulatory environment forcing so many companies to record phone calls and so many Skype users in the world, you have to offer a recording service to help those companies who need to capture Skype IM and voice calls





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within their organizations. My revenue estimate? $25-$100 million/year.

5. Skype trunking. This technology is one of the most intriguing around - allowing companies to communicate with branch offices, customers and home workers at a low cost. I feel going forward every company should take advantage of SIP trunking and Skype trunking. Skype knows this. So the question I feel compelled to ask is why they do not work more closely with partners such as VoSKY and actually market Skype trunking products to customers in a more serious way. VoSKY is doing a good job but why is there not a multimillion dollar Skype ad budget behind VoSKY and others? Why leave the success of this massive market in the hands of partners when you can ensure the rapid success of this burgeoning new space yourself? The reason may be that Skype was built as a viral platform and they except this to be the only way to sell. Ditto for eBay. Guess what? Companies like Avaya, Cisco, Dialogic and Quintum sell telecom equipment and/or gateways and they have to market to customers. To be serious in the business space, Skype needs to start a serious partner program where they fund the marketing of companies which help their own paid services increase.

6. Go after the PBX vendors. If I am a PBX vendor I would be looking for Skype interoperability as a differentiator. Still, I have yet to see an ad touting any PBX vendor's Skype Interop. Why?

7. Charge for something beyond just connecting to the PSTN. Charge for conferencing, enhanced video, the ability to get new features first, for the ability to use the service without having to see ads, etc.

8. Partner with media companies. Work with content providers and stream programming via the Skype client. Make money through subscriptions and ads.

9. Take on the world's biggest auction houses with Skype video-enabled live auctions. If eBay can pull off selling cars, it can pull this off as well.

10. Embrace Skype. I have a weird question. Companies all over the world are integrating their customer service departments with gateways allowing callers to use Skype to call in. Isn't it odd that PayPal doesn't accept Skype phone calls? If you want companies to integrate with Skype - which will obviously increase revenue - doesn't it make sense to lead by example?

11. Embrace enterprise video. Video is enjoying a resurgence and Skype has a well-known brand name and has a pretty good video solution. What about offering a video plan for businesses which will be cheaper than existing solutions on the market but priced high enough to generate real revenue?

Although we have seen a tremendous amount of innovation from Skype there has been a ridiculously small amount of focus on revenue generation. There is a massive community of users who are addicted to this Internet telephony software and they can still be tapped. Now is the time to take things "to the next level" by turning eyeballs into dollars. This may sound so "dot-commish" of me but the last time I checked, Google, Baidu and others seem to have figured out how to make such a model work.

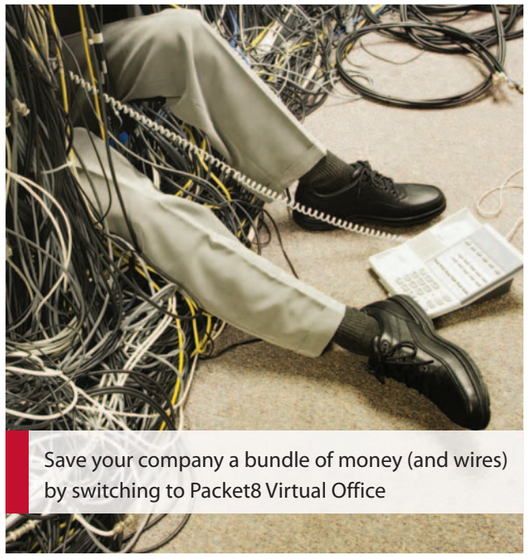

# How VoIP Phone Service Can Save Your Business a Bundle

For most businesses, a telephone system consists of one or more pieces of equipment, housed at their business locations, that connects their business to the Public Switched Telephone Network (PSTN). Often, this Private Branch Exchange (PBX), Key System or other premise-based solution requires a sizable investment in hardware as well as ongoing maintenance and upgrade fees.

Today, Voice over Internet Protocol (VoIP) technology is allowing small businesses to secure the features and functionality of a sophisticated PBX phone system for a fraction of the cost by using the Internet (instead of the PSTN) to carry voice traffic just as it does data traffic.

Recently, telecommunications research and consulting firm Savatar asked over 500 small to medium sized business owners what types of problems they had with their current phone system. The problems most often cited include:

- It's too difficult to make a routine Move/Add/Change to the phone system.
- The current system lacks features that are critical to business productivity, and it costs too much to add them.
- It is difficult to manage the system across multiple office locations, and it costs too much to expand them.


Save your company a bundle of money (and wires) by switching to Packet8 Virtual Office

VoIP telephony answers the call for an affordable, robust and easy to manage phone system with a managed service offering known as Hosted IP-PBX. This solution makes all of the traditional PBX features available to a customer while a VoIP service provider owns, hosts, manages and updates the equipment. Hosted IP-PBX service offers many advantages including:

- No/Low Capital Costs – With no key system or PBX to purchase there is no large capital expenditure needed.
- Predictable Operating Expense – Monthly voice and data charges are usually calculated on a per telephone basis. If you have 50 employees each with a telephone on their desk, your monthly operating cost will be 50 times a set fee.
- No Maintenance Expenses – Because the VoIP service provider owns the equipment, they are responsible for all the costs associated with equipment and software upgrades.
- No Management Expenses – The VoIP service provider is responsible for managing the equipment. Routine changes like adding a new person to the system or changing an extension number can be done by the customer via a simple web interface.

With a Hosted IP-PBX service, smaller businesses can now duplicate the same calling features normally found in the big PBX phone systems of large enterprises simply by contracting with a provider that hosts the technology off-site.

"The TCO, or Total Cost of Ownership, is really the primary reason that people adopt a hosted model instead of a do-it-yourself model," says David Immethun, senior director of sales at 8x8, Inc., provider of the Packet8 Virtual Office Hosted IP-PBX. Services such as Packet8 Virtual Office completely eliminate the headaches of owning and maintaining telecom equipment by offering a model that includes full PBX features, unlimited local and long distance calling, complete service support and user administration privileges and controls.

With Virtual Office, equipment costs amount to around $100 per user for a Packet8 hands-free business class telephone and Broadband Phone Adapter. A monthly service fee of $49.99 per extension covers unlimited local and long distance calling in the United States and Canada as well as all service configuration and counseling, administration, changes, upgrades, tech support and complete web-based administration system controls. Features such as Auto-Attendant, Music On Hold, Extension Dialing, Conference Bridges, 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, Lifetime Customer Support and more are included with every Virtual Office calling plan.

Hosted IP-PBX services like Virtual Office can also help businesses eliminate the overhead cost associated with brick and mortar buildings since employees may work from any location equipped with a high-speed Internet connection.

"Probably the number one feature that interests an SMB is multi-site support," says 8x8's Immethun. "Normally, multi-site support is very expensive to buy and very complex to administer — especially when you add applications such as voicemail, an auto attendant or hunt groups. With our Packet8 Virtual Office, the location of the 'site' is irrelevant and all features are included."

IP-based telephony offers numerous cost benefits and advanced features that can help your business stay competitive.
Ask about our special offer for Internet Telephony readers.
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*- AMI Partners, April 2007*



www.Packet8.net | 1.866.895.0445

Packet8® Internet Phone Service

www.tmcnet.com/1207.1

### MTS Allstream Launches Secure Connect

MTS Allstream (news - alert) unveiled Secure Connect, a true "in-the-cloud" security capability. Secure Connect not only utilizes the Company's national Business IP/MPLS offerings but also embeds the latest Unified Threat Management (UTM) technology into MTS Allstream's national IP network architecture. It is a new benchmark for the delivery of firewall and VPN services to customers.
www.mts.ca

www.tmcnet.com/1208.1

### Avistar Launches New Hosted Video Services for Enterprises

Avistar Communications (news - alert)has launched a fully managed, turnkey, desktop video solution, Avistar Hosted Video Services. With the new hosted video services offering, companies are able to enjoy enterprise-strength service and enhanced video communications and data sharing without needing to install or maintain any onsite video infrastructure or impact valuable IT resources needed for mission critical business priorities.
www.avistar.com

www.tmcnet.com/1209.1

### IBM Intros New Office Ready Kit for BladeCenter S

(quote - news - alert)To offer SMBs, the ability to lower their power bills, maximize their office space and grow their business, IBM has combined its BladeCenter system for smaller firms with an "Office Ready Kit" that makes it possible to take blades out of the datacenter and put them into the front office. IBM's BladeCenter S is a blade computing system designed to help smaller firms simplify the management of technology needed to operate a small business.
www.ibm.com

www.tmcnet.com/1210.1

### Talkdynamics Enhances VoIP Intercom and Conferencing Application

Talkdynamics Technologies Inc. (news - alert) has released, evoke, the latest

version of its VoIP intercom and conferencing application. evoke enables business users, collaborative workgroups and social networks to instantly and reliably communicate with each other "on net", from anywhere in the world over any Internet or intranet device, wired or wireless, based on presence. Through a versatile softphone, users can simply drag and drop contacts into a communication window to initiate ad-hoc conferences.
www.talkdynamics.com

www.tmcnet.com/1211.1

### Time Warner Cable Delivers More Services to the SMB Space

Time Warner Cable Business Class (TWCBC) (news - alert)has announced the addition of Business Class Phone, a business-grade digital telephony service that includes unlimited local and long distance calling in the U.S., Canada and Puerto Rico for one flat monthly fee and on one bill. The service will be carried on TWCBC's nationwide, private network, which currently serves more than 2 million residential voice customers throughout its U.S. footprint, said Gordon Harp, Buffalo Division President, Time Warner Cable.
www.twcbc.com

www.tmcnet.com/1212.1

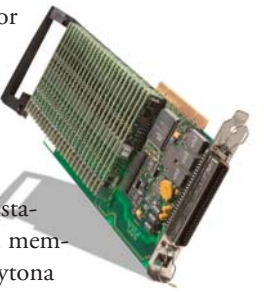
### Alltel Wireless Intros Application to Track Time and Expenses

Alltel Wireless (news - alert)has introduced AIRTIME Manager A4P. Leveraging the application, users will be able to track mobile time, events and expenses. The A4P application helps business professionals using BlackBerry and Windows Mobile smartphones to increase productivity by using their wireless device to record time spent on business phone calls, emails and other activity and automatically posting the entries to back-office accounting systems. Without ever connecting to a PC, the solution automatically synchronizes billing data, sending billable time and client information to major accounting software.
www.alltel.com

www.tmcnet.com/1213.1

### PIKA Announces Enhancements to Asterisk Portfolio

PIKA Technologies (news - alert) announced major enhancements to its portfolio of Asterisk-based products. The company followed up its announcement of its new PIKA Appliance for Asterisk with the release of two additional pieces of hardware. The new analog FXO (trunk) and FXS (station) boards, both members of PIKA's Daytona product family, are designed to the PCI Express (PCIe) form factor. While the FXO board is available in 4, 8, 12 and 16 port versions, the FXS is available in 4, 8 and 12 port versions.
www.pikatechnologies.com



www.tmcnet.com/1214.1

### Dialogic Goes Shopping Again, Acquires Cantata Technology

Strengthening its already sizable presence in the enterprise space, Dialogic (news - alert) has acquired Canata Technology. The move will also enable Dialogic to grow in the service provider segment, with the SnowShore IP Media Server, the Excel Converged System Platform (CSP), the Excel Multi-Services Platform (MSP), and Cantata Technology IMG 1010, all of which will now become part of Dialogic's portfolio. Cantata's (news - alert)Brooktrout TR1000, Brooktrout TR1034, Brooktrout TruFax, and Brooktrout SR140 product families will boost Dialogic's enterprise product line.
www.dialogic.com
www.cantata.com

www.tmcnet.com/1219.1

**NGC Expands International Wholesale VoIP and Hosted Partitioning Services with NexTone**

Next Generation Communications (news - alert) has picked NexTone's (news - alert)

Intelliconnect System, which will enable NGC to exchange VoIP traffic with major carriers, network operators, and PTTs. NexTone's products also allow NGC to offer its customers hosted VoIP partitioning with full redundancy without the complexity and cost of managing their own equipment.
www.nextgencommunications.net
www.nextone.com

www.tmcnet.com/1220.1

**Ericsson Intros New Ethernet Metro Access Node**

Ericsson introduced its new EMN120 Ethernet Metro Access Node. In a bid to meet the burgeoning demand for aggregating higher bandwidths through the network, Ericsson is introducing the EMN120 to address pure Ethernet networks end-to-end.
www.ericsson.com

www.tmcnet.com/1221.1

**NuVox Communications Earns Cisco Powered Network Designation**

NuVox Communications (news - alert) has earned the Cisco Powered Program Multiservice - IPVPN service designation for its VoxNET MPLS service. By deploying Cisco's 2400 series IADs and 2800 and 3800 series ISRs,

NuVox extends the MPLS network to the customer premise. This enables the application of QoS policies at the customer edge. NuVox use VoxNET service to control the quality of service all the way from the lowest speed customer link to the core.
www.nuvox.com

www.tmcnet.com/1222.1

**Intelliverse Adds IP Based Applications to Wholesale VoIP Service Program**

Hosted IP communications provider Intelliverse (news - alert) has announced a new suite of IP-based applications for its private label VoIP service, Intelliverse Wholesale Program.

The new applications will allow users to integrate any of Intelliverse's IP offerings into their current analog phone system, so they can try out the IP technology before they make the full-on move to VoIP systems.
www.intelliverse.com

www.tmcnet.com/1223.1

**Agilent Technologies Intros Handset Analytics Application for Operators**

Agilent Technologies (news - alert) introduced a comprehensive reporting application for handset revenue analytics. This tool lets operators evaluate the performance and popularity of specific handsets over time. Based on Agilent's new data warehousing and reporting platform for mobile broadband networks, this is the first assureME Intelligence reporting tool.
www.agilent.com

www.tmcnet.com/1224.1

**RingCentral Adds Outbound VoIP Capability to Virtual Phone System**

RingCentral (news - alert) launched DigitalLine, a VoIP service that adds the convenience and cost savings of Internet-based telephony to RingCentral's virtual phone system. DigitalLine is seamlessly integrated into RingCentral's hosted phone and fax service, allowing customers to place and receive calls using a broadband Internet connection. The service offers small businesses a complete hosted PBX solution that mixes traditional landline, mobile and VoIP communications to place and receive calls.
www.ringcentral.com

www.tmcnet.com/1225.1

**VoIP Logic Extends Cortex System Management Portal**

VoIP Logic (news - alert) announced the extension of its proprietary Cortex System Management Portal software to enable SMS. The Cortex system is used to control and manage VoIP telephony features on the Sylantro Platform. Cortex SMS integration with Sylantro's Synapps APIs was honored this week as one of the three finalists at the Sylantro Global Summit 2007 Telephony Mashup Challenge in Las Vegas.
www.voiplogic.com

www.tmcnet.com/1226.1

**Fluke Networks Announces Availability of the MetroScope**

(news - alert) MetroScope carrier Ethernet analyzer is now available from Fluke Networks. The MetroScope is a new portable analysis and troubleshooting tool that offers savings of up to 40 percent for service providers deploying carrier Ethernet services. The cost savings are produced through a unique, low-cost, gigabit LinkReflector that enables end-to-end RFC 2544, jitter, and bit-error-rate (BERT) testing without a second MetroScope at the far end of the link.
www.flukenetworks.com

www.tmcnet.com/1227.1

**Sylantro Enters the Multi-Play Application Feature Server Market.**

Sylantro Systems (news - alert) used its recent summit in Las Vegas as a springboard to announce new products and strategies. The flood of Sylantro announcements can be summarized as follows: Synergy Release 4.2 for multi-play end-to-end solutions; PacketCable 2.0 interoperability; a new Web Attendant Console; the Synapps Central online developer ecosystem; and the Sylantro and Thomas Howe Company Mashup Contest.
www.sylantro.com

www.tmcnet.com/1228.1

**New Acellus Device Will Allow VoIP Calls Over a Regular Telephone**

Acellus Communications (news - alert) will be introducing a device that allows VoIP calls to be made over a regular phone line without using a computer. This is in direct contrast to conventional VoIP, which requires a broadband connection, and addresses a still sizable market - approximately 40 million homes in the U.S. alone still using dial-up. Acellus' new device works anywhere the Internet can be accessed through a landline phone service.

www.tmcnet.com/1234.1

**Moovera Networks Partners with IPWireless**

Moovera Networks (news - alert) and IPWireless (news - alert) have announced that the Moovera family of Moovbox mobile broadband gateways will now fully support TD-CDMA from IPWireless as a high-speed wireless backhaul option. Traditionally, WiFi hotspots have required a wired connection, such as DSL for backhaul. With a growing number of UMTS TD-CDMA networks in service around the world, the combination of their Moovbox Broadband Gateways and IPWireless TD-CDMA technology allows deployment of mobile hotspots with WiFi access at multi-megabit speeds wherever there's wireless carrier network coverage.
www.moovera.com
www.ipwireless.com

www.tmcnet.com/1235.1

**Verizon Gunning For Apple's iPhone**

There is no shortage of rivals to Apple's popular iPhone (news - alert), and this week several new entrants in the race dialed in to challenge the computer company's lock on the luxury mobile devices market. In particular, the Voyager, made by South Korea's LG for Verizon Wireless, (quote - news - alert) is the device best designed to challenge the iPhone. The phone is complete with a large external touch-screen and opens laterally to reveal a full QWERTY keypad. It has a camera, an HTML browser and the ability to let owners watch videos and listen to music, according to Verizon.
www.verizonwireless.com
www.apple.com

www.tmcnet.com/1236.1

**ZyXEL Launches MAX-3200 Picocell and MAX-1200 Femtocell WiMAX Base Station Series**

ZyXEL Communications (news - alert) has come out with two new WiMAX Base Stations - ZyXEL's MAX-3200 Picocell and MAX-1200 Femtocell. Projected as one of the most cost-effective WiMAX solutions available in the industry today, the series provides enhanced WiMAX coverage, increased 4G network capacity, improved indoor radio penetration and maximized CAPEX/OPEX savings.
www.zyxel.com

www.tmcnet.com/1237.1

**RIM Introduces First CDMA-enabled BlackBerry Pearl**

Research In Motion (quote - news - alert) has introduced the first Blackberry Pearl smartphone that runs on CDMA networks. The new BlackBerry Pearl 8130 has features like enhanced communication facilities, new software interface, multimedia capabilities, a built-in GPS and support for high-speed EV-DO networks. This phone is equipped with all the new features that have made smartphones popular all over the world. Features like web browsing, organizer and email and messaging (SMS, IM, MMS(i) are present in this phone.
www.rim.net

www.tmcnet.com/1238.1

**Greenlight Wireless Releases New Ad Mobilization Technology**

(news - alert) The presentation of text-based ads created for the desktop will now conform to Mobile Marketing Association (MMA) standards. Greenlight Wireless has introduced a new, patent-pending technology that enables confirmation. Greenlight Wireless president Mark Siev said, "This latest innovation to Greenlight's ad platform adapts ad text for the mobile environment without losing the meaning or impact of the ad."
www.greenlightwireless.com

www.tmcnet.com/1239.1

**Rosum Collaborates with Intel to Enable TV-Location Detection On Mobile Devices**

Rosum (news - alert) has signed a licensing and joint development agreement with Intel (quote - news - alert) to enable indoor/outdoor TV-location detection capability for mobile devices. Under the agreement, the two companies will cooperate in the development, marketing and distribution of these future products to customers developing a wide range of terrestrial and mobile TV devices worldwide. Rosum indoor/outdoor TV-location technology will enable a host of location based services for mobile users as well as delivery of relevant content and information that drive a positive user experience.
www.rosum.com
www.intel.com

www.tmcnet.com/1240.1

**Telefonica and Nokia Partner to Drive Mobile Internet Services**

Just months after introducing its new Internet services brand, Ovi, Nokia (quote - news - alert) is now announcing a new global partnership to help further the uptake of Internet services, with Telefonica. In a bid to accelerate the rate at which new Internet services are adopted on mobile devices, Nokia and Telefonica's (news - alert) partnership will offer Telefonica customers easy access to both of the companies' Internet services. The collaboration will specifically include co-operation on menu customization, technology and billing.
www.telefonica.com
www.nokia.com

www.tmcnet.com/1241.1

**Alcatel-Lucent and Sagem Support 3G Services Inside Homes and Offices**

Alcatel-Lucent (quote - news - alert) and Sagem Communications (news - alert) have partnered for the commercial development of a femtocell base station platform. Mobile operators can use this platform to provide consumers and enterprises with 3G UMTS/HSPA network coverage in their homes or business locations. By simplifying network architectures and easing installation the Base Station Router (BSR) Femto can help mobile operators improve indoor coverage, reduce operating and capital expenditures. The BSR also noticeably improves subscribers' quality of experience for mobile broadband and voice services.
www.alcatel-lucent.com • www.sagem.com

## DEVELOPER NEWS

www.tmcnet.com/1242.1

### Wisair's Wireless USB Single Chip Receives WiMedia Platform Certification

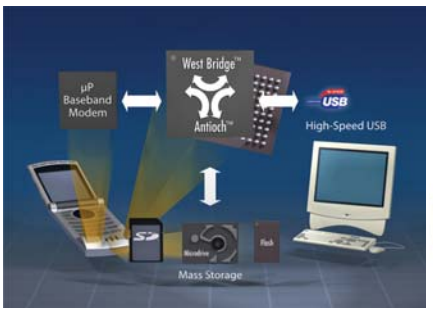
(news - alert) Wisair's WSR601, CMOS single chip has been awarded WiMedia platform certification. WiMedia certified platforms cover both MAC and PHY layers to ensure interoperability and coexistence between products as well as serve as the foundation for Certified Wireless USB products. The WSR601 chip successfully passed WiMedia Physical (PHY) layer compliance and interoperability tests and was designated as a registered PHY in the WiMedia integrators' list in September.


www.wisair.com

www.tmcnet.com/1243.1

### Cypress Semiconductor Joins MIPI Alliance

Cypress Semiconductor (news - alert) has reportedly joined the Mobile Industry Processor Interface (MIPI) Alliance, the industry initiative focused on defining and promoting open standards for interfaces to mobile application processors. The company is addressing rapidly evolving interface standards with its West Bridge architecture for dedicated peripheral controllers that not only serve as functional bridges but also provide high-performance, optimized data paths for embedded applications.




www.cypress.com

## CHANNEL NEWS

www.tmcnet.com/1244.1

### BroadSoft and Taqua Deliver Advanced IP Services and Class 5 Switch Replacement Solutions

Taqua and BroadSoft have partnered to provide Class 5 switch-replacement and advanced IP services to service providers in North America. Both companies are already working to better integrate each other's products and are coordinating development efforts. Taqua (news - alert) plans to bundle and resell the BroadSoft BroadWorks (news - alert) VoIP application platform to incumbent local exchange carriers, as well as cable multiple system operators and other competitive local exchange carriers in North America.

www.taqua.com
www.broadsoft.com

www.tmcnet.com/1245.1

### Telanetix Partners with Quintum for VoIP Solution


Telepresence solutions provider Telanetix, (news - alert) which also recently acquired hosted VoIP provider AccessLine Communications, is expanding its partner program with regard to its hosted VoIP business. Specifically, its AccessLine service will be deploying Quintum Technologies' (news - alert) Tenor VoIP gateways in its service deployments. Quintum's Tenors are an ideal complement to the AccessLine service, because the Tenor line is well suited for the SMB segment targeted by AccessLine.

www.telanetix.com
www.quintum.com

## IP CONTACT CENTER NEWS

www.tmcnet.com/1246.1

### VoodooVox to Target Call Center Industry with its In-Call Media Service

VoodooVox's (news - alert) web-based technology enables it to inject interactive content, mixed with targeted advertising, into any call stream, fixed or mobile. The company claims its hosted In-Call Media service, which is ideally suited to businesses that handle high call volume, helps reduce call abandonment rates and increase customer satisfaction. Callers on hold can have a more engaging experience - and the companies keeping them on hold can benefit through new revenue streams and increased customer satisfaction.

www.voodoovox.com

## SIP NEWS

www.tmcnet.com/1247.1

### Ingate and Excel Demonstrate Seamless Interoperability

Ingate Systems (news - alert) and Excel Telecommunications (news - alert) have demonstrated interoperability between Ingate Firewalls and SIParators and Excel VoIP, Internet, and data communications solutions. With this interoperability Excel users can utilize their corporate VoIP, IM, and other IP PBX capabilities from any remote location, as long as there is Internet access. Ingate's solutions also allow Excel customers to utilize SIP trunks, which rapidly reduce costs by eliminating the need for an enterprise PSTN gateway, unused BRI/PRI capacity, expensive and underutilized phone lines or trunks at remote offices, and by providing PSTN termination in the local area.

www.tmcnet.com/1252.1

**Tangoe Launches CommCare Services for Fixed and Mobile Lifecycle Communications Management**

Tangoe (news - alert) announced the availability of CommCare managed services, a suite of services for managing all processes associated with fixed, mobile, and converged communications. Delivered through Tangoe's patented technology platform, CommCare services provide clear advantages to organizations that seek rapid solution implementations and ROI, adaptability to unique organizational needs, best-of-breed functionality, and scalability for future growth and solution expansion. Adaptable to meet large enterprise needs, CommCare services are built upon Tangoe's patented technologies and are available to corporations as an ASP model in three pre-packaged component layers - Base, Enhanced, and Premium. These layers deliver increasing amounts of functionality and are capable of rapidly aiding the management of an organization's fixed and mobile communications, from simple invoice capture and processing to a full range of complete outsourced services.

www.tmcnet.com/1249.1

**BBR Wireless Management Merges with Telecom Expense Management Firm Rivermine**

Rivermine (news - alert) announced its plans to merge with BBR Wireless Management. The two companies decided their respective focuses on telecom automation software (Rivermine) and wireless spend management (BBR) would be best if fully merged to create a complete lifecycle TEM offering. Together, Rivermine and BBR are offering unified wireline and wireless expense management solutions to both enterprise clients and channel partners. Once fully combined under Rivermine's brand, these services will serve an installed base of 225 companies.

www.tmcnet.com/1250.1

**Avnet Technology Solutions Broadens Its IP Telephony Portfolio with Veramark**

Avnet Technology Solutions (news - alert) announced a U.S. distribution agreement with Veramark Technologies. Veramark's broad range of telecommunications cost management systems complement communications applications, hardware, software and services currently available from Avnet. Veramark produces a broad range of telecommunications cost management systems for users of IP-based and circuit-switched private branch exchange (PBX) networks. Its web-based telecommunications software is designed for ease of use and features extensive reporting tools that enable businesses to reduce telecommunications costs.

www.tmcnet.com/1251.1

**Asentinel Unveils TouchFree TEM and Contract Control Enhancements at Gartner Symposium/ITxpo 2007**

Asentinel (news - alert) unveiled two enhancements to its patent-pending Asentinel 5.0 software, TouchFree TEM and Contract Control. TouchFree TEM will eliminate the influx of paper and CD ROM invoices for clients. All invoices will be sent directly to Asentinel, and Asentinel will upload them into the Asentinel 5.0 system. Contract Control will allow customers to submit telecom contracts to Asentinel for Asentinel to populate the application templates, upload contract data and update the customer's inventory. All invoices will then be audited against the telecom contracts, line by line, and customers will be able to keep real-time track of data.

www.tmcnet.com/1253.1

**Signum International: Signum Creates Alliance with Aurora Kendrick James**

Aurora Kendrick James has agreed a new working partnership agreement with Signum International, (news - alert) the UK mobile analysis specialist. Under the agreement, the two companies will offer an expanded range of telecoms analysis, management information and consulting services to Signum's corporate customers. In addition, Signum will bring its extensive benchmarking and mobile analysis expertise to AKJ, to enhance the range of telecom expense management services. These include telecoms audits, invoice processing and management, supplier contract management, policy and usage monitoring, mobile expense management and a range of reporting tools for fixed, mobile and data services.

www.tmcnet.com/1254.1

**Avotus Debuts eProcurement Consulting Practice**

Avotus (news - alert) announced it will be expanding its footprint in eProcurement by introducing a consulting practice in response to customer demand for more customized eProcurement capabilities. The new eProcurement consulting practice will provide customers a new standard of eProcurement and contract negotiations and builds upon Avotus' ICM eProcurement automated solutions. Avotus' proprietary ICM eProcurement technology allows vendors to compete for business in an online "reverse auction" thus shrinking the RFP process by months.

www.tmcnet.com/1255.1

**New Billing Solution from MBG Telecom**

MBG Telecom's (news - alert) "In-Focus" free trial offer will now include wireless billing information. Companies that qualify will now be able to view two months worth of billing data on the integrated MBG/mW SMART platform. Both platforms have been developed on the Microsoft .Net platform to allow integrated data flow. End-users can now view a centralized bill through MBG's Invoice Presentation solution. Spend is presented by vendor, region, hierarchy and type of service.

www.tmcnet.com/1248.1

**Telecom Expense Management Provider Rivermine to Offer Verizon Business eBonding to Customers**

In a bid to offer their many Fortune 1000 companies and large organizations improved ordering and management of their telecom services, Rivermine (news - alert) has announced it adopted Verizon Business eBonding services. For customers, it is now possible to communicate with Verizon Business securely and automatically through an electronic interface between Rivermine's TEM software and Verizon's back-office systems for ordering and managing telecom services.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and be mobile tomorrow...
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By Brough Turner

# VoIP Peering — Not Such a Big Deal

VoIP peering - there's a lot of talk, but relatively little action. That's probably okay, as VoIP peering is a telephony concept. In the world of Internet applications, we care about things like communities, endpoints and mashups. But to understand the real issues, we first need to resolve some confusing terminology and discuss some economics.

## VoIP Peering vs. IP Peering

The term "peering" by itself refers to IP peering - the voluntary interconnection of two Internet networks for the purpose of exchanging their customer's IP traffic. Operator A wants his customers to be able to reach Operator B's customers so they strike up a deal to exchange traffic, just for those customers, usually not for other Internet addresses. This differs from "IP Transit" where A pays B to deliver A's customer's traffic to any or all Internet addresses.

IP peering is about layer 3 packets - nothing specific to telephony. Peering between ISPs is almost completely unregulated and most peering arrangements are subject to non-disclosure agreements, so information on the industry must be derived indirectly, for example, by examining Internet backbone router tables. Nonetheless, the market seems to work extremely well. In 12 years of commercial Internet experience, no backbone monopolists have emerged and new backbones (both public and private) continue to be built.

VoIP peering (or voice peering) is a newer term. It refers to the direct exchange of VoIP telephony traffic without PSTN involvement (or translation). VoIP peering is all about telephony addresses (phone numbers or SIP URIs). In the PSTN, this is called "interconnection" and it's usually regulated, with mandated settlement rates.

## Economics and Network Effects

A network is only valuable when it connects you to what you want, thus network value depends upon network scale - the more members, the more valuable the network. And when two networks interconnect, the smaller network derives the most benefit as its customers get proportionately more reach. Barring regulation, if payments are made, the smaller network typically pays the larger for connectivity.

Of course the first interconnection any new VoIP provider needs is connection to the biggest network in the world, the PSTN. Except for regulatory loopholes, this has real cost, as the PSTN is large (many interconnection points) and subject to complex, per-country rules.

Once you have PSTN connectivity, the decision to do voice peering with another VoIP provider depends entirely on cost. Do my subscribers make enough calls to subscribers of the other VoIP provider to justify the expense of setting up interconnection? In most cases the answer is no. Any one VoIP service provider is so small that it's hard to justify the interconnect expense.

But suppose both VoIP (define - news - alert) services actually did more than PSTN voice telephony? Wouldn't that justify VoIP peering? Maybe. . .

## Digital POTS vs. IP Communications

Today there are two very different kinds of VoIP players. Arbitrage services, like Vonage, AT&T CallVantage and, more recently, the cable companies, use VoIP technology to produce a PSTN experience at lower cost - think of this as digital POTS (Plain Old Telephone Service).

IP communications services leverage IP to provide new capabilities, like instant messaging, wideband audio and video. Skype is a leader here, but AOL, Yahoo, Google, MSN and many others are in play.

Doesn't it make sense for two services like Skype and Google Talk to interconnect? Both services provide better than telephony voice quality through the use of wideband coders (at least on Skype-to-Skype or Google-to-Google calls). Interoperation between Skype and Google Talk could allow better audio on such calls.

But the Internet is not the PSTN; new rules apply.

## IP Communication is Different

Most IP endpoints are intelligent devices. The Internet's end-to-end design principle encourages this. Today, most are PCs, but even mobile phones and other mobile Internet devices incorporate relatively powerful processors. Furthermore, Moore's law ensures a stream of ever-more intelligent devices.

IP communications involve relatively sophisticated applications running on connected devices (PCs, mobile phones, etc.), which themselves are platforms. As a result, it's feasible to run two or more IP communications applications at the same time. Certainly that's the case with PCs, where it's not unusual for a teen to use three different instant messenger programs at once and be active on MySpace, Facebook and the like.

These are separate networks. They don't peer, but equivalent functionality happens at the edge. Each user runs client software for each of the communities they participate in. Thus all their contacts are visible and reachable, despite the lack of peering relationships between the services.

## Enabling Mashups More Important than Peering?

Today, the competitive edge for Internet applications is how open they are for third parties to extend and incorporate in mashups. When Facebook opened up to third parties earlier this year, numerous third party extensions appeared and membership soared. This is what counts.

VoIP peering is for digital POTS. IP Communications providers need to focus on open APIs and enabling mashups. 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 www.nmscommunications.com.*

# Can you find the Dialogic in that?

You may not be able to see us, but we're there. With the signaling and media technologies that pump out many of today's most popular telecom services. In nearly every service network around the globe. Inside a lot of the equipment built by leading manufacturers. In fact, Dialogic is just about everywhere. Reliable, innovative, cost-effective, scalable. Delivering the technologies that make it easier for you to bring out new telecom networks and services. Find the Dialogic in that.


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Dialogic®

By Michael Stanford

# It's as Plain as Black and WhiteSpace

The Internet is a vibrant, free market environment where companies compete to deliver innovative services to consumers, and where consumers benefit from increasing choices and vigorous price competition. The market for consumer Internet access in the U.S. on the other hand is not as competitive.

In America, most homes are limited to two main broadband options: DSL or cable, and for each home there is usually only one supplier option for each of these. This lack of competition is a concern to consumers, government and the Internet services industry. It is a concern to consumers because of lack of choice. It is a concern to companies providing services over the Internet because the Internet Access providers have the power to discriminate against their traffic. It is a concern to government because universal broadband access is becoming a requirement for international competitiveness.

We are all aware of the national debate over how the ground-rules for broadband Internet access should be changed (or not changed) in order to prevent the USA from slipping further behind the rest of the developed world in broadband adoption, speed and price. Most people agree that increased competition would help. One vector of this debate is how to develop wireless as a competitor to DSL, cable and fiber optic.

The primary advantage of fixed wireless compared to wired technologies is that it is cheaper to deploy, especially in thinly-populated areas. Its primary disadvantage is that while it can offer speeds comparable to DSL it isn't remotely as fast as fiber, so it is not a complete solution for the new media-intensive applications that are currently the biggest and fastest-growing users of Internet bandwidth.

WiFi has been hugely successful as a local area network medium, but it has had mixed success as a substitute for DSL and cable. Wouldn't it be nice if there was a wireless technology that had all the advantages that made WiFi so successful, but none of the limitations that make it unsuitable as a broadband access technology? In fact, there are currently two main candidates to fulfill this role: 802.16 (WiMAX) and 802.22 (WhiteSpace). WiMAX (define - news - alert) is further along in its life, and it has evolved to be both a fixed and a mobile technology. 802.22 for now has no aspirations to mobility, but it has a feature that makes it a better candidate for fixed broadband access than WiMAX: the spectrum that it uses is better and, like WiFi spectrum, it is unlicensed. This spectrum lies between 54 MHz and 863 MHz. This spectrum has great propagation characteristics. It can travel over tens of kilometers and pass through walls. This means that 802.22 systems can have wider coverage areas than WiMAX, and use indoor antennas.

There is a serious technical challenge though. This is the same spectrum used by VHF and UHF television. Television stations do need licenses to use this spectrum, and of course it would not fly for their transmissions to be interfered with by 802.22 systems. On the other hand, this spectrum is a valuable national resource, and studies have found that much of it is unused most of the time. The idea of 802.22 is to keep track of what parts of the local spectrum are being used by TV stations, and avoid those frequencies. This is where 802.22 gets its colloquial name: it uses the "white spaces" between active television channels.

This spectrum [for 802.22] has great propagation characteristics. It can travel over tens of kilometers and pass through walls.

The technology that 802.22 employs to keep track of which frequencies are okay to use is called "cognitive radio". Cognitive radio is complicated and compute-intensive. An 802.22 base station (BS) keeps track of all the transmitters in its environment, including TV stations, wireless microphones, other 802.22 base stations, and all the 802.22 customer premises equipment (CPE). The CPEs are only allowed to transmit when the BS tells them to. The BS gets this information from the CPEs which sense radio activity and report it back to the BS. This is called Distributed Sensing. 802.22 must also provide for multiple BSs to operate close together without interfering with each other.

So the technical challenges are significant. As of this writing the FCC was still deliberating whether to move ahead with opening up the white space to unlicensed operation. IT

*Michael Stanford has been an entrepreneur and strategist in Voice-over-IP for over a decade. His strengths are technical depth, business analytic skills and the ability to communicate clearly. In his current consulting practice, Michael specializes in VoIP wireless networks, both WiFi and WiMAX. Internet Telephony Magazine recognized him as one of "The Top 100 Voices of IP Communications" and VoIP News named him one of "The 50 Most Influential People in VoIP".*





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**NEWS FLASH**
**Dialogic recently acquired Cantata**
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By Tony Rybczynski and Jon Oltsik

# Addressing Enterprise Network Access Control (NAC) Requirements

Business executives are extremely concerned (and rightly so) that their organization may be the next publicly disclosed data breach story in the *Wall Street Journal*. Ask 10 networking and security professionals to define Network Access Control (NAC) and you will likely get 10 unique responses. The truth is that NAC has become an essential piece of security enforcement and network infrastructure.

The technology glossary whatis.com defines NAC as "a method of bolstering the security of a proprietary network by restricting the availability of network resources to endpoint devices that comply with a defined security policy."

NAC can be construed as a common endpoint security policy management system for a range of network (wired, wireless, VPN) and device types. In most cases, security policies are centered on three areas:

1. Authentication. Users and/or endpoint devices must authenticate themselves before they are granted access to the network, even if they are roaming. The network can then make further policy decisions based upon user and device identity characteristics.

2. Endpoint health status. Before gaining network access, endpoint devices are checked for system vulnerabilities, security software configuration parameters (e.g. whether antivirus signatures are current), and malicious code signatures. Further network decisions are based upon the results of this examination.

3. Authorization. NAC can be configured to limit a device to specific network assets or tasks and also be tuned for specific types of networks. For example, an IP phone may be restricted to a particular network VLAN and IP telephony gateway.

The overall objective of NAC is simply to make better decisions about who gets access to the network (or network segment) and what they can do once they are admitted. The health check provides additional security protection by limiting or restricting access to endpoints deemed to be "unhealthy" based upon an organizations policy definition of endpoint health.

## The Business of NAC

**NAC can help large organizations in a number of ways:**

1. Opening the network for business benefit. NAC can enable organizations to open their networks to outside constituencies driving new revenue opportunities, enhancing productivity, or lowering costs.

2. Improving corporate governance. NAC can enhance existing controls and provide detailed audit trails for compliance and corporate governance initiatives. This can lead to more consistent operations and lower costs across an organization.

3. Automation of IT processes. NAC can enable a number of self-service applications for endpoint security remediation and patch management. This has the potential to significantly reduce desktop administration costs.

4. Enhancement of data privacy and security. NAC can enable fine grained network authorization, keeping bad guys away from valuable network assets and private data.

When viewed in a holistic perspective, NAC can deliver maximum benefits when CIOs align technology plans with business needs and treat NAC as a strategic initiative rather than a tactical stopgap. Additionally, NAC can be used to enhance specific vertical industry business processes. A research facility dependent on network collaboration may want to restrict network access to all but the most updated endpoint configurations, while a University may grant network access to all students but throttle peer-to-peer application traffic to protect valuable bandwidth.

## Getting The Knack for NAC

NAC business benefits seem relatively clear but the NAC technology journey is anything but straight forward. NAC is about enabling business and security policies, not scanning PCs.

CIOs should look at the big NAC picture and not remain trapped in a technical discussion about IP addresses, networking equipment, and security enforcement technologies. Piecing together multiple tactical point technologies will not amount to a strategic end-to-end NAC implementation that fits enterprise longer term needs. In fact, a tactical approach could ultimately lead to operational overheads, security vulnerabilities, and inflexibility.

It's time to set NAC free to meet the strategic business, security, and operational needs of the business! Even elite IT enterprises won't deploy full NAC capabilities overnight. Rather, they will ease NAC into the enterprise over time, by plugging existing vulnerabilities and then adding functionality through implementation phases. NAC should be integrated into existing desktop and security technologies, while eventually becoming part of the communications fabric itself. To support business and IT objectives, the chosen NAC technology should provide for flexible implementation and enforcement, and support centralized policy and configuration management. Most importantly it must provide consistency across any user account, device, or network. 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. Jon Oltsik is a Senior Analyst at the Enterprise Strategy Group and the founder of its security practice.*

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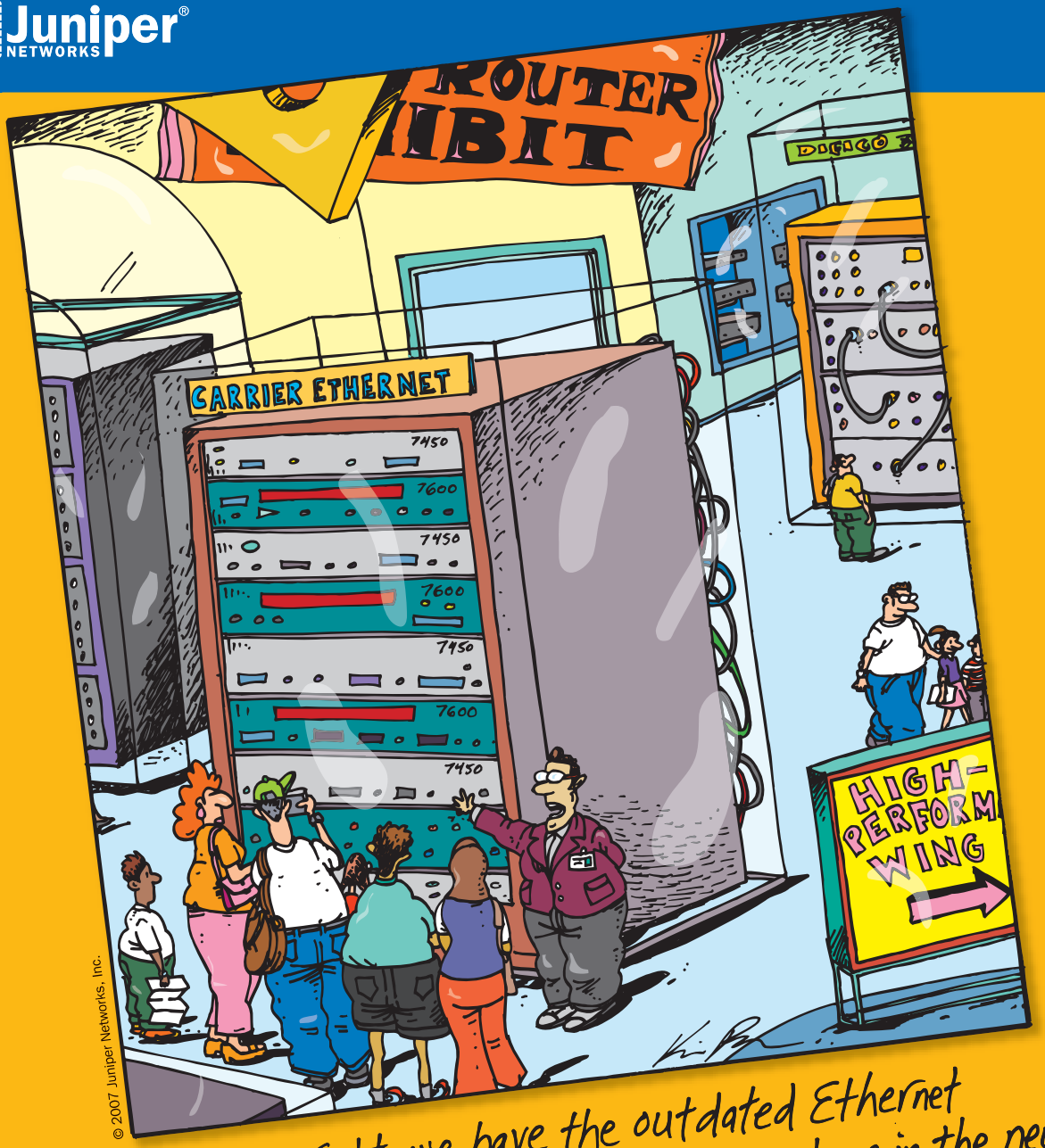


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# Hey, What's That Mobile Gizmo?

By Hunter Newby

You've probably heard of the Manhattan Project, maybe even the Alan Parsons Project, but have you ever heard of the Gizmo Project? No, it's not a sequel to the Gremlins movie. It's free calls and a whole lot more!

Gizmo is "an Internet telephone that is as simple as instant messaging". It is definitely an end-user service. The service has been around for more than a couple of years and it has grown and added various features since its launch. One of the best steps that it has made is to be able to be married to a mobile phone.

One of the last strongholds of high-rate monopoly is the mobile networks. Their owners and operators have taken great strides to insure their investments through limited access from the outside calling worlds of the PSTN and the Internet. Yes, mobile networks are a world of their own.

Not that Gizmo is the first to figure out a way to get on to a mobile device with an app, or even to figure out how to bypass the outbound switches of the mobile operator for lower terminating rates (this has been done with DNIS since the late 90s), but the seamless combination of a mobile app and lower rates along with other interesting and useful features makes this Gizmo quite the gadget.

**The Gizmo Project and Gizmo for Mobile are representative of the applications that can be created and added to the existing access and transit networks for which so many people already pay.**

**Here is what you get with Gizmo for Mobile:**

1. **Free calls!** The number one reason Gizmo Mobile uses to promote the service is free calling. Like almost any "In-Network" service Gizmo-to-Gizmo calling is free. (Gizmo isn't really a network though, it is peer-to-peer) They also offer 40 minutes of free calling to mobiles and land lines when you get one of your friends to download Gizmo and sign up for a new account. (They also have a totally free calling plan.)

2. **Save up to 90% on international calling rates!** Beyond Free is always the old model of pay per minute. As they say, "Using a clever technique, Gizmo for Mobile connects your long distance calls using our network". This "clever technique" is the updated version of the cost-avoidance feature of DNIS (Dialed Number Identification Service) from the PSTN that uses ANI (Automatic Number Identification) recognition to connect a mobile phone to an outbound switch of a different provider by calling that switch, usually with a 1-800 number. The method may have changed and gotten cleverer, but the idea is the same. Lower costs!

3. **Radio!** Gizmo turns your mobile into a radio. It is their tunes you get piped in, but the selection is rather nice. Given that it is free it doesn't hurt to have it. The Gizmo Radio Station choices include Pop, Rock, Country, Classic Rock, Alternative, Electronica, International, NPR and Talk Radio. What, no tech-talk?

4. **Free unlimited SMS!** SMS peering between like-minded providers also occurs on multiple planes just like VoIP Peering. In this instance there are the mobile operators with their interconnected networks and associated fees and then there is Gizmo, MSN, AIM, Yahoo, and Jabber. SMSing between members of this peered community are free, but that doesn't mean that all SMS's are free. Even so, every little bit helps.

5. **Call Forwarding!** This is a nice feature to have and it's a glimpse at how this service generates revenue. It's not totally free, but certainly with all of the other benefits it's something a user might add on just because it is there.

The Gizmo Project and Gizmo for Mobile are representative of the applications that can be created and added to the existing access and transit networks for which so many people already pay. This is truly quite clever, but there are many other rides in this amusement park. Once you pay to get in all you need to do is find the "rides" that are included with the cover charge. If you haven't tried it, this Gizmo is worth taking for a spin.

Gizmo for Mobile and Gizmo Project are services and trademarks of SIPphone, Inc. All you need to do is download Gizmo for Mobile at gizmo5.com.
www.gizmoproject.com IT

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

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By Larry Lisser

# Telecom Consultants: A Channel Like No Other

*"With everything that changes in the telecom world, one thing stays the same. As a vendor, if not enough independent consultants know who you are and are confident in what you can do for their clients, you will invariably miss out on good opportunities"*

**— Mark Harris, Executive Vice-President, CallTower.**

There's good reason why some telecom vendors have always made room in their marketing budgets for relationship building with independent telecom consultants. This way, these typically major vendors always knew which consultants they could count on to gently direct business their way come RFP time. In today's nouveau telecom industry though, the world of consultants and how they operate is changing. And so should the way vendors manage and support them.

The telecom resurgence - VoIP meets Web 2.0 meets Unified Communications - has brought a choice of business solutions the likes of which we've never seen. At one time, not so long ago, an enterprise buyer would engage a consultant to choose a new PBX and voice mail system- a time when plain vanilla voice mail wasn't yet plain. Now he faces a myriad of modern terms like IP Telephony and Unified Communications, and totally new product segments like Video Conferencing and Mobile Everything. Soon, he will even have to consider Microsoft.

This resurgence is now incrementally fueled by what feels like a new market but that really isn't. Ironically, given its immense girth, the SMB market has only recently come into vogue. Once served with feature-rich but essentially low-end key systems, this segment of buyers must now choose from as many options as its big brother, the enterprise - if not more. (See Figure 1.)

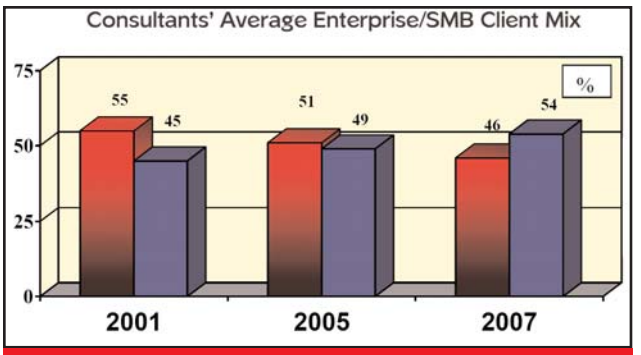


**Figure 1. Source: The Brookside Group's 2007 Telecom Consulting Market Study.**

## Perfect Storm

Combining these market forces means that, well - it's a great time to be a consultant. The industry evolution makes for far more complexity for the end-user buyer to navigate and for far more buyers looking for complex solutions. In fact, the consultant value proposition has grown more compelling than ever before, and to more segments of buyers.

Every opportunity creates its own challenges, however. For the consultant, it's no longer enough to align himself with leading vendors alone. The new buyer will expect these "experts" to know something about everything.

## Consultants as Channels?

As for the vendors, how should consultants fit into their plans now? And what, if anything, can vendors do to make today's consultants better consultants tomorrow?

Start by considering the consultant not as a reseller, not as a referral partner but as a channel of influence. After all, The Brookside Group reports that telecom consultants influence as much as 25 percent of telecom product and services purchases every year. Wow. Find me a channel that can do that.

Consultants are dispersed - they can't be managed centrally like other big channels. However, in order to pay dividends, they require just as much attention and nurturing.

Here are some basics to consider:

- **Qualify.** Reach out to the consultants who best map to your business world. It's quality, not necessarily quantity that counts here.
- **Talk to them.** Use easy to digest sound bites and consistent messages that instill confidence in them. Make your messages regular and relevant to their business, not just yours. They're neither buyers nor sellers. They're influencers.
- **Tools.** Build content that speaks to them and tools that position them as expert interfaces between their customers and you.
- **Make them shine.** Do what you can to give them and their customer the confidence it takes to leap forward. They have only themselves and their time to sell.
- **Help them grow.** Educate them on your market, technology, solutions and customers so they cab bring more value to existing and new clients.
- **Stick with it.** Don't start and stop. As with any large channel, an effort must be sustainable to pay dividends.

Times are good it seems for almost everyone these days. The buyer has a breadth of choices; the vendor has a depth of customers (and/or plenty of VC cash) and the consultant is busy working the wide spaces between, adding immeasurable value to the equation. Treating consultants as the channels they are can only help our industry continue its very fast forward motion. IT

*Larry Lisser is the President of ChannelStrength (news - alert) (www.channelstrength.com), a Bay Area-based company that works with communications providers to identify, engage and launch sales and influence channels that penetrate new markets and generate sustainable revenue sources for its clients. llisser@channelstrength.com.*

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Continuity Planning 101: A Continuing Educational Series

*By Rich Tehrani & Max Schroeder*

# It's All Coming Together

Converged IP, Software-as-a-Service (SaaS), and hosted communications are all "Coming Together". There are a lot of factors providing impetus to this convergence but four areas seem to constitute focus of attention: 1) Business Continuity; 2. Workforce Mobility; 3. Compliance; and 4. Globalization.

"Coming Together" is a theme central to all DPCF projects including the Disaster Planning Communication Forum Workshop. The workshop entitled "Unified Convergence and Business Continuity" will be held on November 28, 2007, at 2:00 EDT (14:00 hours GMT-5). This workshop will host a selection of experienced panelists to address two key concerns for any enterprise - how to avoid a serious interruption of business operations and how to comply with government regulations.

**Agenda**:

- How SaaS fulfills business continuity and compliance regulations.
- IP Communications and converged solutions provide great productivity enhancing tools; however, there are some concerns regarding business continuity and compliance planning that must be addressed.
- How hosted centers meet the needs of business continuity and disaster preparedness.
- How all of the above fit into the globalization equation.

**The panelists include:**

**Moderator:** Max Schroeder

Max Schroeder is the SVP of FaxCore Inc. and a member of the Enterprise Communications Board of Directors. FaxCore is a manufacturer of fax server applications that fully meet the requirements of business continuity, hosted communications and SaaS. Mr. Schroeder has more than 20 years experience in the communications industry and has been an active member in many communication industry associations.

**Speaker:** Howard Lubert, Ph.D, Managing Partner and Senior Analyst SafeHatch, LLC

Dr. Lubert founded SafeHatch LLC, a technical and business consultancy that provides technical due diligence services to the VC and investment community and business acceleration services to emerging technology companies. Mr. Lubert is currently serving as the President & CEO of DirectorForce, a secure, hosted SaaS (Software as a Service) communication and collaboration suite for Boards of Directors.

**Speaker:** Don Gant, VP Channel Marketing and Business Development for Iwatsu Voice Networks

Mr. Gant is responsible for positioning Iwatsu's communications products for sale to the channel and developing relationships with other technology companies for solutions that add value to Iwatsu's core IP competencies. He has been with Iwatsu for 19 years and was recently named one of the "Top 100 Voices of IP Communications".

**Speaker:** Wendell Black, Vice President, Oracle, Oracle Contact Center Anywhere.

Mr. Black was President of Worldwide Sales & Marketing at Telephony@Work, prior to Oracle's acquisition in 2006. He has over 25 years of experience in the communications industry. Mr. Black has overseen the selection, roll out, and ongoing management of multinational financial, CRM, and customer services infrastructure with companies such as Aspect, Harris Corporation, Periphonics, and Nortel Networks prior to joining Telephony@Work in 2002.

A new and exciting "Coming Together" addition to ITEXPO East 2008, (January 23-25, 2008 at the Miami Beach Convention Center, Miami Beach, FL) will be the DPCF Pavilion. The Pavilion's goal is to provide a central location for attendees interested in DPCF-related activities. In addition the DPCF Pavilion will also provide vendors and resellers with a cost-effective exhibit location. The overall themes will be business continuity, hosted communications services and SaaS. If you are interested in exhibiting in the DPCF Pavilion please contact: Joe Fabiano, Global Events Account Director, Tel. 203-852-6800, ext. 132, e-mail: fabiano@tmcnet.com.

Even publishing companies covering the business and SaaS markets are looking to cooperate to help end-users and resellers to address the four critical keys of this market. Recently the column authors visited the Channel Partners Conference & Expo at the Meadowlands Exposition center in Secaucus, New Jersey and met with some of the Virgo Publishing, LLC staff to discuss just such cooperation. Look for some additional information on this subject in future columns and in the DPCF Channel on TMC's site www.tmcnet.com/disaster-planning/.

The DPCF has always operated as an open forum welcoming all contributors. If you would like to become an active member of the TMC/ECA Disaster Preparedness Communications Forum or participate in our pavilions, seminars or resource library (i.e., white papers, planning guides or case studies ), please contact Max Schroeder (maxschroeder@tmcnet.com or 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 FaxCore, Inc. (news - alert)*

*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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# Can IP Telephony Applications Live in a "Virtual World"?

By Jeff Hudgins

All things old truly do become new again. In 1967, IBM introduced their System/360 model 67. This model utilized virtual memory along with an operating system called CP-67 which ultimately evolved into a virtual machine (VM) operating system. Today, virtual software has become a hot topic again as data centers and large enterprises face an ever increasing shortage of power, cooling, and space. In short, "server sprawl" has reached critical mass and technologists are looking at virtualization as a key to solving the problem.

The gap between CPU processing available versus what is actually utilized continues to grow (see Figure 1). Despite the increasing costs of adding more and more processing capacity, typical server processor utilization reaches a meager 10-15%. Virtual software can take advantage of this widening gap and allow significant cost savings by reducing overall server count (in some cases by a factor of 20).

Does virtualization offer similar opportunities to IP telephony services without compromising security, reliability and performance?

First let's deal with the security issue. In a physical machine network, the machines are separated and cannot directly interfere with each other except over the network. In a virtual machine network, partitions can be used in much the same way to create a logical separation and isolate any intruding Mal-ware. This hardware/software abstraction is a great benefit to telephony service providers as it prevents potential service interruptions to mission critical functions of the application.

Next is the robustness of virtualization and its ability to deliver a five 9's fault tolerant environment. At the surface, virtual software does not appear to increase or decrease the system reliability. Any application or driver faults that might normally cause a failure on the physical hardware will still fail in the virtual machine. However, the ability to isolate VMs can provide redundancy in the event of an actual hardware failure and increase system reliability.

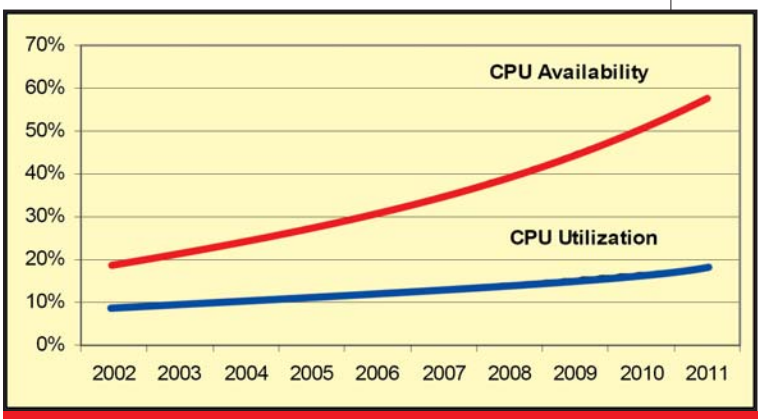


**Figure 1. CPU Available versus Utilized.**

Finally we must address the overall performance impact of virtualization. Introducing an abstraction layer between the physical machine and the operating system will inherently reduce system performance. While such advancements as Intel's hardware based Virtualization Technology (VT) help to improve performance, the application is still likely to suffer some performance impact.

One company that is making real headway in the area of IP Telephony and virtualization is Aculab (www.aculab.com). Aculab offers VoIP Service Providers and Telecom Equipment Manufacturers industry leading solutions. Their virtualization-ready Prosody-S product is one of the most comprehensive Service Deployment Platforms (SDPs) currently available on the market. According to Herman Abel, Aculab Product Manager; "For contemporary VoIP telephony, high service continuity is the paramount objective and virtualization provides high resilience for system component failures. Two special conditions shall apply in this case: presence of redundant elements, which means that there is a need to introduce alternative hardware units to allow protection switching, and spare media processing capacity to handle all active calls in case of a hardware element failure. Finally, virtualization brings the best performance for the buck. As the entire telephony industry experiences ever-decreasing price per call minute and eroding ARPU, services providers are in a constant attempt to improve their cost efficiency. Based on Service-Oriented Architecture (SOA), Prosody-S offers the most comprehensive set of media processing and call control functionality that delivers all the benefits discussed above when deployed in a virtualization-based environment."

Probing a bit further, I wondered how Prosody-S might better leverage virtual technology in the future. "The next release of Prosody S will support 'distributed architecture', which allows linear scalability, resilience, remote OAM&P and improved performance," added Herman. "The product will have a special license management scheme to allow operation in a virtualization -based environment."

## Final Score

While many end users readily admit that installing a mission-critical IP telephony application on a virtual server seems risky today, the consolidation demands will make this a requirement in the future. The advancements in processor power, I/O bandwidth, and storage capacity will eliminate the perceived risks associated with IP telephony applications living in the "Virtual World". IT

*Jeff Hudgins is VP of Engineering at Alliance Systems. (news - alert) For more information, visit the company online at www.alliancesystems.com.*

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# Making the Case for Advertising

By Kelly Anderson

National surveys keep tell us that although consumers are warming a little more to advertising for free content, they love DVRs because of the opportunity to skip commercials and get straight to programming. I noticed a caveat recently when I was watching Bravo's Top Chef and was randomly hitting the fast forward to get to the next part of the show and. . . I saw a funny commercial.

I actually started hitting rewind instead of forward so I could see the commercial, thereby delaying my viewing of the next part of the elimination challenge which is by far the most climatic part of this reality show. Interestingly, if I took a survey about whether I would be willing to watch advertising to get free programming, I would probably say no. My time is valuable to me and saving a few dollars to watch commercials really turns me off. Although, after reflecting on my behavior in that instance, I have to say I've been thinking a lot about how our industry should view the multibillion dollar-a-year potential of dynamic advertising.

**One of the most popular things downloaded and watched from YouTube besides user-generated content, is funny commercials.**

Looking over the industry, many of the MSOs are engaged in trials of one form or another to introduce new concepts in advertising. The industry's commitment in this is clear. Raising the CPM (Cost per Thousand) rates are important to modeling the ongoing viability of offering new content. Doing this is going to require precise targeting, delivery of cutting edge advertising that gets a reaction, and a service model that does not get in the way of consumer satisfaction. Currently, there are trials with ad updates when VoD (Video on Demand) content is replayed, giving new revenue opportunity to a replayed movie or purchased sports event recorded via DVR. Although that's a winning proposition for the operators, and even IPTV providers, it does not go far enough. It appears that specific location (aka city, ZIP, and neighborhood) and user demographic targeting is still about 12 to 24 months away from hitting what could be considered large-scale integration. Even so, with critical mass so "at arm's length", MSOs need to be concerned with the technical and business models of what those offerings will look like. There has been some discussion in the industry that consumers may dislike the opportunity to get more advertising, even if it is for something that interests them. The thought is that consumers hate commercials, but want content and don't want to pay too much for it. That is difficult to build a model on. Based on my earlier observation of my own viewing habits, I think there is a way for all to win in this area.

One such way is to look at advertising as one would look at content. Well placed and high-quality content is important and necessary to keep consumers satisfied with their services. The same thought process applies to advertising. If it is entertaining, people will watch it. Actually not only watch it once, but multiple times. One of the most popular things downloaded and watched from YouTube besides user-generated content, is funny commercials. People will pass these links along to friends, put them on their MySpace, forward them to their mobile devices, save them on DVR, and talk about them with friends. If it is something they were considering purchasing, that is golden for the advertisers. Repeated play and probable purchase for the cost of one commercial is well worth looking into.

## Targeting - the Next Silver Bullet

I think some of the emphasis in the industry must be on building a business model that is manageable, targeted, and creates user satisfaction. With all the pressure on the MSOs and service providers to ramp up advertising as a leading revenue generator in the services of the future, targeting has got to be part of that. With the recent specifications like the CableLabs' ETV specifications released last year and the OCAP 1.1 release that is going into production this year, MSOs need to look at the management and modeling of targeting as well as the type of advertising that is going to succeed with their customers. This could very well be the next big "silver bullet" for the MSOs in the communications industry game. IT

*Kelly Anderson is the Sector Head for Cable Markets for the TeleManagement Forum (TMF), responsible for driving the TMF's overall cable initiatives. Her experience covers various aspects of the communications industry, such as consumer behavior tracking, personalization, interactive advertising and operational functions for cable operators. Anderson joins the TMF from IPDR.org, a collaborative industry consortium and leader in next-gen IP service usage and exchange standards worldwide, now part of the TMF.*





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# Elma's Portable MicroTCA Chassis Slims Down

By Richard "Zippy" Grigonis

The unassuming, sunny Silicon Valley town of Fremont, California is home to the headquarters (or branch offices) of a number of "bus, board & packaging" companies Yours Truly has dealt with over the years, such as Advansor (now defunct), Arista Corp. (www.aristaipc.com), Dawn VME Products (www.dawnvme.com), Elma Bustronic / Elma Electronic (www.elma.com), Kontron America (http://us.kontron.com), Siliconrax-Sliger (www.siliconrax.com) and Themis Computer (www.themis.com). . . 19-inch rackmount computers and palm tree-lined boulevards - an interesting combination.

Elma Electronic Inc. (news - alert) is one of the larger denizens of Fremont. They're a major manufacturer and supplier of enclosures, backplanes, cabinets, cases, and "ready-to-run" packaging for CompactPCI, Rugged COTS, VME/64x, VXI, PC and custom bus structures. Elma operates three facilities in the continental U.S. plus locations in Switzerland, Germany, France, the U.K. and Israel.

The latest news out of Fremont is that Elma has announced a new 4U (7-inch) wide MicroTCA Portable Tower. This is a slimmer and more compact version than the 6U (10.5-inch) wide unit announced earlier in 2007.

The 4U Type 32M MicroTCA Portable Tower features a star topology backplane that can hold up to six AdvancedTCA Mezzanine Cards (AMCs). The unit also features one MicroTCA Carrier Hub (MCH) slot and a Power Module slot. The backplane has a JSM (J-Tag Switch Module) slot, used for diagnostics. Said to be ideal as a development chassis, the unit can accommodate either single or double width format modules in the same backplane.

Elma Electronic's slim, portable MicroTCA tower has a star topology backplane that can hold up to six ATCA Mezzanine Cards.

The Type 32M features advanced EMC shielding, scratch-resistant vinyl clad aluminum covers, and power components. Cooling is done by two 90 CFM fans. The chassis has five temperature sensors spaced throughout the unit. Elma has performed thermal simulations to ensure optimal performance.

The wider 6U version Type 32M has a Dual Star topology with two MCH and two Power Modules. Elma also offers Subrack MicroTCA enclosures in 4U-8U heights and a 1U Pico-style MicroBox.

Lead-time for Elma's Type 32M MicroTCA Tower price is 6-8 weeks.

Another Elma division, Elma Bustronic, also recently released a "cube" style MicroTCA backplane. The backplane can hold six AMCs, a MicroTCA carrier hub, and a power-module slot. The backplane connects the cards using a star topology, and it all fits neatly into a 4U-wide, cube-style MicroTCA portable enclosure. Additional features include a JSM (J-Tag-switch-module) slot and connections at the bottom for a cooling unit and connections at the top for temperature sensors. The unit's 12-layer routing includes 12 ports with fat-pipe lanes and allocations for PCI Express traffic. For you developers and or tekkies out there, the pinout of Connector 2 of the MCH is the first alternative pinout defined in the MicroTCA Spec. This pinout contains half a Fabric (Fabric B) and three clock networks. The Fabric on this connector is not used; instead, the according Ports 2 and 3 of the AMCs are connected directly between the cards.

The Cube MicroTCA backplane costs $1000.

For the record, Elma Bustronic also offers MicroTCA backplanes in both star and dual Star topologies and in Pico and Subrack formats. IT

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

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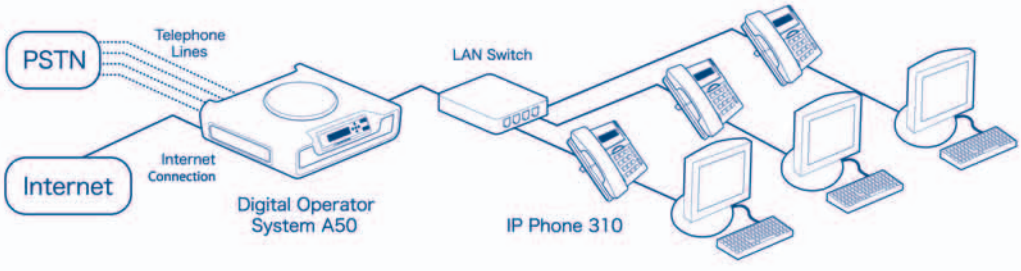


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# SSL VPN: From Enterprise to SMB

## The Customer

MegaPath (news - alert) is a provider of IP communications services to North American businesses, including broadband connectivity, Virtual Private Networks (VPNs), VoIP, and security solutions. Its goal is to provide solutions that enable its customers to realize cost savings while increasing security and enhancing productivity through advanced communications solutions connecting main offices, branches, retail outlets, mobile staff, and other partners.

The company provides managed SSL VPS services to several Fortune 5000 businesses in a variety of verticals, as well as MPLS VPNs to retail customers. It also provides secure Internet and voice services to more than 20,000 SMB customers.

## The Challenge

Back in 2006, when Netifice Communications merged with MegaPath, the decision was made to supplement the existing SSL VPN offering with a multi-customer platform with which it would be able to engage the SMB market even more vigorously through its already healthy distribution channel and substantial customer base.

In order to accomplish this, MegaPath needed to find a vendor that would enable it to deliver that wider range of SSL VPN services to address the SMB community, including having the ability to grow its network support capacity.

"We've seen demand for SSL VPN services extend from large enterprises to the SMB market," explains Abel Nelson, Executive Director, Managed SSL Services. "Service-oriented customers, such as legal, accounting, and consulting firms, want remote access for employees, while others, such as manufacturers and healthcare providers, are looking for a solution that enables access for partners via an extranet."

He explained that, while the specific applications vary from vertical to vertical, the underlying need for a secure, reliable managed SSL VPN service is remains constant. Thus, the plan was put in motion to expand the SSL VPN service offering from a purely large enterprise play to developing a hosted model for SMB customers.

In order to introduce a remote access solution that was both manageable and scalable, so as to meet the needs of MegaPath's diverse Fortune 5000 and SMB customer base, it struck out in search of a solution that would be able to provide secure remote access to a variety of end user machines.

## The Solution

After evaluating and weighing several options, MegaPath chose Juniper Networks' SA series appliances, which would allow it to scale its SSL VPN services without sacrificing performance or reliability.

For its managed SSL VPN service, MegaPath deploys a dedicated SA 4000 appliance on the customer premises. The hosted solution runs on shared SA 6000 appliances, using Juniper Networks' Instant Virtual Systems (IVS) for multi-customer virtualization.

With the SA 4000 appliances, MegaPath is able to create secure customer/partner extranets, without having to change its customers' existing infrastructure or deploying new DMZs or software agents. Secure Access Dynamic Access privilege management provides secure access to corporate intranets, while adhering to security policies.

Juniper's (quote - news - alert) SA 6000 uses SSL, common to all Web browsers, for secure transport, enabling remote access to mobile workers and contractors without requiring client software or ongoing maintenance. The SA 6000 Instant Virtual Systems feature set lets MegaPath host multiple customers on a single appliance, with simple management, yet secure traffic segregation and unique security policy configuration for each individual customer.

With the extension of its SSL VPN services, MegaPath also needed to expand its network to support both companies' customers, for which it deployed Juniper's M-series routers. The multi-service M-series edge routers allow MegaPath to consolidate multiple networks into a single infrastructure, while still delivering services to its host of customers, maximizing revenue potential and lowering operational costs.

"With Juniper M-series routers in our core, we have already experienced [added] scalability and performance, and have been impressed with the futureproof nature of the platform," said Nelson.

Nelson added that the breadth of Juniper's product line, along with the fact that many of its customers were already happy with the Juniper solutions they were already using made the decision easier.

"Many of our customers were already deploying Juniper Networks solutions with great success, and even went so far as to request a Juniper-based SSL VPN service - you can't get a better endorsement than that," he said

## The Results

Now, with the Juniper solution in place, MegaPath is able to not only meet the needs of its traditional SSL VPN customers, but also those of its growing retail and SMB customer base as well.

The solution offers visibility and access to a variety of end user devices, leveraging the user identity, security features, and network configurations, ultimately providing a secure anytime, anywhere access solution that meets the evolving needs of today's communications environment.

With its new managed SSL VPN services, MegaPath says it is able to build its customer relationship, because it is able to add substantial value, far beyond traditional network access. The company also believes the new solution is a market differentiator and significantly improves customer loyalty.

"The SSL VPN solution gives us scalability and flexibility, enabling MegaPath to deploy a single platform capable of supporting different customer requirements while allowing us to leverage economies of scale," said Nelson.





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# The Year in Review… The Year Ahead

Yes, it's that time of year again when we sit back in a big comfy chair and note incremental increases among the usual suspects (bandwidth and the popularity of SIP), wonder when IMS equipment interoperability testing will be finished, and speculate on what new combination of voice/video/data and what-not gets crammed into mobile devices. And oh yes, there are a few surprises, too.

For example, one area you'll be hearing a lot about over the next few years will be TEM (Telecom Expense Management) for the enterprise. Tangoe (www.tangoe.com) is the TEM leader, with customers such as ADP, Comcast, Dell, Deloitte, HP, ITT, MBNA, McKesson, National City Bank, Perkin Elmer and many others. Tangoe provides technology-based software and service solutions that enable these global organizations to procure, manage, and control their voice, data, and wireless communications resources. They recently acquired Traq Wireless, a provider of Mobile Lifecycle Management Solutions.

Tangoe helped a marketing company with 17,000 phone lines slash their telecom expenses by 50% from $8 million to $4 million. For a large U.S. bank, Tangoe gave visibility to over 10,000 cost centers, creating $15 million in telecom savings, including $1.7 million in secured credits. A $3 billion clinical testing company with over 1,000 locations worldwide enjoyed a 35% reduction in their telecom spend, or a $7 million savings in just 12 months.

Tangoe's President, CEO and Founder, Al Subbloie, says, "Big companies spend huge amounts of money on fixed and wireless communications. It's in the millions and for some companies it's $500 million a year and more. Moreover, it's a disaster the way they manage it. I founded what has become the leading company in this space. We build a very robust technology platform that enables enterprises - not telecom providers - to manage their spend. We grow at about 40 percent a year and are adding 25 to 35 customers per quarter of the Global 5000."

"Our technology engine consolidates the billing for over 150 carriers and normalizes it into one model for use by an enterprise to manage their telecom-related spending effectively," says Subbloie. "We don't write billing software, but we do map on the back end, for the benefit of customers, to all of the electronic output that the telecom billers provide. We have a single layer that collects that billing data from EDI, CD-based and web-based systems, and so forth, and normalizes it. We offer automated assurance, which is a fancy term for an audit, that checks bills against the contracts and wrings out any errors. As you can imagine, there are plenty of them in this space."

Subbloie elaborates: "We automatically allocate all of that billing data to SAP and Oracle on behalf of the enterprise, so with a single push of a button they can take 10,000 bills a month and the data automatically hits the P&L and cost center breakdowns," says Subbloie. "We handle all of the accrual processing, we do all of the provisioning for them. Even for companies with 30,000 devices we can manage all of the fulfillment, the ordering, the billing, the optimization of the rate plans, the inventory management and all of the accounting functions on the back end. That's essentially what we do."

"This field to me is like where CRM and the call center industry was around 1996," says Subbloie. "It's rocking and rolling right now. The Gartner Group has TEM pegged to be a billion dollar industry by 2010."

## Five Trends to Go

Covergence (news - alert) (www.covergence.com) makes the Eclipse, a session border controller specifically designed to operate at the VoIP access edge. Eclipse combines conventional border control functionality with comprehensive security and complete management and control capability, thus serving as a single point of security, control and management for VoIP user connections and other real-time services.

Covergence's Rod Hodgman, Vice President of Marketing, says, "We're experiencing at least five trends. First, the marketplace's focus either has shifted or is in the midst of a shift from VoIP to Unified Communications [UC]. Microsoft's announcement of their Office Communications Server 2007 will only add to the interest in UC and how it can streamline certain communications and collaboration processes. Related to UC is that, in the enterprise market, we see customers creating communications-enabled applications. They're typically embedding VoIP into a customer-facing application, such as a customer relationship management system or a supply chain management system, to streamline that process and thus make the customer experience much richer and more productive. With com-



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munications-enabled apps, you're streamlining a business process, so you get an even higher rate of return on those kinds of initiatives."

"The second trend we see," says Hodgman, "centers on the packaging and delivery of the solutions. There's a move away from using custom hardware and to industry-standard platforms. We still sell an appliance, but we also sell software for blades that run in ATCA chassis and for blades running in the IBM Blade Center. With the Blade Center you can get our product as the resident SBC, along with BroadSoft's BroadWorks applications server, and you can get Netcool and Tivoli from IBM. So you can assemble a really robust solution that runs on the IBM Blade architecture, and allows customers to more cost-effectively deploy VoIP and real-time communications throughout their organization. We've observed tremendous interest in the marketplace for this, because managing these chassis and integrating them into a customer's system and network management environment is as important as the standards that revolve around software, such as IMS and things like that. If they're able to have a common platform, and common parts across their ongoing enterprise, then the ongoing operating cost of managing these systems plummets dramatically. That will be a big piece of our business in 2008."

"Third, we're seeing a move to Web Services and Service-Oriented Architecture," says Hodgman, "and the ability to integrate into service delivery platforms so that IMS or even enterprise developers who are creating these communications-enabled applications or IMS services can embed policies directly into the applications. By that I mean they can put call-outs into a session manager such as ours to ensure that, say, conversations from the CEO need to be encrypted, or recorded, or should follow a certain path for quality of service reasons. Web Services can be used to build dynamic control and shape sessions according to the individual needs of the application. The whole blurring of applications development and VoIP as a Web Service and the ability to use Web Services to dynamically control and shape those sessions is something we see emerging with strong interest."

"Fourth, we're seeing a macro transition," says Hodgman. "Our traditional market was dominated by service providers. Now we're seeing an enormous uptick in our enterprise business. We think that will propel us forward in 2008 and those enterprises are trying to create something we've been talking about for many years - a converged backbone of all of their IP traffic, including what was their TDM traffic but which is now their VoIP traffic on that backbone, and push the boundary of where they have to jump off to the service provider further and further back. It's not so much a problem of getting the IP-PBX traffic onto the backbone, but it's a problem of having the intelligent routing capability to ensure that you can maximize the time it stays on that IP network and minimize the time it takes to jump off to the PSTN connection. This is happening not just in call centers, where you'd expect to see it, but just when connecting up these large multinational geographically dispersed organizations. In many ways it looks like peering in the service provider arena, but it's not a point-to-point relationship; rather, it's a complex mesh network that you must be able to intelligently route through."

"This phenomenon is basically the

enterprise market saying: 'Hey, we think we can finally now do this'," says Hodgman. "We've been talking about it for years. Let's put all of our real-time traffic onto our IP backbone, and push out the domain of the service provider and the jump-off points to the PSTN. By doing this the enterprises can save a lot of money. It's the 'first wave' of putting the real-time infrastructure in place: a product like ours along with products like Tivoli and Netcool. Enterprises have had those products in place from IBM previously, but now using them in conjunction with a product like ours helps them manage the quality of these real-time networks."

"The fifth trend we see," says Hodgman, "is the transformation in the enterprise endpoints and a transformation in the enterprise traffic from proprietary traffic to SIP-based traffic. That's also being driven by Microsoft, not just because they're moving to the newest version of their OCS system, but because they're also pushing hard to get that capability into the hands of developers within the enterprises, to build the communications-enabled applications.

## WiMAX - Wild Card or Joker?

DragonWave (news - alert) (www.dragonwave.com) designs, develops, markets and sells carrier-grade, high capacity, microwave broadband equipment, for network operators and service providers.

Erik Boch, DragonWave's CTO, says, "Over the last 12 to 18 months, people have asked whether WiMAX will 'happen' or not. They want to know whether WiMAX fits in with the mobile carriers, and if all the operators are going to do WiMAX as a sort of 4G technology, or will there be other competitive, perhaps even prevailing technology elements that deliver the holy grail of high bandwidth data services to mobile handsets and computers. The so-called 'killer app' simply appears to be everything getting vacuumed up into your little handset: MP3 music downloads, video, watching the news on your way home on the train using a phone, PDA or laptop, and so forth. We don't know if WiMAX will prevail, but we do believe that it will be one of the big vehicles for deploying the 'coverage layer' onto those types of networks. We also think that there's a lot of good high bandwidth solutions for CDMA, GSM, HSDPA and USDPA, which will come about somehow in many GSM networks."

"I think WiMAX is having a positive influence on moving mobile data technology forward," says Boch. "For years it was sort of stuck as questions of 'When is 3G coming, when is 4G coming? What's going on?' kept repeating. Everybody was talking about WiMAX but it lost its momentum to some extent. Finally other WiMAX supporters popped up and its people said, 'If you don't want to do it, we're going to do it'. So I think the adoption of WiMAX by the likes of Sprint and Clearwire and the public nature of those announcements, has generated a lot of forward momentum for WiMAX."

**"One wave moving us forward is Carrier Ethernet and the rollout of Metro Ethernet services as a whole..."**

## Time for a New Testing Paradigm?

Ixia (quote - news - alert) (www.ixia.com) provides performance test systems for IP-based infrastructure and services. Their test systems are used by network and Telephony Equipment Manufacturers (TEMs), semiconductor makers, service providers, governments, and enterprises to validate the functionality and reliability of complex IP networks, devices, and applications. Ixia also offers Triple-Play test systems capable of simulating real-world conditions.

Victor Alston, Senior Vice President of Product Development and Marketing at Ixia, says, "Over the last few years we've been building out our customer base. We primary used to focus on NEMs [Network Equipment Manufacturers] and we sold them a large variety of Ethernet/IP and co-routing technology. We were just starting to get into applications servers. Over the last few years, we've focused much more on service provider accounts in addition to equipment manufacturers. We've also moved from selling in the U.S. to establishing a global presence - a majority of our SP accounts are now in the Asia/Pacific region and Europe. Because of this global focus, we're picking up on a couple of trends."

"One wave moving us forward is Carrier Ethernet and the rollout of Metro Ethernet services as a whole. These new Carrier Ethernet technologies are really at reduced cost and there's less complexity of deployment. The other trend is just the exponential increase in bandwidth experienced by many of our service provider accounts, which serves as a key driver of new equipment purchases and new IP backbone infrastructure. Mobile network expansion is causing exponential growth for bandwidth on the IP core, and standard VoIP and video-over-IP technologies are causing growth too."

"Finally, we see the need for a new model of testing on the subscriber network," says Alston. "This is because a variety of service providers have rolled out many different packet-based IP services, from VoIP to data to Video-on-Demand [VoD]. Certain service providers are rolling out peer-to-peer technology to leverage file sharing services at their enterprise accounts. Because many of these services are converging, we see the need for a new type of testing and qualification in these accounts." IT

## That's it for this year!

**The following companies were mentioned in this article:**

| | |
|---|---|
| **Covergence**<br>www.covergence.com | **Ixia**<br>www.ixia.com |
| **DragonWave**<br>www.dragonwaveinc.com | **Tangoe**<br>www.tangoe.com |

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





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## OSS Billing Global Online Community

The goal of the Billing Community is to provide a one-stop shop for news and information pertaining to up-and-coming service providers looking for that competitive edge as they grow.

Kancharla started out as a hosted VoIP provider and grew by lowering the barriers for service providers by updating and upgrading their systems and processes.

By lending their expertise to this Global Online Community, Kancharla hopes to enable emerging carriers to take the necessary steps to grow into successful service providers supplying their customers what they really want: a great value proposition and customer service on demand.

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*Featuring:*

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*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.*

*Greg Oslan*
*CEO & President, Narus*

The evolution of communications networks and solutions in today's IP environments, without question, brings new productivity, convenience, and cost-savings to businesses, governments, and consumers alike. Never before has such a plethora of communications options been available on a wide scale - and the possibilities will only continue to develop.

However, these same products and solutions that are so valuable to businesses, pose an equally difficult threat to their networks, as there are countless individuals and groups who seek ways to exploit vulnerabilities in IP-based communications systems for their own ends.

To contend with those threats, security solutions vendors are continually on the job, hoping to stay one step ahead and plug even the smallest holes in communications systems. Narus is among the vendors looking to ensure the security of communications networks, starting with many of the world's largest carriers, who must provide complete security for their users across the globe.

Rich recently spoke with Narus' (news - alert) CEO and President Greg Oslan about some of the challenges facing service providers today, as they, along with their customers, continue to migrate to IP-based communications solutions.

**RT: How have you seen the role of the carrier changing over the past few years?**

**GO:** The role of the carrier has changed dramatically in recent years, and the term "service provider" has changed the most. Initially, the services that carriers provided were voice-centric. Adding a new service meant things like voicemail, a new 900 number service, etc. In the late 1990s and early 2000s, the carriers evolved to provide Internet connectivity services (i.e., data services). They've traditionally provided just the connection, and customers paid by the bits transported. If one of their enterprise customers were to be attacked by a worm or a Distributed Denial of Service (DDoS) attack, then that was not the carrier's problem - it was the customer's problem.

Today, carriers have expanded their services offerings to include a wide array of IP-based services. This has been driven by the consolidation of wireline and wireless carriers (such as Sprint acquiring Nextel or Cingular acquiring AT&T), and the need to keep the average revenue per user (ARPU) as high as possible. Today's carriers offer new services ranging from VoIP and IPTV, to Push-to-Talk (PTT), to content delivery such as ringtones, MP3s, and streaming video. As the industry moves closer to architectures such as IMS, these services will be delivered anytime, anywhere, to any device.

**RT: Has there been a shift, then, in their approach to things like network security?**

**GO:** The carriers have definitely shifted their approach to network security. In this new world, the carrier's enterprise "customers" are no longer the only target of DDoS attacks. Disrupting a carrier's VoIP or streaming video service is just as enticing. This dynamic is pushing the carriers toward implementing a high-performance, scalable security system to protect their entire network infrastructure - from the high-speed core (where they can see everything most efficiently).

**RT: Are you saying that security now fits into the carrier's mainstream business thinking?**

**GO:** Indeed, it does. In fact, this actually brings us to another significant shift. Carriers, today, have considerably more skin in the game when it comes to "cleaning the pipes" of worms, DDoS attacks, spam, etc. Their enterprise customers are overwhelmed in their attempts to block all the malicious traffic as it enters their network, while also trying to prevent insider threats, comply with SOX regulations, and so on. Hence, the enterprises are now turning upstream to their Internet service providers and carriers, forcing more of the external security burden on them. Bowing to competitive pressure, the carriers are now offering aggressive SLAs that assume much of this burden and trigger expensive penalties if attacks actually reach their customers' networks. Interestingly enough, most carrier's see this as a revenue-producing opportunity, so it's really caught on. We've seen a significant number of carriers entering the Managed Security Services market. Here, the carriers really want to leverage a single, scalable security solution that protects their assets in the core, while extending that "blanket" over

their customers as a revenue-producing managed security service.

**RT: Are they looking to consolidate the security implementations to cover the core and the edge?**

**GO:** Yes. The bottom line is that carriers want one common system that can scale to protect their core, and extend to provide managed security services at the network edge. Narus is the market leader in this space. Our NarusInsight Secure Suite provides a single system that can scale to secure the massive amounts of high-speed traffic found at the carrier core, yet also detects the widest range of unique attacks on networks, such as wireless networks, VoIP networks, and others.

**RT: What is the role of Government in the new Internet security landscape, and how does it relate to that of the carrier?**

**GO:** While carriers are typically concerned with securing their assets, and those of their customers, Governments are concerned primarily with two things: preserving national infrastructure, and assuring the safety and well-being of citizens. As it turns out, the Internet has an important role in both of those pursuits. Today's national infrastructure is no longer confined to things such as ports, highways, cities, etc. The Internet is not only one of the largest enablers of commerce worldwide, but it's now a primary means by which we access government services as well. So, protecting this infrastructure is critical to ensuring the smooth flow of economic activity in-country and around the world.

**RT: Was this essentially what we witnessed recently in Estonia?**

**GO:** Exactly. Starting in late April 2007, and over a ten-day period, the country of Estonia suffered three waves of carefully orchestrated denial of services attacks on a massive scale. From the Prime Minister, to the Parliament, to essential 911 emergency services, to financial institutions, the Internet presence of many critical services was simply "taken off line." These attacks are thought to have been sponsored not by an individual, but by another country. If this turns out to be the case, it will have been the first confirmed example of state-sponsored cyberwarfare. This is a scenario that has been contemplated for years. It could now become a common practice. Defending against these types of attacks is no longer a luxury, or a "nice to have." It's now an absolute imperative.

**RT: How has the evolution of the Internet as a communications medium changed the face of local law enforcement?**

"The bottom line is that carriers want one common system that can scale to protect their core, and extend to provide managed security services at the network edge. Narus is the market leader in this space..."

**GO:** As we've all seen, the Internet has become a primary method of communication for ordinary folks around the world. Unfortunately, it's also become a primary method of communication for those who would seek to perpetrate terrorist or criminal acts. The interception of these communications is a critical component of Law Enforcement's ability to protect citizens and their property. The emergence of new technologies, such as web mail, allows anyone to walk into any cyber cafe and send email messages using a different computer - one that they do not own - each time they communicate. This presents a huge challenge to law enforcement agencies that need to track targeted individuals and intercept their communications. We've cracked this challenge in our NarusInsight Intercept Suite product, but it was quite difficult, indeed.

**RT: Are the roles of the carriers and Governments interrelated?**

**GO:** They absolutely are. All of the dynamics I mentioned significantly increase the roles of both federal and local Government in Internet security. But they also tighten Government's relationship with the carriers, whose infrastructure actually routes the Internet traffic.

**RT: What is unique about Narus' approach to meeting carriers' needs, and what can we expect to see in the future?**

**GO:** Today's carriers require systems that can scale almost infinitely to meet the unique rigors of the world's largest IP networks. In addition, they require leading edge technologies that can protect core infrastructures, drive new revenue streams, and assist Government and Law Enforcement in intercepting terrorist and criminal activity. They need systems that can integrate into networks they already have, yet seamlessly extend to new networks as they're deployed. This really plays to Narus' strength. Our applications are built on the most powerful, most flexible IP traffic processing engine in the world. Our NarusInsight Secure Suite algorithms detect the widest range of attacks, and are significantly faster and more accurate than anything on the market. Our NarusInsight Intercept Suite application can target the widest range of communications methods in the industry.

And this is just the beginning. In our labs, we are working to solve the problems associated with traffic processing at speeds up to 40 Gbps. We're also inventing new ways for the system to "learn" about new classes of malicious traffic on the fly, and compensate in real time. We're discovering new ways to deal with encrypted and opaque communications, onion routing, and other issues to "connect the dots" to trace back terrorist and criminal activities. We filed over 10 patents last year alone, and we're on a pace to significantly exceed that this year. We think we're extremely well positioned to lead the industry for years to come. IT

# The State of Standards

Back in the late 1990s at a (now defunct) Computer Telephony Expo, a deranged homeless man somehow got into one of the conference sessions. When the Q&A session started, he jumped to his feet and yelled, "What we need are more standardized standards of standards!"

Many people in the audience, not knowing who he was, took a moment to profoundly mediate on the matter. One fellow said, "Yes, we need an over-arching standard to unite disparate, though related, standards." Another chimed in with, "Standards have to interact too, don't they? Maybe this should be a new layer on the OSI stack!"

The homeless man grabbed somebody's laptop and left.

There are many standards. Here's what's happening with some of them. . .

## VDSL2

Aktino (www.aktino.com) builds sophisticated carrier-class, multi-pair DSL modems ("bonded copper") to get a bigger pipe so that service providers can offer more high-end business applications. This technology supports fiber-to-the-curb, Ethernet-over-copper or next-gen business access services.

Aktnio Co-Founder and Chief Scientist, Michail Tsatsanis, says, "In the DSL standards world, there have been two different lines of standards, for business and residential customers. In the business world, ISDN evolved into HDSL, HDSL2, SHDSL and other symmetric business services. It evolved from 128 Kbps to 2.3 megabits. In the residential space there are more recent standards, starting with ADSL in the 1990s. They started with an 8 Mbps modem. Then it progressed to ADSL2, then VDSL and now VDSL2, which is the only DSL standard that's still being worked on by the standards groups. VDSL2 can support up to 100 Mbps symmetric service over very short loops, but it's very flexible and the output degrades gracefully as the loop length increases."

"VDSL2 standard may be able to cover both business and residential spaces," says Tsatsanis. "When we started this company in 2003, we started with a clean sheet of paper and decided to design the best system, and so we used the latest standards technology, VDSL2. The gamble for us was that VDSL2 was perceived as a residential technology. We worked with the standards committees in 2006 to add the appropriate features to the VDSL2 standard so that it could support both residential and business access markets. We've had the support of AT&T, Bell Canada, and so on. The two separate business and residential networks will eventually merge into an IP platform that supports both applications over the same IP backbone, and the same copper-based VDSL2 technology."

"Still, there's been a debate among carriers regarding business access services," says Tsatsanis. "Will Ethernet services run in the low megabit range - 2, 3 or 4 Mbps - or will they be 10 Mbps and above? If it's going to be running at a low rate, older technologies will be able to deal with it. But if Ethernet services run to 10, 20, 40 or more megabits per second, then the old HDSL-based systems for business won't be able to support them. Things haven't moved quickly because it's difficult to cannibalize the old T1 cash cow services; there's not a lot of competition in that space. Swapping out traditional T1s for a low-Mbps Ethernet service at the same or less expensive rates, doesn't make sense to carriers from a profit perspective."

## What's CCXML?

BEA Systems (news - alert) (www.beasys.com) is a major vendor or enterprise infrastructure software, such as their BEA Enterprise 360° which combines Service-Oriented Architecture (SOA), Business Process Management (BPM), and Enterprise Social Computing. The customers worldwide also rely on BEA AquaLogic, WebLogic, and Tuxedo product families to reduce IT complexity, leverage existing resources, improve costs and hatch new revenue streams with new services.

Eric Burger, Deputy CTO for the Telecommunications Market, says, "I was one of the contributors to VoiceXML [VXML, or Voice eXtended Markup Lanugage], the W3C's standard XML format for specifying interactive voice dialogues between a human and a computer. And CCXML [Call Control XML] is all my fault, not from a technology perspective, but I did convince the W3C to do it. CCXML is the W3C standard markup language for controlling how phone calls are placed, answered, transfered, conferenced, and more. CCXML works with with VoiceXML to provide a standards and XML-based solution for any telephony application.] I did it for not entirely altruistic reasons: to keep call control out of VoiceXML. VoiceXML was a great idea for a declarative mark-up language that describes the user interface, instead of the old scripting languages. But then people wanted to do call control too, so you went from describing an interface to specifying applications logic, which does not go well with angle bracket notation, if you know what I mean. So I pushed for CCXML. And it's now really quite interesting."

"In the SIP [Session Initiation Protocol] and VoIP (define - news - alert) side of the world we've done a similar thing. We've started up an IETF working group called BLISS [Basic Level of Interoperability for SIP Services]," explains Burger

"I'm in the SIP Forum too," says Burger. "And we run the SIPit SIP Interoperability Tests, where we find vendors who conform to SIP standards and yet their products still don't talk to others. It's not so much that 'my phone won't talk to your phone', but when you want to put the phone call on hold and conference in a third party and do Music on Hold, and so forth, then that





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doesn't tend to interoperate. That's why we formed BLISS. It looks at how to make all of this advanced stuff play."

## SIPconnect

Cbeyond Communications (www.cbeyond.net) is a voice and broadband managed service provider that exclusively serves small businesses. They have local, long distance and Internet packages, anytime account management and a VoIP platform to give small businesses affordable "big company communication tools".

Chris Gatch, CTO of Cbeyond, says "We've worked with SIP from the beginning of our company. I'm also on the board of the SIP Forum. I arrived there as a result of my involvement with an initiative called SIPconnect, a project started several years ago to take the whole portfolio of low-level SIP standards and boil it down into a deployment guideline for seamless SIP trunking between IP-PBXs and VoIP service providers."

The SIPconnect Interface Specification was launched by Cbeyond Communications in 2004 with support from Avaya, BroadSoft, Centrepoint Technologies, Cisco Systems, and Mitel.

"We got feedback that we should move the SIPconnect effort into an industry standards organization, which ended up being the SIP Forum as an official technical recommendation. It's doing quite well there. Indeed, right now we're focused on the whole SIP trunking initiative. We've made steady progress in terms of increasing compatibility and interoperability among service providers and customer PBXs, for the purpose of having them connecting natively via IP."

## The SCOPE Alliance

Emerson (news - alert) Network Power's Embedded Computing Group (www.emersonembedded computing.com) is a leading provider of communications technology for wireless, switching, signaling, optical networking, and other telecom infrastructure applications. Their WAN interfaces, CPU boards, network protocols and hardware/software subsystems utilize CompactPCI and AdvancedTCA form factors, and are used in SS7 signaling systems, signaling gateways, softswitches, wireless base station controllers, and DSLAMs.

Emerson's Stuart Jamieson. Director of Industry Relations/ Architect, says, "I bet many of your readers have never heard of the SCOPE Alliance (www.scope-alliance.org). It's an industry association that speeds the deployment of carrier-grade base platforms for service provider applications based on Commercial Off-The-Shelf (COTS) hardware and software building blocks, and to promote interoperability to better serve service providers and consumers. Emerson Network Power Embedded Computing joined SCOPE in September 2007 and we've announced the first product to comply with SCOPE - a SCOPE-compliant AdvancedTCA blade, known as the KAT4000S, which houses four AdvancedMC (Advanced Mezzanine Card) sites."

## The SA Forum and Friends

Asif Naseem is President and CEO of GoAhead Software (news - alert) (www.goahead.com) and President of the Service Availability Forum www.saforum.org), a consortium of industry communications and computing companies working together to develop and publish standard high

availability middleware and management software interface specifications.

"The enterprise computing industry went from a completely vertically-integrated to a horizontal model, which has been successful," says Naseem. "We see this trend in the telecom world as well. In a converging world, the service providers are moving their networks to a Service Oriented Architecture. They want a common backbone for all multimedia services, and to have a unified access network, regardless of what device at the other end of a call. There will be one control scheme for all services, and then obviously a service network that provides converged services independent of the access type or devices. We see this happening, and along with that there are increased pressures on providers' suppliers to move to a similar structure on the equipment side."

"In a converging world, the service providers are moving their networks to a Service Oriented Architecture."

"We see a shift happening a lot more quickly within Tier 2s and 3s than Tier 1s. This is for obviosus reasons, Tier 1s have had vertical expertise and infrastructure for a long time. So there's a lot of inertia there. There's also a bit of skepticism over and concern over using standards-based COTS (Commercial Off-the-Shelf) equipment. Does it really meet their requirements? Those two factors combined have slowed Tier-1 adoption a bit, but that trend is nevertheless happening. Intel and its partners have done a very good job with the hardware form factor standards and in rolling the equipment makers and service providers to move onto ATCA and ATCA-like platforms, and now comes MicroTCA. Companies such as Lucent Alcatel, Nokia and others that have traditionally either built their own hardware or have worked with proprietary suppliers such as Sun, HP and IBM, have in a big way begun to adopt ATCA standards." IT

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

**The following companies were mentioned in this article:**

**Aktino**
www.aktino.com

**BEA Systems**
www.beasys.com

**Cbeyond Communications**
www.cbeyond.net

**Emerson Network Power**
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# Taming the Wild World of WiFi Telephony

WiFi telephony originally conquered the vertical markets, particularly healthcare, and is now starting to move onto new higher-bandwidth 802.11n platforms, where it will compete with femotcell technology that scales down cellular voice and data services to tiny base stations having WiFi-like hotspot coverage. Re-engineering and testing data networks to ensure voice compatibility and high quality of service will be of utmost concern.

For any readers who have been living in the Carlsbad caverns during 2007, Polycom acquired SpectraLink Corp., (www.spectralink.com) finalized as of March 26, 2007. Polycom was eager to get its hands on SpectraLink's superlative WiFi phone technology, such as their 900 MHz Link WTS, and NetLink wireless phones for legacy PBX systems and enterprise IP networks.

Ben Gurderian, SpectraLink's Vice President of Marketing, says, "The Polycom acquisition went smoothly, because there wasn't much overlap between the Polycom products and ours. There are some really great opportunities for synergy, to bring wireless technology into the Polycom VoIP deskset business. Many of our new opportunities are in that direction. Even before the acquisition, we were recognized as going after the SMB and telephony service provider markets. With Polycom, we now have a ready-made channel to go after them now. There are a lot of great things that we can do. We have a lot on our plate just in terms of satisfying the mainstream WiFi telephony market, which still consists of vertical markets. And of course there's a great deal of business done with our OEM partners."

"We launched our latest generation WiFi handsets in January 2007," says Guderian. "Since then our two major OEM partners, Nortel and Avaya, have booth launched their respective versions. If you hold them next to each other you can tell that they are the same, but a great deal of customization goes inside those handsets; in particular to support their proprietary voice protocols. There's always a lot of work to do to fine-tune the handsets to make them work well with call servers from companies such as Nortel and Avaya. We also have an Alcatel Lucent model in the works - they're already an OEM partner, and any day now they'll be launching their next-gen version of our latest handset."

**For such an overly-dynamic, almost mercurial kind of wireless network, testing and monitoring are highly important.**

"As we move to the Polycom channel, we'll be transitioning from providing the more highly customized proprietary VoIP protocol support to much more standards-based SIP support."

## Lending a Helping Hand

For such an overly-dynamic, almost mercurial kind of wireless network, testing and monitoring are highly important. AirMagnet (www.airmagnet.com) was a company that saw an opportunity here, and now over 6,000 businesses worldwide operate better-performing wireless LANs thanks to AirMagnet's planning, troubleshooting and monitoring solutions. In particular, AirMagnet has recently released an innovative troubleshooting device for Voice-over-WiFi, the VoFi Analyzer.

AirMagnet's Director of Product Management, Wade Williamson, says, "I see the market as being quite vertically focused, but growing out to be a bit more horizontal. The big verticals are healthcare, first and foremost, then we see some deployments in retail and even manufacturing. The healthcare vertical is especially a good industry 'litmus test', because you have a critical use of voice in probably the most challenging wireless environment you can imagine. Once we can prove that WiFi voice really works well in that environment, then we can deploy it anywhere, because in healthcare facilities there are obstructions in X-ray rooms, electromagnetic equipment that causes interference, old and heavily constructed buildings, and voice applications that must work correctly if nurses and doctors are going to be at the right place at the right time."

"We first help healthcare centers redesign their networks for voice," says Williamson. "That's one of the big absolutes. If you've got a big network that you've been using for data and you've got 'guest access' and you may pull a file down here and there, then that wireless LAN you've designed may be just fine for those limited purposes, but it may fall way short of what you want to do with voice in that organization."

"Once you've made the jump to a real-time application such as voice, then you've gone to something that's far more critical," says Williamson. "There's a different WiFi design spec for voice. You've got to ask how many access points [APs] you need. What power should they operate at? That's actually one of the most prevalent things we've seen folks challenged by, regardless of whether they're using Polycom SpectraLink phones or Cisco Vocera communicators."

"Typcially, when people nail up a data network," says Williamson, "they ramp their APs' output to 100 milliwatts. But a phone that outputs anywhere between 5 and 20 milliwatts could give you an imbalance wherein the phone receiving





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the call can hear it just fine, but it doesn't have the power to send a signal all the way back to the AP. So there are many things to ponder design-wise when building out a wireless LAN, and are really making it fully designed for voice."

"The 'next step' is how to troubleshoot that," says Williamson, "and at this point we've done something fun and interesting. We've built an analyzer designed to scrutinize WiFi traffic in the air that's encrypted. It can tell you, first, what traffic is voice and what traffic is data. For voice traffic it can give you a MOS (Mean Opinion Score) for it and then tell you what the problem is. That concept is revolutionary because if you think of traditional VoIP call analysis, you typically must have access to the protocol stack. You're going to look at unencrypted Ethernet frames and then piece them all back together and then go look at how the protocols are fitting back together. Being able to do that on encrypted traffic in a wireless LAN is really important, because it harks back to one of the fundamental differences inherent in wireless - you've got to assume that all the clients are encrypted and if you tell the IP staff that, 'Wow we've got to turn off all of the security devices so I can figure out why this call is going bad', well, that's just not an acceptable statement."

"Fortunately, that's what our analyzer is built to do," says Williamson. "It'll piece all of the traffic and communications between phones and APs back together and tell you which calls are having problems and then what the cause of each type of problem is. Is it a roaming problem? Is it something on the client side? Is it an RF issue? Is it a misconfiguration in the AP? Or is it something that's happening way back on the wired side? And with our latest release, the VoFi Analyzer can now integrate not only the information it's getting from the air, but also the data received from the phones themselves as well as the wired side. SpectraLink phones in particular have the ability to send SysLog information about what the phone is actually receiving at its end. We can correlate that with what our device sees in the air."

Williamson adds: "We can lay those metrics side-by-side and say, 'Here's what we're seeing from a third-party observer viewpoint, and here's what the phones actually are experiencing'. And back on the wired side, we can talk to things like Cisco's CallManager, and obtain information to see what types of performance and statistics we're seeing on the wired side. We can tie all of the endpoints together and state, 'Here's what we see at both ends and the middle', and we can give you a really succinct view of what's going on in the network, and we do it all while the network 'engine' is running."

## 802.11 Alphabet Soup

At Siemens (www.siemens.com), their Vice President of Enterprise Mobility, Luc Roy, says, "We see that the new standard for connectivity within the enterprise is no longer wired Ethernet and it's not conventional WiFi 802.11a/b/g. It's becoming 802.11n. Not every enterprise will require it, but in talking to many customers, we see 802.11n as becoming the real wireless standard. Ironically, 802.11n is not officially a standard yet, but that's where things are going. Once you've implemented it, there's no cost associated with it except for maintaining it. 802.11n has sufficient bandwidth to support your organization for many years, even taking into account all of your applications."

"Wireless voice doesn't actually require 802.11n - 802.11g should be sufficient - we see 'n' taking over anyway," says Roy. "We see FMC [Fixed-Mobile Convergence] as a real phenomenon, especially in the enterprise. People are looking at convenience and higher productivity, but they're also looking at cost-effectiveness. If you've got a wireless LAN, why would you want to use a femtocell system, or whatever, when you have to pay for the service, and you have to deploy WiFi 'n' anyway because it's becoming the new WiFi standard? That's why various flavors of 802.11 are firmly rooted in the enterprise and that's why FMC and its associated dual-mode devices are going to become really popular. That's where we see the world going."

"Will dual-mode phones replace all other devices? No absolutely not, but dual-mode will definitely be the technology of choice for enterprise users using cellular phones today," says Roy. "You'll still have desktop phones, and single-mode voice wireless LAN phones, such as our Siemens WL2s, but definitely the dual-mode devices are going to serve not just voice but when used with smartphones they'll be serving a lot of people like we already see in healthcare with doctors wanting dual-mode devices so they can do things with data too." IT

**The following companies were mentioned in this article:**

**AirMagnet**
www.airmagnet.com

**Siemens**
www.siemens.com

**Polycom/SpectraLink**
www.spectralink.com

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

# VoIP Peering in Search of a Viable Interconnect Business Model

Peering can mean exchanging and/or terminating calls among and between carriers, or the federation of data among an organization and its partners, suppliers and customers - the successor to extranets. Farther down at the subscriber level, gamers sharing voice and data while playing over the Internet can be considered as exercising a form of peering.

George Smine, Director of Product Marketing, Nominum (news - alert) (www.nominum.com), says, "We're definitely focused on carrier peering or interconnect. Over the past year we introduced a software product called Navitas which is an ENUM IP application routing directory that serves as the in-network database with the capacity to store a large set of telephone numbers, routing plans and global dialing prefixes. We call it a 'routing directory' because it acts as a database in the network, providing a virtual cloud of data inside an IP network, and its main task is to help manage the complexity of data between the old and the new network worlds. It helps providers perform route optimizations, or to provide telephony services such as number portability, toll-free numbering, and so forth. The way many carriers deal with interconnects is that they still abide by the traditional business model of dealing with financial settlements. Sometimes they don't charge each other for the traffic that's going through, but often they do. But whether they do or not, they want to understand how calls are being managed, what the issues are of call quality, and so forth."

"Last year we saw a change in attitude and difference in adoption in looking at peering," says Smine. "Initially people felt that VoIP peering would take the path of IP peering, meaning that everything was going to be free. This is not a traditional billing per-minute model, but a 'bill and keep' model where IP Networks of similar size choose to interconnect directly to save costs, with no interconnect fees. In telephony, however, if you're receiving a lot of traffic and a lot of calls are terminating on your network, then it means that you're getting paid termination charges. You're charging the originating carrier. So the perception of VoIP (define - news - alert) peering has changed in that the people interested in moving to IP peering are also the traditional telephony providers and when it comes to peering, we see a continuation of the telecom interconnect and termination model. The difference with IP is that it gives carriers the opportunity to peer beyond the physical interconnection."

"...when it comes to peering, we see a continuation of the telecom interconnect and termination model..."

"We're still seeing a lot of interconnects occurring over private peering, meaning at the physical layer, or at 'carrier hotels'," says Smine. "Some people talk about a very high level of peering where they may not need to go through a private or dedicated line and they may be doing it over the free Internet and not be worried about detailed charges for every call, but the majority look at this interconnect business as sustaining the existing business model by billing on a per minute basis."

Tom Moresco, Principal Product Manager, Telcordia Service Interconnection Registry, Telcordia (www.telcordia.com) says, "Bartering minutes does occur between carriers. It works best when the providers are somehow equivalent, such as the same size. We see that some federation members are not interested in settlement because they're all 'birds of a feather', more or less. However, when traditional Telcordia (news - alert) customers come to us and want to interconnect with these federations or each other, the traditional business models are still in play. Also, with the advent of new IP-based services, the value to the customer goes up, so service providers may be more willing to adopt non-traditional business models. The whole thing is being shaken out - various pockets in the industry have either implemented a settlement-free model or else a traditional model, on a service-by-service basis, be it an information service or a more traditional service such as VoIP, which is evolving into an application anyway."

Telcordia's Service Interoperability Registry provides an authoritative source of multiple countries national destination codes and number portability data

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that populate the Nominum Navitas IPRD inside a carrier's network.

"A third interconnect model now exists," says Seamus Hourihan, Senior Vice President of Marketing and Product Management, Acme Packet; "Fees to provide termination are paid on a per-subscriber basis of the service provider providing the service, irrespective of how many calls are actually made by that subscriber population. Hence, network service providers recover their operating costs from end users, not from the network interconnection. Incremental costs of the interconnection can be split evenly between interconnecting networks."

Hourihan's company, Acme Packet, offers the Net-Net SBC which provides the mechanisms for security, service assurance and network reach at service provider peering points.

## I'll take one OS-3 to Canada, please

Tiscali International Network (news - alert) (www.tiscali.net), or TINet, is the carrier arm of Tiscali S.p.A. (www.tiscali.com) a preeminent independent European telecom company and ISP that manages a huge IP network capable of supplying its 3.3 million residential and business customers (in Italy and the U.K.) with such services as Internet access (both dial-up and ADSL), voice, VoIP, media, mobile connectivity, VAS (Value-Added Services), and other advanced products.

Maurizio Binello is COO at TINet, which happens to be the world's only carrier dedicated exclusively to wholesale IP-MPLS. "We're a group of companies inside the Tiscali Group that offers IP transit and voice termination to other carriers. We started from scratch in 2001 and have done a great deal since then, dealing with 15 international operators in the IP business. We started selling IP transit in 2001 and then in 2003 we expanded to deal with voice, selling voice termination to carriers. We had things to learn, but we also had the luxury of being able to start out immediately with VoIP, and were not burdened with legacy TDM equipment."

"Peering in the IP world is based on the interconnection between networks to exchange traffic settlement-free," says Binello. "This is still with us. IP Peering is not regulated. It's based on the assumption that companies of more or less the same size peer with each other to exchange traffic. For voice, however it's a very different story. Voice has been regulated and structured for many decades. When the idea of VoIP peering appeared, everybody with an IP background thought it would involve exchanging voice traffic for free. This does not really happen, of course, because the people who want to do it for nothing are smaller operators, and they want to lower their cost base. You really need the incumbents to go along with the idea, since most of the voice traffic ends up there. But the incumbents don't like that, obviously."

"What I'd like to see happen," says Binello, "is that there could be more voice peering centers that really become marketplaces where buyers and sellers of different sizes meet. The big operators, however, already have interconnections with each other, so you'd see medium and small-sized carriers dealing in such peering centers. However, the technical standardization isn't quite there yet. Even so, having third-parties running such exchange points would be helpful to promote standards - the ones they use - and to offer such services as protocol translation and transcoding, and thus simplify the interconnection process."

We can see the realization of a few of Binello's prognostications in the form of Arbinet-thexchange, Inc.'s (www.arbinet.com) announced introduction of its managed paid PeeringSolutions offering, customized for the U.S. domestic market. Initial participants include XO Communications, PAETEC, InfoHighway, BBCOM, RIO, plus other service providers. Arbinet's PeeringSolutions allows U.S. domestic carriers, such as CLECs, cable and





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mobile operators, to peer and exchange traffic with each other regardless of their network technology. Settlement for the calls is determined and agreed upon by the providers, with a variety of settlement options including traditional paid settlement and bill and keep agreements, allowing carriers to maintain full control of the economics of their business.

## Building the Building Blocks

Just as we were going to press on October 5, 2007, Dialogic announced its acquisition of the EAS Group Inc. , which includes such subsidaries as SnowShore (the folks who bring you the IP Media Server) and Cantata Technology, the later being an amalgam of two former companies, Excel Switching Corporation, and Brooktrout Technology, which owns over 90% of the American fax board market.

Just prior to the acquisition, Yours Truly spoke with industry legend James Rafferty, who at the time was Senior Product Manager for VoIP Products at Cantata. "Certainly the thing that's been driving VoIP Peering has been 'islands of VoIP' appearing and becoming more prevalent. There's also a movement toward having more formalized groups for peering, perhaps the most famous being the VPF [Voice Peering Fabric], but there are others out there that are doing peering at the IP level rather than using the old 'exchange of minutes' model."

The VPF (news - alert) (www.thevpf.com) of which Rafferty speaks enables the Ethernet LANs of different companies to connect via facilities at 60 Hudson in New York City, 700 South Federal in Chicago or Beijing, China. Calls are routed through the VPF and then to your LAN and desktop IP Phone, with no interworking with the PSTN or unnecessary Internet routing hops involved.

"As far as Cantata is concerned," says Rafferty, "where we play in this space tends to be for services to these folks that are doing peering. There's a belief that everybody's using the same codec and so you don't need to do interworking or transcoding. Our experience is that that isn't the case at all. Transcoding tends to be a 'hot button' for us and many of our customers have resorted to our technology to do transcoding in border situations, or we've actually had some cases where customers have taken our, say, IMG [Integrated Media Gateway] and used it for a transcoding service for entities in a peering fabric that might need it."

"One really cool thing has come up in the last few months or so," says Rafferty. "We worked with some partners to create of pool of devices, using a single IP address. Essentially we're using various servers out there in the industry that can be used to front-end our IMGs, so that you can establish a pool of transcoding resources, which can be called upon when you need transcoding between different next-gen networks. Many of our customers are really excited about pooled transcoding resources."

"We also do some interesting work with ENUM [E164 NUmber Mapping]," says Rafferty. "We can translate between a telephone number and a SIP address. We can do it to multiple registries, because we have the ability to go through and access up to four different DNS [Domain Name Service] servers. Recently we announced a partnership with XConnect. When we told them we had the ability to connect to multiple DNS registries, and they liked that a lot, because many products go to the first registry and then, if they can find what they're looking for, they stop. Our technology can do lookups in a hierarchy of multiple registries."

NexTone (www.nextone.com) is the well-known purveyor of SBCs (Session Border Controllers) that support real-time NAT (Network Address Translation) traversal, have sophisticated security facilities in OSI layers 2 through 5, and are imbued with SIP and H.323 signaling intelligence, thus enabling service providers to successfully interconnect to any fixed or mobile IP network while simultaneously building towards an IMS (IP Multimedia Subsystem) network service architecture.

John Longo, Vice President of Marketing at NexTone, (news - alert) says "From a NexTone perspective, our play really is in terms of providing equipment such as SBCs and our MSx [Multi-Protocol Session Switch] to facilitate those interconnects. Peering can occur on a bilateral basis where carriers choose to interconnect directly and establish their own terms, or they can do it on a multi-lateral basis where you have 'facilitors' involved, since somebody has to organize the contractual business relationships, security, and all of that. That's where you see players such as Stealth Communications and the VPF, XConnect, Arbinet, and so forth. Then you have Global Crossing, where they're actually providing the peering across their own network. So I always think of peering in terms of the change in the industry model to move away from the buy/sell/resell markup-the-minutes scenario."

"I don't think I see a change in functionality or requirements for Nextone when it comes to peering," says Longo. "We have a robust platform that works very well at the network edge where carriers and enterprises have established a variety of possible paths that a call or session can take. You'll find our equipment in peering facilities because of our ability to deal with both bilateral traffic and to instantly decide what to do with a call: use least cost routing, send it to the PSTN, or what-not."

Various forms of VoIP peering will proliferate in the near future. As to which interconnect business model will succeed, it's difficult to say, though the incumbent operators tend to call the shots and they obviously won't be giving up charging on a per-minute basis any time soon. IT

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

**The following companies were mentioned in this article:**

- **Acme Packet** www.acmepacket.com
- **Arbinet-thexchange** www.arbinet.com
- **Cantata Technology** www.cantata.com
- **Dialogic Corporation** www.dialogic.com
- **NexTone** www.nextone.com
- **Nominum** www.nominum.com
- **Telcordia** www.telcordia.com
- **Tiscali International Network** www.tiscali.net
- **Tiscali S.p.A.** www.tiscali.com

# IP Communications Security Challenges

In the early days of VoIP, proponents argued that IP voice packets could be treated as just another form of IP data. Not exactly true. First came VoIP's quality of service considerations owing to its real-time nature, and then everyone discovered that VoIP implementations not only inherit the same security threats as data networks, but also have a bevy of their own: theft of service (good old "toll fraud" in the telephony world), voicemail susceptibilities, denial-of-service vulnerabilities, confidentiality problems, and related issues such as VoIP compliance with internal and regulatory requirements.

A huge market in firewalls and Session Border Controllers (SBCs) then appeared to tame the VoIP security jungle, but other companies have appeared with new approaches. Take, for example, BorderWare's (www.borderware.com) "application-specific" firewalls, first used in the tricky area of messaging security.

Dominic Chorafakis, Director of Product Management at BorderWare, says, "We are seeing a trend for a different class of device than the traditional SBC that your telco will buy and place it in the carrier network. As more and more enterprises turn to VoIP and unified messaging in general, we do see that these enterprises recognize the need for something that looks like an SBC to sit on their network and provide the typical enablement services that SBCs provide, such as NAT [Network Address Translation] traversal, but also to secure their infrastructure, be it a small, open source Asterisk PBX, or a big Avaya IP PBX. People recognize the need to protect these things. But traditional SBCs and the price tag they carry really don't fit into the enterprise network. That's why some vendors have scaled down their SBCs to try to capture this market."

"The use of proprietary hardware - ASIC chips and things of that nature - have made it difficult to achieve a good price point," says Chorafakis, "and that's where we see this evolution toward a purely software-based solution that can be run on whatever the appropriate hardware is for the specific deployment. That applies in the voice space. BorderWare started with offering packet inspection and proxy-type firewalls. Our next foray, which was our major success, was in the e-mail security and content control marketplace. Then, we moved into the VoIP/SIP marketplace. As was the case with e-mail, as we see voice and instant messaging experience growth, we're now focusing our energies there, and we're moving toward offering a unified solution to address voice, video, IM, web and e-mail. That's where our BorderWare Security Platform comes into play, which offers a unified solution for IP Communications in general."

## "Heads are Spinning"

Another interesting VoIP security software company is VoIPshield Systems (news - alert) (www.voipshield.com). Founded in early 2005, it offers the VoIP Security Suite, a set of security applications purpose-built to protect VoIP networks and devices. Their customers tend to be medium-to-large enterprises that find themselves managing large VoIP deployments.

One of VopIPshield's more ingenious products is VoIPaudit, which is a vulnerability assessment and penetration testing





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product specifically designed to identify VoIP security threats. It also does a neat job of discovering VoIP infrastructure assets including PBXs, softswitches, gateways, multi-media servers, phones and soft clients. Indeed, VoIPaudit can discover and manage multiple VoIP networks simultaneously. It even has built-in asset management so that an organization can keep track of changes and updates to the VoIP infrastructure.

Rick Dalmazzi, CEO of VoIPShield, says, "Every year the world spends more money on voice products and services than on data. It's really interesting to see the biggest phenomenon in VoIP and VoIP security today, which is a collision of two worlds: First, you've got older telephony guys who for years had a beautiful closed system that always worked. Their only real security issue was toll fraud. Now, however, we're moving into the open jungle of IP, where the threat model for IP voice more resembles the data world, than the old voice world. The old telephony heads are spinning. The security concepts of confidentiality and authenticity and integrity are totally foreign to them."

"The corporate data security groups forced to accept security responsibility for voice are guys who use a telephone, but that's about it," says Dalmazzi. "They aren't interested in the telephony world. When selling voice security products, we'll perhaps encounter the CIO, but more likely the people who run the office's network and security. The person responsible for the phone system won't typically be senior - more of a mid-level manager. It's fascinating to observe the dynamics of who's going to be responsible for VoIP security and who's going to pay for it. For me, that's the most interesting phenomenon going on in voice security today." IT

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

**The following companies were mentioned in this article:**

**BorderWare Technologies**
www.borderware.com

**Narus**
www.narus.com

**VoIPshield Systems**
www.voipshield.com

## Tips for Solving the Most Common IP Security Issues Encountered by Carriers and Service Providers

*By Steve Bannerman, Vice President of Marketing and Product Management, Narus.*

Narus (www.narus.com) focuses primarily on the largest IP networks in the world — those of the carriers and service providers. These are the issues that our customers face as they try and protect their own network infrastructure and services, while also providing managed security services to their enterprise customers. They were kind enough to provide the following tips on solving these problems.

**1. Botnets and the associated DDoS attacks they launch are by far the biggest concern of network managers.**

To minimize impacts of DDoS attacks often launched by botnets, it's important for the carriers to have the ability to detect the attack in the early, set up stages. Solutions that monitor the change in pattern of the traffic and not just on the volume of traffic is a good way to detect and mitigate DDoS attacks early and accurately.

**2. Over three-quarter of service providers surveyed believe that traditional firewall/ IDS/ IPS systems lack the technical capabilities to detect a wide enough range of attacks, or detect them early enough.**

Traditional firewalls/IDS/IPS systems are invaluable tools at detecting and preventing known attacks and even a certain percentage of malicious traffic of unknown origin. These devices need to be coupled with a core network attack detection and mitigation solution made up of best-in-class offerings. The overall solution can now detect an alert with the highest efficiency and accuracy with mitigation quickly carried out in an efficient way. Service providers can have a single view into multiple disparate components to ensure the highest level of security with the least amount of operational effort.

**3. Enterprise IT managers are currently overwhelmed by the frequency and veracity of attacks. They cannot keep up from a skills or manpower perspective.**

A growing percentage of IT managers are looking toward their upstream service providers to offer "clean pipes" security services and to deliver traffic already cleansed of any service-impacting traffic, whether that comes in the form of worms, DDoS, or more complex application based attacks.

**4. With the rollout of new IP-based services such as VoIP and IPTV, security is now a top of mind issue. Service providers participating in a recent survey concluded that a 15-minute network outage is considered "catastrophic" to their business.**

Meanwhile, a recent Yankee Group ROI study (See Note 1) concluded that when a service provider deploys a network-wide IP security solution in support of IPTV service and a managed clean pipes offering, analysis shows overall internal rate of return of 125 percent.

**5. Security Operation Center managers are concerned that anomalies are displayed without any context. As it turns out, a large percentage of alerts displayed in a typical SOC are related to one another. Too many SOC resources are spent trying to manually correlate alerts and choose mitigation options.**

Look for solutions that have the intelligence to group the large number of alerts into "meta-event" in an effort to slim down that mass of information into a manageable form. SOC personnel can address multiple alerts by mitigating the root cause of the alerts. Solutions with the ability to summarize information while still allowing for drill-down capability ensures that security groups for service providers are efficient in their analysis and effective in their mitigation practices.

6. **Service providers are now very concerned about combining anomaly detection activities with traffic engineering. They want to know all the ways in which bandwidth resources are consumed, and how to invoke real-time policy to re-engineer traffic.**

Service providers can implement solutions with the visibility into service and application traffic and overall network availability. Such awareness ensures proper network functioning in term of maximizing overall customer experience. This awareness will often lead to highlighting instability of Autonomous System (AS) paths or potentially even prefix hijacking that can have a dramatic impact on service quality and availability.

**Service providers need systems to provide enough granularity in their traffic visibility to control network behavior one application or protocol at a time.**

7. **In a world of Web 2.0 and hosted applications, the performance of the traffic on the network is only half the story. Service providers are also extremely concerned about the performance of their applications as they run across the network.**

Service providers need systems to provide enough granularity in their traffic visibility to control network behavior one application or protocol at a time.

Narus is the established leader in carrier-class security software for the world's largest IP networks. Narus builds the industry's most powerful IP traffic processing system that monitors all of the traffic flowing across the entire carrier network at core speeds, and correlates that traffic to provide a unique total network view. IT

[1]"Return On Investment of Core IP Security Solutions in the Carrier Environment Report", Yankee Group, September 2007.

TMCnet Presents:

# SIP Community

## Connect. Communicate. Collaborate.

Today's IP Communications world is moving fast. Innovation is being driven on many fronts, and at the heart of so much of this activity is Session Initiation Protocol, otherwise known as SIP.

SIP is the engine behind the notion of Open Communications. The idea or concept of Open Communications – integrating open, standards-based technology with leading brands of telephony platforms, devices and the latest in voice, video and data applications – is fueling a multitude of innovative SIP-based multimedia applications such as VoIP and Video over IP, IM and Presence, Collaboration and more.

The SIP Community is designed to serve as a central information resource for this fast-moving world of SIP-based IP Communications. To stay on top of the SIP market, bookmark the SIP Community and make sure to return often for the latest news, trends, and industry-specific content.

- SIP Latest News
- Enterprise Communications
- Service Provider Solutions
- SIP and Open Standards
- SIP Featured Articles
- Product Showcase

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Check out our SIP Community today at: http://sip.tmcnet.com

# Putting the IP in IP-PBXs for SMBs

Unlike the crowd of IP-PBX vendors wanting to sell huge systems to wealthy enterprises, the somewhat fearful, frugal small business market has almost been devoid of advanced IP-PBX or key system technology, save for a few players, most of depend on open source technology. Now, however, the last barriers are falling and IP-PBX features will finally be accessible in even the smallest businesses - granted, some of these may be employing the services of a hosted services provider, but the functionality is the same as a "big iron" box.

Indeed, one wonders if the general trend will ultimately reduce business phone systems to mere commodities that you can pick up at your friendly local office supply store.

Paul Smelser, Product Manager in the Enterprise Networks Division at ADTRAN (www.adtran.com), says, "I believe that the telephony features that most small business customers use pretty much appear on every phone system: dialtone, voicemail, an auto-attendant, and so forth. I think where the uniqueness and value-add for the solutions provider comes in is in working with the small business customer to understand the call flow in their business, how they use their phone lines, Internet access, and essentially working with them to come up with a solution as to how they manage their voice and data usage. I don't think that can ever be commoditized."

"I don't know if 100 percent of PBXs are now IP-enabled, but certainly the majority are," says Smelser. "We joined in in 2006 when we launched the NetVanta 7100, our first IP-PBX product. Of course we've been in the enterprise network business for a long time, with routers and switches and Internet security products. We're the market leader in IADs [Integrated Access Devices] and do protocol conversion between things such as ATM, Voice-over-ATM, MGCP [Media Gateway Control Protocol] and now SIP [Session Initiation Protocol]-to-TDM conversions for many of the competitive carriers as well as the Incumbent Local Exchange Carriers."

"The NetVanta 7100 is unique in that it's a converged voice and data solution that's only 1U [1.75 inches] high," says Smelser. "The front of it looks like a 24-port switch. It has Power-over-Ethernet (PoE) ports. In addition to being a SIP-based IP-PBX for up to 50 users, it is also a full-featured router, PoE switch, with Layer 2 management, and a stateful inspection firewall. It includes VPN functionality, a SIP gateway and even multiplexer functionality. It's sort of an office-in-a-box, and we position it as a single product solution for a converged voice and data network. Whereas today a solutions provider might have a router, PoE switch, firewall and a separate IP-PBX, there are a number of installation and maintenance benefits to having one product to manage with a single GUI interface. For the record, we also have a command interface customers can use if they like."

> "You now have the ability to tie these things to other applications that take the human latency out of a process and really provide improvement."

"The product fits greenfield applications very well," says Smelser, "and environments where the phone system needs to be replaced. If there are requirements for data networking functionality, we fit very well in that environment too. Obviously, with a limit of 50 station sets, our 'sweet spot' is in the 10 to 40 seat range, although we have sold a few solutions having fewer than 10 seats."

"With the NetVanta 7100 we wanted to address the two main barriers we saw for VoIP adoption in the small business market," says Smelser. "Most market reports will show that adoption in the small end of the business market is still in the very early stages for VoIP. We think that's because of, first, the cost of the systems available today and, second, the complexity and the installation and maintenance which in a sense drives up the costs from the solutions provider side or even if the end user were to try to manage it himself. That's because of the existence of multi-product solutions and those types of factors. We addressed both these issues by integrating multiple product functions into one platform in the 7100 so all of the voice, data, quality of service,VLAN and all the things you need to build a converged IP network can be founding that single product. Then we priced it very competitively for smaller businesses, less expensive than even TDM key systems or digital solutions."

## Three's Company

Nortel (quote - news - alert) (www.nortel.com) for many years comprised one-half of the North American "duopoly" of Nortel and AT&T/Lucent.





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By Richard "Zippy" Grigonis

Recently Nortel's three top IP-PBX experts spoke to me: Ingrid Tremblay, David Beaton and Brian Taler. First up, Ingrid Tremblay, Director of Global Marketing for VoIP and UC, says, "From a trends perspective, many of us in the industry are moving toward software, and getting away from the idea of a monolithic PBX. The reality, however, is that legacy switches in the installed base customer sites were built to last, and they continue to work. Hence the desire by installed base customers to make sure that they are in fact evolving their solutions forward. Nortel specifically does have the ability to help those customers."

"Through our relationship with Microsoft and our Innovative Communications Alliance," says Tremblay, "we understand the vision of where people are going: a totally integrated solution set that converges voice as well as the collaborative applications that you use on a day-to-day basis, along with any new applications that may be coming down the pipe or things that live within your back office, and ultimately pulling them together to deliver new services. The ability to do that, as you can well imagine, is as a result of the industry's movement toward IP, open standards, and the driving force of SIP. What SIP has really given us is the ability to provide presence indicators so that you can use a single phone number, a single identity, that follows you around, no matter where you go."

"As we move past the unified communications realm, which means taking the applications and bringing them all together in a single interface," says Tremblay, "we'll start to move toward whole business process convergence. That's where you start to see new architectures - they've actually been around for a while, such as the Service-Oriented Architecture, but they now have definite viability. You now have the ability to tie these things to other applications that take the human latency out of a process and really provide improvement. An example of that might be where you pull in an RFID type of environment, together with notification, VoIP, voice and IM. These applications can be made to touch and interact with one another without any manual human intervention."

"Imagine a company that has a building and warehouse that does upholstering of furniture," says Tremblay. "If I were a customer calling into that company, the company could very quickly notify or know via RFID where the truck might be that does pick-ups and would see that Truck A is in the vicinity of my call, and therefore they would dispatch via IM the pickup lot, and automatically the person can acknowledge back via their wireless or unique WiFi device and immediately there's a ticket that's established and set up. All of these good things go on without any human delay. This is where we're heading."

"There's also a discussion going on now regarding clients at the desktop," says Tremblay. "Do people still need phones? It's an interesting question. While we all want mobility and certainly want to use our cell phones and PDAs, whenever we want, we want them all tied to our phone numbers. But depending on the vertical, the phone itself may take on different forms. The devices may have bigger displays and a speaker phone for use in hotel rooms. In the office, battery limitations suggest that we'll still have wired desk phones for some time to come. Still, the look of the phone will change. Do you need to have all of the bells and whistles if you have a soft client? Maybe not. And in certain vertical industries the phone may change its appearance for that vertical."

"At the end of the day," says Tremblay. "I'm not sure it's a surprise to anyone as we become software-based. The capabilities and applications are really merging together. Ironically, the applications have been there all along. But in the past we weren't able to use them together in a seamless way. The same services with enhancements that allow you to bridge one to the other, can all be brought together and managed from a single entity easily, without key coding and complex input sequences. I can be in an audio call, push a button and now I've escalated things to a video call. Life is easier for the user. But this is just scratching the surface. When we really start to put these applications together in accordance with how businesses operate, along with presence and acknowledgement and single number identification, the possibilities will be endless."

David Beaton, Senior Product Marketing Manager for Nortel's Communications Server 1000 (CS1000), their Flagship IP-PBX, says, "The 5.0 release of the CS1000 appeared in June 2007. That's a major release for us. We have four main 'pillars' or themes around this release: Reliability, Security, Openness, and Simplicity. In terms of Reliability we added some geographic redundancy capabilities, which enables each remote gateway to support network failover. In the event you lose connectivity with your main site, the immediate gateways can take over full support for all of the IP users. For Security, we enhanced encryption capabilities on the media, signaling and IP sides. We also made some enhancements around E911 regarding location services and geographic awareness depending on where the user is, and recognizing what we call 'intelligent E911'. The ability for the system to recognize where the user is, whether they've dialed the wrong number by mistake, and so forth."

"In terms of Openness," says Beaton, "we now support some applications on COTS hardware from IBM and HP. We also support Linux and additional incremental improvements involving SIP and interoperability with service providers. Finally, we've greatly simplified our portfolio. We've simplified the architecture so that there are fewer components and yet we've increased the scalability by 50 percent."

> "Ironically, the applications have been there all along. But in the past we weren't able to use them together in a seamless way."

Brian Taler is Senior Product Marketing Manager for Nortel's Communications Server 2100 (CS2100). That's an IP-PBX for big enterprises and big institutions such as universities. Taler says, "Nortel's 2100 aligns with many strategies of the overall enterprise business market, but its specialty is working in large centralized campus environments. We recently implemented on the CS2100 a SIP core architectureand we're enhancing this later in 2007 with our SE10 release. We've taken the functionality that would have today have resided on a separate server or the MCS [Multimedia Communications Server] and embedded that software within an HP server which, in turn, inside the CS2100. So it's an 'in-skins' type of application. So now within the core of the CS2100, we support not just SIP trunks but SIP lines. Initially we support the LG Nortel 6800 Series and later this year with SE10 we'll be bringing in the 1140E and 1120E phones."

"Along with SIP comes all of the SIP capabilities of IM, presence and multimedia calling," says Taler. "Add a media applications server to that and you enhance the overall experience with collaboration and audio and video conferencing. You can now take advantage of a common management stream within the CS2100, which greatly simplifies things."

"Also in SE10 we're bringing in the integration with Microsoft OCS [Open Communications Server]," says Taler. "That's a big thing for us too. Similar activities are occurring with the CS1000. You may have heard that Indiana University is moving from the SL100 infrastructure to a CS2100, incorporating the OCS module to achieve a common desktop across the campus and thus change the dynamics of the over all campus and student experience. We can also bring SIP into call center installations now too, along with some IVR functionality."

## Going after the True Small Business Market

As impressive as Nortel's bigger equipment is, vendors operating at that level of the market bump into some considerable competition. Not so at the "itsty bitsy" level. Simicomm (news - alert) (www.simicomm.com), an IP-PBX start-up, released on September 10, 2007 the new EasySpeak PBX for SMBs, based partly on the open-source Asterisk. EasySpeak PBX has additional enhancements that enable the product to be set up and running on a dedicated Linux server in about 15 minutes, rather than the 10 hours of development time that a local systems integrator is said to need to set up Asterisk for a customer. A phone line plugs into one end of the server, and IP phones plug into Ethernet ports,





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whereupon they are automatically provisioned and assigned an extension number based upon the order of their connection to the system.

Simicomm's CEO Dennis Barnum says, "We're targeting what we consider the true small business market. About 90 percent of all U.S. businesses earn a million dollars a year or less in revenue. So there are many companies out there that could potentially use this technology but, quite frankly, there hasn't been much out there until now that is cost-effective. Combine that with their natural fear of something new, and the result is a large, underserved market."

"We sell our system as a straight, one-time only licensing fee," says Barnum. "We've developed an application that we consider to be very easy to install, use and maintain, at an attractive price. We're looking to market it through the smaller IT and VAR firms out there that service many of these clients. Ironically, we developed it initially to serve our needs, since we couldn't find anything to service us with a reasonable price point and feature set. Our integrated application has a gateway attached to it and we've recently taken part of that and have built it into a stand-alone PBX system. As I said, we target very small offices, 10 to 15 extensions, but in fact there is no limit to the number extensions we can support. The market for larger systems however, is crowded with competitors."

## A Switch at SwitchVox

On September 27, 2007, Digium, Inc., the company standing behind the Linux-based open source PBX called Asterisk, announced it had acquired SwitchVox, a major provider (60,000+ end points) of IP-PBX phone systems for SMBs.

Just before they were completely gobbled up, I spoke with SwitchVox CEO Joshua Stephens. "We just released our latest version, 3.0. In it we made many changes, upgraded many things, and increased capacity on the system. We also added some integration with Sugar CRM and SalesForce, which are pretty exciting additions."

Whereas SwitchVox built its business by offering easy-to-use communications solutions, Digium is the progenitor and primary maintainer of the Asterisk open source telephony code, so it's felt that the combination of the two companies should yield Asterisk-based telephony solutions that are cost effective, easier to use and more flexible than competing telephony products. Yours Truly wishes them well and will wait for the results to appear.

## The PBX that's Not Really There (Hosted Services)

Whaleback Systems (news - alert) (www.whalebacksystems.com) is an interesting managed IP telephony service provider that offers an innovative broadband business phone solution for SMBs. Their broadband-based CrystalBlue Voice Service is 100 percent premises-based and software-driven, with Key System Unit features and "road warrior" functinality. Whaleback's all-inclusive, unlimited nationwide calling package serves companies that need between five and 1,500 phone stations.

> "Our belief is that our service should be so simple that the SMB can just use it like a phone..."

Dave Zwicker, Vice President of Marketing, says, "We sell a managed service; a business class voice solution for SMBs for about a year-and-a-half now. And we're really seen a steady growth in our subscriber base. When we launched CrystalBlue Voice Service, we decided that the feature set was going to be directly focused on the needs of the SMB. We wanted to bring forward the key systems features they were used to in the past and have those continue to be present in an IP-grade managed service. But we also wanted to bring them into the future in terms of the features that enterprise-class PBXs have brought to much larger companies - things like Unified Communications and integrated dial plans across multi-site locations, and mobility features such as Remote, Mobile and WiFi-enabled extensions of their VoIP phones, and things like that."

"So we put together all of the building blocks to give customers a completely turnkey service," says Zwicker. "Our belief is that our service should be so simple that the SMB can just use it like a phone. They don't have to do anything that they'd have to do if they owned a PBX. There are no worries about upgrades or Moves, Adds and Changes. We do everything from a central location from which the PBX functionality emanates and which we manage to the customer premise. Most importantly, we manage the call quality end-to-end: from the handset, to the handoff, to the PSTN, and over the IP environment. We have tools in our central NOC [Network Operating Center] location that enable us to see into the IP network through a multitude of carrier facilities and IP clouds, to trace the customer's call path and then be notified whenever call quality is showing signs of degradation, such as dropped packets. Or, there could be a disruption of service and then we've got mechanisms for handling failover or disaster recovery."

Whether it's a piece of hardware or a managed service, IP-PBXs have finally gone totally mainstream. Even the smallest of businesses can now partake of big enterprise telephony features. IT

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

**The following companies were mentioned in this article:**

| | |
|---|---|
| **ADTRAN**<br>www.adtran.com | **Simicomm**<br>www.simicomm.com |
| **Digium**<br>www.digium.com | **SwitchVox**<br>www.switchvox.com |
| **Nortel Networks**<br>www.nortel.com | **Whaleback Systems**<br>www.whalebacksystems.com |

# Testing IP Communications, Inside and Out

Interaction among devices in a network topology determines service quality. Network elements are wildly different in nature: IP phones, soft phones, routers, switches, firewalls, gateways, session border controller, applications session controllers, etc. Therefore, the testing of individual devices is only useful up to a point. Thousands of hours of system testing is necessary, involving potentially hundreds of device configurations, device features and network configurations that comprise today's quadruple play and Next-Gen Networks (NGNs). Pre-deployment testing and automation helps.

For 60 years, Tektronix (news - alert) (www.tektronix.com) has been one of the great names in test, measurement, and monitoring products, solutions and services for the communications, computer, and semiconductor industries.

Yours Truly managed to catch Tektronix as it was about to release some news concerning its VoIP and IMS (IP Multimedia Subsystem) hardware and software diagnostic solution for VoIP and converged networks, Spectra2. Spectra2 can monitor, test, generate (simulate up to 60,000 user agents), and automate testing of VoIP and PSTN (SS7 ISUP) signaling and media.

Mike Erickson, Function and Load Diagnostic Product Marketing Manager, says, "Spectra2 is a single PC-based platform running Windows with lots of applications built into it. It's designed to fit into all phases of a carrier product lifecycle with an emphasis on load generation, functional testing, monitoring and media Quality of Service [QoS]. One area of focus here is protocol depth. What's special about Spectra2 is that we haven't abandoned our great PSTN testing capability: ISDN, TCAP, SS8, ISUP - we still have a very strong focus on those, because 95 percent or more of phone calls still traverse the PSTN at some point. So we continue to offer a truly comprehensive test product. And of course we're very deep into VoIP, with our protocol test capabilities including SIP, H.323, Megaco/H.248, MGCP, and voice codecs and so forth. We've taking into account mature technologies, evolving technologies and now, going forward, the IMS infrastructure."

"What's going to happen when I get home, get out of my car, and walk into my house, or get out of my car in the morning and go to the office? The handover must work."

"In October we announced a new high load platform - it gives us a 700 to 800 percent increase in capacity over our current platform in terms of SIP processing capabilities," beams Erikson.

Perhaps the most difficult forms of testing involve Fixed-Mobile Convergence (FMC) handover between cellular and WiFi.

At Azimuth Systems (www.azimuth.net), a major provider of wireless data communications test solutions, Graham Celine, Senior Director of Marketing, says, "We deal with VoIP purely from a WiFi perspective. But we're now seeing a much more serious player in the service provider who is putting his business on the line, because he must deliver an offering that has high QoS and is reliable. With FMC, everyone expects a phone call to drop off a cellular phone and handover onto the local WiFi network, but a problem can arise if it's briefly jumping onto a low-quality network. The trend we've seen is that some extended level of testing is done by service providers, but they'll say, 'Well, we can provide you with VoIP-over-WiFi as long as you're doing this and that…' There is a tendency for some service providers to actually offer the access point for the WiFi cards, and they say that they can't guarantee that the equipment will work with any other technology."

Celine elaborates: "The three key factors to test in such environments are: First, performance. I mean more QoS than throughput, since voice doesn't take up a lot of bandwidth. Second, is range. A WiFi phone system may work if you're standing next to the access point and doesn't when you stand 100 feet away, and vice versa. There should be a general good design of the product with voice quality and reliability over range."

"A third aspect is capability; particularly with FMC-types of VoIP services. A significant amount of handoff goes on in such systems: cellular-toWiFi or WiFi-to-cellular. What's going to happen when I get home, get out of my car, and walk into my house, or get out of my car in the morning and go to the office? The handover must work."

The Fanfare Group (www.fanfaresoftware.com) is a vendor of innovative testing solutions enabling network equipment makers to simplify and accelerate their device testing. For example, the FanfareSVT test automation software is





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By Richard "Zippy" Grigonis

used by companies such as Juniper Networks for optimal product testing and quality assurance. Also, Fanfare's iTest package provides quick, easy device testing that's optimized for feature testers and developers. This is important because device manufacturers must increase their quality to "carrier class" to meet service provider expectations, so extensive device and system testing are required. Moreover, service providers must not only validate device operation but perform comprehensive system testing, which can be complicated and expensive.

Glenn Jones, Vice President of Engineering for Fanfare, says, "Our third-generation application provides a testing and a test automation framework for high tech equipment makers. It's focused on simplifying and accelerating testing at both the device level - a router, hub, switch or a telecom switch - and also at a system level where you have many devices chained together, including traffic generators and things of that nature. Our market has mainly been in quality assurance [QA], but some developers also use our products for unit testing and some system level testing. What's key is that we try to enable the testing and QA teams to get their product to market fast. By providing this IDE-type environment - an integrated environment for testing - developers in QA teams are much more effective at building things. They construct the tests and those are executed, recorded and reported, and then the tests can be quickly automated."

Yours Truly has always maintained that in a modern, dynamic network, "testing" as such is only viable if it's reengineered as round-the-clock monitoring.

## "Testing" Becomes Monitoring and Service Assurance

Yours Truly has always maintained that in a modern, dynamic network, "testing" as such is only viable if it's reengineered as round-the-clock monitoring.

This is particularly true when it comes to IP Video. Take for example, IneoQuest's (www.ineoquest.com) IQPinPoint, an advanced quality and service assurance solution for IP Video. Service providers employ it to improve video quality and control IPTV operational expenses (OPEX). IQPinPoint can predict, detect, isolate and resolve faults in live IPTV networks via its combination of real-time remote troubleshooting with management of hundreds to thousands of live simultaneous video programs.

IneoQuest's (news - alert) Tom Tucker, Director of Marketing, says, "Years ago, when digital technology really got going, testing seemed to always be an afterthought. Digital broadcast and related customers thought that there was a sort of 'cliff' phenomenon: something worked perfectly to a certain point; once it reached the 'cliff' it stopped working. With the development of and access to IP networks, to a large degree that same mentality played through. Network component vendors gave that same impression: you plug the components together, test it in a lab, then you put the content in one end and it either comes out the other end in perfect condition or it doesn't come out at all. Of course, that's not really the case, particularly in a packet-switched network. The technology is so complex and the dynamics of an IP network can be such that it really requires 24x7 monitoring on all the streams. Without a doubt, customers are now embracing the idea that they must design-in a service assurance strategy from the beginning of their

projects. They've learned this the hard way, deploying components and expanding a network and its streams until finally problems appear and the troubleshooting time becomes a killer."

## And Now, Pre-Deployment Testing

OPNET Technologies (www.opnet.com) supplies advanced management software for networks and applications: IT Guru Network Planner and SP Guru Network Planner, which automate the analysis and planning of multi-layer, multi-vendor networks. Organizations can use these to more accurately plan for growth and technology migration, optimize network capacity and performance, and accelerate new application and service deployment. The optional NetDoctor module enables users to validate network configuration changes before deployment. A new IPv6 Planning and Operations module is used to plan the migration of an organization's IPv4 networks to IPv6.

OPNET's Senior Vice President of Model Research and Development, Pradeep Singh, says, "OPNET plays a pretty unique role in the VoIP market. Typically everybody wants to save money by going to VoIP, but people don't realize that if they don't do a pre-deployment analysis, chances are the network isn't even ready for VoIP. A real risk of failure exists unless certain tweaks are made to the network, such as specific device configurations, or adding redundancy, or adding capacity at various strategic locations. It all makes a difference when a pre-deployment assessment for VoIP is performed."

"Our approach to the VoIP space is to be the strongest player in terms of providing a readiness assessment for VoIP deployments," says Singh, "which includes device configuration validation and performance validation. Our customers want to do two kinds of testing when deploying VoIP: First, some active testing, where they deploy some agents and sample VoIP sites, and then they generate some traffic and test for quality across the network in terms of the usual things: latency, jitter, packet loss, the computing of MOS [Mean Opinion Scale] scores or R Factors, and trying to figure out everything is acceptable or not. Secondly, there are 'passive' tests where you create a virtual test bed of your network over which you wish to run VoIP and you then perform pre-deployment analyses of that network. That approach aligns very well with our product suite because our first step in any analysis is to create a virtual representation of someone's operational or production network. By virtual representation I mean that, within software, we create a very detailed, high fidelity network model of the switches, routers, gateways and end point devices communicating over the network, importing the baseline traffic, and representing what kind of services and applications are running in the network. This baseline representation is done before the actual deployment, so you can see what would happen if, for example, you add VoIP across two particular sites." IT

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

**The following companies were mentioned in this article:**

- **Azimuth Systems** www.azimuth.net
- **Fanfare Group** www.fanfaresoftware.com
- **IneoQuest** www.ineoquest.com
- **OPNET Technologies** www.opnet.com
- **Tektronix** www.tektronix.com


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# VoIP Security Monitoring and Management; What Every Security Professional Needs to Know

The accelerated adoption and promise of Voice-over-Internet Protocol (VoIP) technology is causing much excitement among IT professionals. Whether installing the technology yourself or choosing to lease the service from a reputable provider, there can be a substantial cost savings associated with a successful VoIP implementation.

The accelerated adoption and promise of Voice-over-Internet Protocol (VoIP) technology is causing much excitement among IT professionals. Whether installing the technology yourself or choosing to lease the service from a reputable provider, there can be a substantial cost savings associated with a successful VoIP implementation.

Before getting too excited, security professionals everywhere need to know that VoIP, like any relatively new technology, introduces additional IT security concerns for the organization. Because of the underlying networking and server infrastructure VoIP introduces, organizations must prepare for both new and existing security vulnerabilities that can impact the VoIP environment. Any new networked application, including VoIP, gives standard 'garden variety' attacks new opportunities to wreak havoc and introduces a new class of VoIP-centric threats

While VoIP vendors focus on building some level of security into their solutions, an attacker can easily exploit a VoIP deployment using a variety of different techniques commonly found on traditional networks. This article discusses best practices to securely implement VoIP and a security monitoring and management strategy to protect a VoIP investment.

## Convergence of Network and Security

The ability to converge your view of network and security information is critical in the fight against application layer attacks, worms, and hacking that can occur on the network supporting a VoIP implementation. These days, a key factor in protecting an organization's VoIP network is continuous situational awareness of internal and external threats that can be obtained from the use of comprehensive network and security monitoring. A network and security monitoring and management strategy that combines flow-based network behavioral analysis and security event correlation to solve security and monitoring issues provides a unique window into monitoring your VoIP (define - news - alert) network against threats. VoIP networks illustrate the need for visibility across multiple service layers: the network, the application, and the security layer.

## Separate Voice (VoIP) and Data Traffic

One of the most effective and important techniques in engineering a VoIP network is to segment the VoIP traffic from all other networking activity. Virtual network segmentation, recommended by major VoIP vendors, has two key advantages for your VoIP deployment:

1. The added security provided by ensuring that your VoIP traffic flows through the proper security devices and network paths.

2. Using dedicated virtual interfaces and subnets for VoIP traffic ensures that VoIP will get the dedicated bandwidth it needs to deliver high-quality phone conversations. VoIP is very sensitive to bandwidth contention, which causes packet loss, delay, and jitter that lead to dropped calls or poor call quality.

It is equally critical to ensure that data intensive business applications such as peer-to-peer and databases do not infringe upon VoIP bandwidth and affect phone conversation quality.

From a monitoring perspective, you should define your VoIP infrastructure as a unique network object so that:

- Network administrators have one clear view of VoIP network traffic flows which help to detect the origin of the VoIP traffic.

- You can easily prioritize VoIP policy or security incidents by giving high-value weightings to VoIP-related assets (such as an IP PBX) and VoIP





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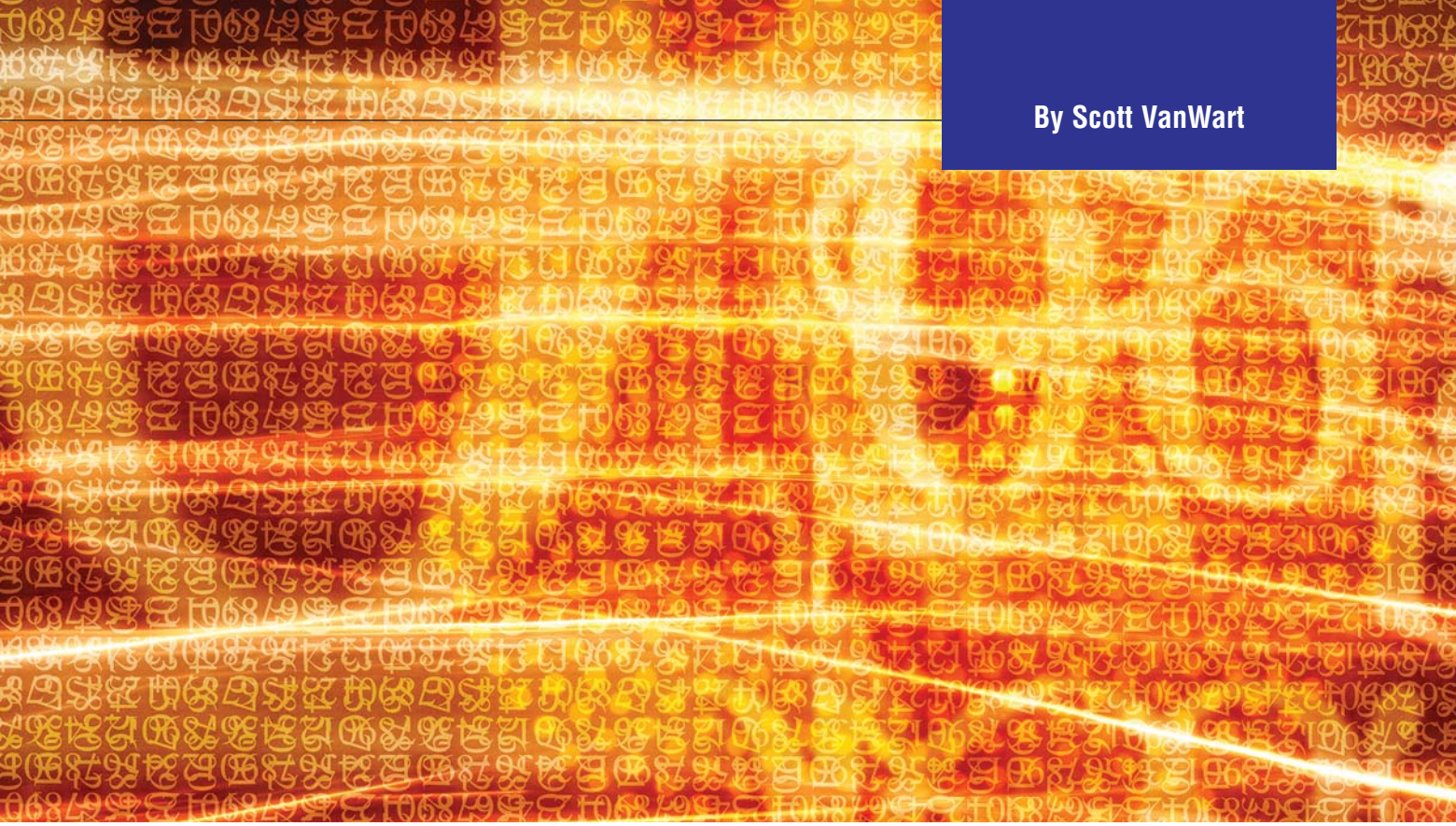

By Scott VanWart

business objects.

- You can quickly filter or search on VoIP traffic flows or associated security logs to aid in troubleshooting VoIP technical or security issues.
- You can learn the behavior of VoIP networks to allow administrators to establish appropriate policies quickly.
- You can easily produce executive and operations-level reports for VoIP security and network usage.

## Detecting DoS Attacks on your IP PBX through Network Behavior Analysis

You can monitor and neutralize the two most prevalent VoIP threats by monitoring network traffic. Such intelligent monitoring of network traffic behavior can detect both Toll Fraud and DoS Attacks.

DoS attacks are generally the simplest to perpetrate and thus tend to be the most common attacks faced by data networks. Now DoS attacks are becoming more common on VoIP networks.

Most DoS attacks on a VoIP network involve bombarding the IP PBX with an extreme volume of simultaneous voice signaling requests (i.e. SIP). When the IP PBX cannot keep up with the request rate, it eventually shuts down access altogether, denying valid users (in this case IP Phones) access to VoIP services. This results in loss of productivity and ultimately loss of revenue.

Advanced traffic analysis logic is needed to identify an abnormal increase in both the number of sessions and hosts attempting to communicate with the IP PBX and combines them with a sudden increase in events from external firewalls to detect a potential DoS attack. An appropriate solution should be able to respond by either automatically blocking the attacker or by notifying the network and security teams of the threat and the assets involved, so that they can manually respond before significant damage is done.

## Protecting Your IP PBX from Toll Fraud through Log Management and Event Correlation

Gaining access to the VoIP IP PBX is often the first step in committing toll fraud. This is a major threat and defending against it is a big concern for both network administrators and VoIP professionals.

Creating custom detection rules based on live network events arm the network team to defend the VoIP deployment from toll fraud. These events and alarms come from the security devices that protect the network as well as the OS and application alerts from the PBX and control server devices themselves.

Monitoring the geographic destination of VoIP traffic is another powerful solution to toll fraud. Sudden changes in the overall geographic distribution of network traffic originating from inside the VoIP network could indicate that illegal users are abusing the system to commit toll fraud. They may even be reselling these stolen long-distance services at your expense.

## Enforcing Corporate VoIP Policies through Application Layer Monitoring

A major part of implementing a VoIP deployment is creating corporate policies that govern the use of the new technology. By creating a VoIP-specific business-service object to represent your VoIP network, administrators are able to detect traffic abnormalities such as applications like Peer-to-Peer that should not be running on a VoIP network.

## Network Usage policies — Ensuring High Availability and Quality

To maintain high availability and quality of VoIP phone conversations across the VoIP network, it is critical to keep data applications off the VoIP-designated network architecture.

This requires an application view that provides layer 7 analysis and displays


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which applications traverse all network segments - including VoIP segments - and related bandwidth consumption.

Another important capability for maintaining the high availability and quality of phone conversations is monitoring the number of unique IP phones operating on the VoIP network. An over-subscribed network with too many IP phones, results in degraded conversation quality from jitter, packet loss delay, or dropped calls.

## Protocol Policies - Providing Better Security

As VoIP technologies continue to develop, it is increasingly likely that one protocol will become the de facto standard as the most secure method of transporting VoIP traffic across the network. Session Initial Protocol (SIP) is quickly becoming dominant due to its IP multicast capabilities.

When phasing out old and vulnerable applications, it is imperative to prevent them from running on the network. When using a network security management platform you can quickly identify abnormal protocol usage, such as malformed SIP packets, and investigate policy violations. This ensures that the network is employing the latest in security best practices.

## Application Policies - Providing Better Surveillance

It is frightening how common dangerous malware such as viruses and worms have become on PCs connected to the Internet. Many of the most popular web browsers have well-known vulnerabilities that make it possible for attackers to download malicious software without a user's knowledge. The user may be unwittingly visiting an infected web site or receiving a malicious email.

By connecting employee PCs to the data network, the use of soft phones (such as Skype) conflicts with the need to separate voice and data traffic. This conflict along with all the malicious software result in the average PC being too high a risk for using "soft phones" on a corporate network.

Even though using software such as Skype typically violates company policies because of the potential vulnerabilities it creates on corporate networks, commercialized soft phones from large VoIP vendors may become approved components of the company's overall VoIP solution.

## Applying Regulatory Compliance to VoIP

Regulatory Compliance issues often focus on monitoring authentication data from Health and Finance Information systems. With the convergence of voice into the data network, VoIP IP PBXs and other equipment, such as voice gateways, become subject to information theft. It's not only important, therefore, to analyze and store these logs from a security and troubleshooting perspective, you must also ensure that all log data from VoIP devices is being managed to ensure full compliance.

Regulatory Compliance has led to the need for more in-depth monitoring and better notification of users' activities across these networks.

## Conclusion

Deciding how to defend your organization's VoIP network is an important decision for any company. Protecting vital information in today's market is more important than ever and requires attention from all levels of management. If left unmonitored, the network could become vulnerable to careless employees and malicious attackers alike.

Securing your Unified Communications infrastructure hinges on the ability to be able to appropriately segment voice traffic and at the same time monitor the distinct sets of surveillance data that are relevant. Your VoIP security strategy should include the ability to see that data in a converged fashion and allow for the correlation of all important application elements along with the network and the security devices. IT

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# Co-Developing Test Equipment Brings Triple Play Services to Telco Customers, Quickly and Inexpensively

Collaborative effort can speed the deployment of new communications technologies. Collaborative effort can speed the deployment of new communications technologies.

Successful triple play service deployments demand solid construction and a test strategy that ensures connectivity and uninterrupted service delivery. Because delivering these brand new services presents a completely new set of challenges with unheard-of test scenarios, Sunrise Telecom and a major service provider worked together to develop the Home Test Toolkit (HTT), a test tool specifically designed for triple play (voice, video and data) services. This partnership was forged to reduce the risks the telecommunications service provider faced in providing new, untested services; increase the speed of deployment; improve the reliability and performance of newly installed services, and save money, both during installation and subsequently by reducing expensive truck rolls due to customer service calls.

## Do We Really Need Another Test Set?

Anyone following the technology developments in the telecommunications industry can understand that new in-demand technology, never widely deployed until now, requires new types of testing. The development of intelligent, "self-testing" and "self-repairing" networks causes most telcos to ask, "Do we really need new equipment?" When in reality, self-testing networks are still years away, so telcos are forced to move forward deploying new services to remain competitive and retain their installed customer base. Alternatively, many companies may try to utilize existing equipment, only to realize that this approach at most offers a partial solution, and, over the long-term costs more and reduces customer satisfaction.

Advanced triple play services require new test tools, tools that are sophisticated enough to perform highly complex tests and measurements, yet simple enough so that novice field technicians can use them with minimal training.

Customers purchasing triple play services from their telecommunications provider have high expectations: every feature and service must perform at the same level or better than their previous provider delivered. If not, chances are the customer will take their business elsewhere.

With triple play, telcos for the first time are combining voice, video and data in one network, pushing the existing copper infrastructure to its physical limits. Test sets designed for voice services or legacy DSL services do not have the functionality needed to fully qualify local loop and in-home networks for triple play services. A new test set with complete end-to-end network verification capability is needed to ensure the network is functioning properly at all points, and that it meets the rigorous requirements required for triple play services.

"Ease of use" while always a consideration in this industry, has never been more important as veteran field technicians are opting for early retirement, and younger, less experienced workers are being sent into the field. At the same time, the deployment of new services, such as video, presents new test and service verification challenges. To counter this, test sets today must be smarter and more intuitive to allow service personnel to efficiently conduct sophisticated tests without the knowledge and intuition that comes with 30 years of experience. At the same time, size and weight must be kept to a minimum, enabling technicians to perform tests in tight spaces.

## Co-Developing to Meet the Need

Co-developing test equipment, while not a new idea, rarely occurs in this industry. It's a good approach to take when service providers need a new test set specifically designed to meet their requirements, including cost targets. Co-development obliges both the service provider and test set manufacturer to adapt to new ways of working: the service provider plays a much stronger role in the design process and the test set vendor must learn to listen more closely to the customer's input. Equally important, the service provider must provide personnel with sufficient time and expertise to provide detailed information about their emerging test needs. While the example in this article focuses on the development of a test set for triple play service installation, the same principles hold true for any co-development project.

After selecting a co-development team, a critical first step is to define the economic model. In this case, Sunrise Telecom worked with its customer to identify the following factors:

1. The maximum cost/unit in the budget
2. Non-negotiable features
3. "Wish list" of all desired features





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By Bob Sutherlin, Raj Wallace and Mark Mellinger

This model became the benchmark for the project and enabled the team not only to stay focused on the end-result, but also allowed room for discussion: everything from expendable features to assessing wiggle room in the unit cost. Through give and take, the final product stayed true to the original economic model.

The second step was to clearly define the feature set. As a test equipment manufacturer, it was Sunrise Telecom's role to act as an advisor - not to dictate the design as the "test equipment experts." While bringing expertise, it was essential to internalize the service provider's requirements, extrapolate and visualize what a test tool might look like, what it could do, its form factor, and what kind of tests were needed. From these requirements and modifications made during monthly design reviews, a conceptual design emerged. Active listening and unrestricted communication were key factors in this process. For this project, the requirements included a form factor that would appeal to younger, less experienced technicians, an intuitive interface that was essentially self-teaching, and easily upgradeable software that completed sophisticated tests, captured, stored and transmitted the data.

Once an initial concept emerged, the teams met monthly for design reviews. Initially, the entire project was reviewed using PowerPoint slides with artist renderings of the unit. The process moved slowly at first, with spirited discussion that led to the development of a molded plastic sample. While a good representation of the overall concept, the model facilitated additional modification to ensure the final product would be durable under rugged field conditions. During each monthly meeting, requirements became better defined and progress improved, enabling subsequent milestones to be met on time.

## The Result: a Triple Play Test Set

Not only is the new HTT an exciting new product for the triple play market, but the service provider has seen an immediate return on its investment in the co-development process. The HTT eases installation, speeds deployment and decreases cost of ownership while ensuring the latest triple play services meet users' high expectations. The HTT is specifically tailored for mass market FTTN deployment and combines an unprecedented range of test functions to validate high-speed broadband services in and outside the subscriber's home. Technicians can test key interfaces and signals at the customer premise, including VDSL, HPNA networks, RF video, Ethernet, 802.11x wireless, copper loop fault identification, POTS, and in-home wiring identification and testing.

What makes the unit unique, aside from its technical performance, is the form factor and user interface. Anyone familiar with Game Boy® could easily recognize the similarity, a strategic design decision to appeal to younger service technicians. The system is simple to use, and new hires can be up and testing immediately after completing basic field training. The auto-test feature which is programmed directly from the telco's methods and procedures (M&P) instructs the technician to connect the right cables, push a button and watch as tests are run, results logged, and next steps indicated. A Bluetooth interface allows technicians to transmit stored results to the service provider's database as well as upgrade the test set software when pass/fail testing thresholds of M&Ps change via a laptop. The service provider recently standardized on the HTT test set for all of its triple play installations, and has already reported increased speed of deployment.

## Lessons Learned

Overall, the teams learned that with new technology it is better to start with a blank slate. This enables the vendor to deliver precisely what the customer wants. In addition, as the process evolved, several critical success factors emerged:

1. Start with a solid economic model.

2. Be sure there are strong leaders on both teams who work well together and can manage their respective organization's internal politics.

3. Secure long-term executive support.

4. Develop a plan of execution with key milestones and stick to it.

5. Don't guess; listen, gather requirements and deliver; only make changes in design review meetings.

6. Give and take - keep in mind it's an evolutionary process.

A strong portfolio of FTTN test equipment and more than 25,000 DSL test sets sold gave Sunrise Telecom the technical experience and foundation needed for this project, but it was their ability to adapt to new a design process and work seamlessly with the customer that drove success. Applying a 100% customer focus resulted in a successful co-development process. For companies facing new test challenges, starting from scratch, working hand-in-hand with a vendor, and keeping the critical success factors in mind can result in a low-cost solution specifically tailored to maximize their market potential and ease the task of deploying new technologies as they emerge. **IT**

*Bob Sutherlin is Vice President of Sales Western Area for Sunrise Telecom (www.sunrisetelecom.com) for the past two years. He has worked in the data and telecommunications field since 1973 with companies such as Texas Instruments, 3Com and Nortel.*

*Raj Wallace is a Technical Sales Director with Sunrise Telecom. (news - alert) He has been with Sunrise for over 11 years, working as a Product Manager, Product Marketing Engineer, and National Sales Engineer for over 7 of those years, as a National/Regional Sales Director for 2 years, and now as a Technical Sales Director for 2 years. One of his key initiatives for many of those years was providing training and technical field support for DSL installation, copper testing, and troubleshooting in the field and inside the home.*

*Mark Mellinger is Vice President of Strategic Account Development for Sunrise Telecom with primary responsibility for building and maintaining high-level relationships with Sunrise's key customers including the top telecommunications companies in the country. A 37-year veteran of the telecommunications industry, Mr. Mellinger has held numerous management positions in training, maintenance, provisioning, and transport with large regional operating bell companies.*







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# Can your IP PBX Provide Internet-like Flexibility without Sacrificing Carrier-Grade Attributes?

As IP has become widespread and Session Initiation Protocol (SIP) has emerged as a protocol of choice for telephony signaling, enterprise PBX systems are transforming. The hosted IP PBX has emerged as a communication solution in the enterprise that takes advantage of the movement from circuit switched networks to IP. The movement to IP has also made it easier for a carrier to host the PBX system without sacrificing enterprise security or performance. This hosted aspect of next-generation PBX solutions is particularly relevant to small and medium-sized enterprises and even branch offices of large enterprises, which are increasingly reluctant to have dedicated, on-site staff that specialize in complex, proprietary PBX solutions.

What has made this change possible? When we look at the underlying factors of this industry transformation, three trends emerge. First, the ubiquity of IP, the standardization of SIP as a control protocol, and the availability of inexpensive SIP hard phones and (virtually) free SIP soft phones have made PBX features more accessible than ever before. Gone are the days when the phone that offered PBX features was completely vendor-specific, was guaranteed to work with a feature server only from that vendor, and required finger calisthenics to make use of simple PBX features such as call forwarding or hunt groups.

The second trend driving this industry transformation is the maturity of Internet platforms in general and Java Platform Enterprise Edition (Java EE) specifically as an execution environment for telephony services. Whereas previous generation feature servers were proprietary, vertically integrated black boxes, vendors are building next-generation feature servers - which run on commodity hardware - as applications on a highly programmable and flexible Internet platform. The combination of cheaper hardware, flexible platforms, and an Internet-style programming model is making IP PBX solutions more usable and flexible than ever before.

Finally, as communication costs have fallen and devices have proliferated, it is particularly important that an information worker have access to PBX features from any device, from any location, and at any time. Whether employees are communicating from home through a VoIP client over a broadband connection, from their desks through a SIP hard phone, or from their mobile phones, they need access to the same set of employee-specific PBX features. With traditional PBX systems, this is next to impossible to achieve. However, a hosted IP PBX solution is tailor-made for this scenario.

This article will explore how IP PBX solutions built on standards-based Internet platforms such as Java EE can be supremely flexible, addressing highly variable user requirements without sacrificing the reliability, availability, and scalability (RAS) characteristics traditionally expected of such solutions.

## Have Your Cake, Eat it Too, and Lose Weight in the Process

When choosing an IP-PBX, an obvious question an enterprise should ask is why it should select a product that is built on a Java EE platform. The answer is simple - there are more than three million Java developers out there building Internet applications. The unprecedented speed of innovation in the Internet, including the rapid rise of phenomena such as Web 2.0, has been made possible by the talented developer pool that is familiar with Java and uses Java and Java EE to build many innovative applications. At the same time, Java has a well-defined process for incorporating innovation and is one of the two de facto standards for developing Internet applications (the other being the Microsoft way). Getting even a fraction of this developer pool interested in developing applications such as IP PBX can result in increased feature innovation, lower cost, and enhanced integration with other enterprise business processes.

The telecommunications industry has long viewed Java with suspicion because features such as dynamic memory allocation and de-allocation ("garbage collection") have made it difficult to build applications with predictable, millisecond response times on the platform. Fortunately, the maturity of these "garbage collection" techniques, the availability of high-performance in-memory





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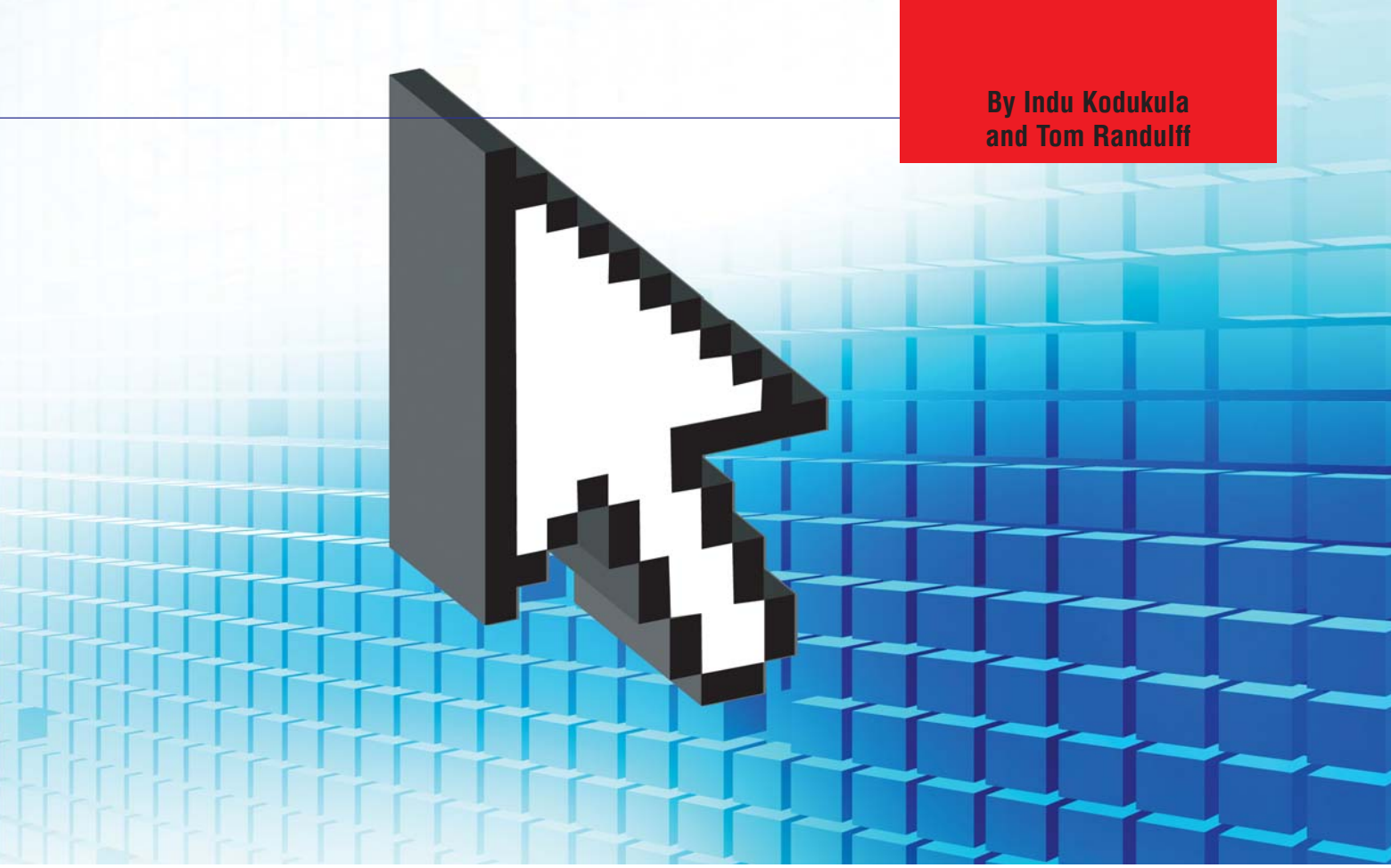
By Indu Kodukula
and Tom Randulff



databases such as Oracle TimesTen, and clever memory utilization techniques have all allowed Java to overcome this barrier successfully. In addition, Java has always been a platform for scale and throughput - witness that some of the most active websites, such as eBay, are built on Java or Java EE.

Early attempts to integrate communications protocols such as SIP into Java resulted in relatively clumsy attempts in which application developers still had to worry about details of the underlying protocols. However, Java has evolved rapidly to incorporate the needs of communications-centric applications. Just as the HTTP Servlet programming model was developed to make simple Web application development easier without requiring developers to have a detailed knowledge of the HTTP protocol, similarly, the SIP Servlet specification was initially proposed in the Java Community Process (JSR 116) and is being significantly revamped (JSR 289). The benefit of the SIP Servlet model is that there is now a simple, familiar programming model that a traditional Java EE/Web developer can use to begin developing communication-centric applications.

As enterprises and vendors have already integrated Java into enterprise computing, the adoption of Java for building next-generation communication systems simplifies the task of integrating enterprise computing and communications. To start, developers can easily expose network capabilities through either Java or Web Service APIs, which can then be easily integrated into enterprise computing. A simple example is the integration of "click-to-dial" capability in a helpdesk application. If the ability to initiate a phone call to an available helpdesk representative can be exposed as a Web Service, it is simple to integrate that capability into a web-based helpdesk application. Such exposure also makes it possible to bring the SOA notions of reusability, managed exposure, policy enforcement, and orchestration to the communications domain.

A more PBX-specific example is the web-based attendant functionality that can be found on a Java EE-based IP PBX solution such as the Oracle Virtual PBX. Normally, an attendant client in a PBX is a rich, windows-based application that is specific to a named user. The human operator is required to be present at the console to function as an attendant. In addition, connectivity to a hosted feature server typically requires opening up firewall ports, resulting in increased security risk. In contrast, an attendant that is a component of a Java EE-based IP PBX solution can be delivered simply over the web as a Java web start application and downloaded by a human operator regardless of his/her location, using standard Internet protocols. Enterprises can use standard Java EE/web security models for authentication, authorization, and entitlements to ensure that human operators cannot compromise corporate data even though the operators might be external to the company firewall. At the same time, the web-based delivery of the attendant functionality significantly simplifies the process of attendant administration and upgrade. The Web user interface is familiar to everyone and minimizes the training needs for traditional proprietary client interfaces associated with attendants. Enterprises can easily customize the look and feel of such an attendant using standard web technology such as cascading style sheets (CSS).

By building an IP PBX solution on a Java EE platform, it is also possible to leverage the full power of Java EE as a programming platform for building Web applications. In particular, it is possible to integrate the PBX solution with enterprise information stores - such as Lightweight Directory Access Protocol (LDAP) - and implement simple, corporate-wide policies for PBX communications. It is also straightfor-

ward to integrate the IP PBX solution with an enterprise self-service portal where users can easily customize their PBX experience (e.g., define speed dial numbers). Such ease of use and administration can dramatically improve the usability of advanced PBX features such as hunting groups, virtual private numbers, and sophisticated call filtering.

A specific example of such a PBX solution built on a Java EE platform is the Oracle Virtual PBX, a component of the Oracle Service Delivery Platform (Oracle SDP) - a Java EE-based carrier-grade service creation and execution environment. As part of the Oracle Service Delivery Platform, the Oracle Virtual PBX exhibits the benefits outlined above, combining carrier-grade deployment characteristics with a highly customizable look-and-feel and feature set.

**Java and Java EE continue to evolve rapidly to address the challenge of communications and computing convergence...**

Java and Java EE continue to evolve rapidly to address the challenge of communications and computing convergence, and the resulting benefits to enterprises and the industry at large are numerous: more innovative use of computing capabilities in enterprise applications, faster integration and time-to-market of these new services, and managed exposure of communication capabilities through SOA principles. The availability of programming models such as SIP Servlets and APIs such as Parlay and Parlay X is accelerating the realization of these benefits.

## Conclusion

In conclusion, the standardization of networking interfaces, the arrival of SIP as a standard control protocol, and the maturation of Internet Java EE platforms provide a tremendous opportunity for enterprises that are looking to integrate enterprise communications seamlessly into enterprise business processes. IP PBX solutions that are built on a Java EE platform are flexible and customizable at will; at the same time, Java EE provides the carrier-grade foundation that enables such an IP PBX system to perform with the reliability, scale, and availability traditionally required of communications systems. IT

*Indu Kodukula is Vice President, Product Management for the Oracle Service Delivery Platform (SDP). Tom Randulff is Senior Product Manager for Oracle. (quote - news - alert) For more information, visit the company online at www.oracle.com.*

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Navtel Communications
InterWatch
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# IMS Testing Made Easy with Navtel Communications Inc

Navtel, (news - alert) a company around since 1976, offers a comprehensive IMS testing platform. Navtel is targeting their testing platform to advanced communications labs of the network operators and the development and QA labs of network equipment manufacturers. The Navtel platform is perfectly suited for testing IMS P/S/I-CSCF Session Border Controllers, IMS Border Gateway Functions (BGF), Application Servers such as IP Centrex and Presence Servers, and PacketCable Call Management Servers. Their flagship InterWatch product comes in two versions: a rack-mountable version and a portable version. Running on the Sun Solaris operating system, and leveraging hardware-based generation and analysis, the platform is the industry's most scalable - it scales by simply adding modules to the chassis.

Navtel's history is from the data world, coming from the days of ATM, Packet-over-Sonet and other high-speed interfaces. Navtel leveraged their strong in-house hardware developers and their experience in doing line-rate generation and analysis, and high-performance signaling testing when building their IMS test solution. Navtel built their solution from the ground up to ensure scalability and performance. Conversely, several competitors of Navtel use off-the-shelf Server blades, which limit the overall scalability and performance. Further, off-the-shelf Server blades are generic and aren't designed specifically for testing while custom hardware can be designed with key test functions built-in. For example, when testing media you require line-rate media streams on a gigabyte pipe generating up to 28,000 to 30,000 simultaneous media streams on a single Ethernet port, performing quality analysis, delay/jitter analysis, and MOS score analysis. This is very difficult to do using off-the-shelf Server blades. Navtel on the other hand has custom FPGAs (Field Programmable Gate Arrays) and integrates the RTP generation capability and analysis inside the FPGAs.

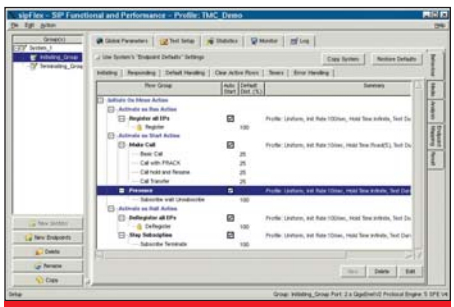

Figure 1. Main user interface for setting up testing.

Although Navtel's platform offers numerous advantages for testing scalability and performance, its multi-user architecture has proven to be one its most popular features. Combined with Navtel's software licensing model whereby the software is licensed by chassis, the InterWatch facilitates the cost-effective sharing of the chassis across multiple test beds, all conducting fully independent tests. This multi-user capability does not degrade performance because each user has independent hardware resources.

They only charge customers a single license fee for the entire chassis and you can execute tests as many times as you like as long as the hardware resources are available. Many competing solutions require a separate license fee each time you add a user and often it requires additional hardware, since the hardware is dedicated to an individual user. Navtel boldly claims, "In terms of capacity and scale, we have the lowest cost per end-point in the industry."

Some of the comprehensive media test capabilities integrated with SIP, H.248 (BGF) and NCS include:

- QoS measurements for delay, loss, jitter & MOS with user defined thresholds.
- Call Records for each call that failed the path signalling and media tests.
- User-defined wave files and Packetization intervals.
- Negotiate and transmit several codecs simultaneously.

InterWatch currently supports TLS and IPsec and SRTP (Secure RTP) is under development. Navtel has recently released IMS AKA authentication, with and without IPsec, along with normal HTTP Digest authentication.

Protocols supported include SIP-over-TCP, UDP and with TLS/IPsec, H.248 with TISPAN extensions/packages over TCP and UDP, NCS, DQOS, and IPsec. The large capacity specifications are very impressive. It features up to 256,000 unique SIP or NCS (cable/MSO VoIP) subscribers, 374,000 unique endpoints for H.248 (IMS Border Gateway Function Testing - BGF), 128K Unique RTP streams for SIP and NCS, and 192,000 RTP streams for H.248 (BGF). Further, a single Navtel chassis can handle thousands of calls per second independent of protocol. The registration rate is very impressive, handling up to 1,000 registrations per second per port on a sustained basis. You can run up to 8 ports on a single chassis giving you up to 8,000 registrations per second per chassis, which Navtel claims is the fastest on the market.

Navtel can on-the-fly analyze and calculate the number of active calls, MOS/R-Factor scores, signaling statistics, and bandwidth utilization broken down by audio, video, DTMF, and signaling. You can also analyze the traffic by media type, such as G.729, AMR,H.263, H.264, G.711, G.721, G.726, G.723.1, and ILBC.





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Ease of use is a big part of Navtel's strategy. Unlike competing solutions which require writing complex testing scripts, Navtel has designed an easy-to-use user interface to configure your tests. TMC Labs was very impressed with the user interface and how a lot of the complexity was abstracted from the user (see Figure 1). Navtel commented, "When we look at the competitors, we can talk about scale, we can talk about performance, but at the end of the day our customers will not be able to leverage the scale and performance if they cannot use the tool." They added, "During an evaluation, within an hour of being on site and hooking up the platform, we want to hand over our test solution to our customers to drive the evaluation."

Navtel helps you to minimize the number of components needed to test IMS applications. InterWatch can simulate the subscribers plus the edge and core network elements. Unlike many solutions that require separate components, Navtel creates a single application that can simulate the entire IMS cloud, including subscribers, the edge, and more. This allows you to, for example, isolate specific components such as the P-CSCF (Proxy-Call Session Control Function) while simulating end user equipment from a single platform. Further, since the entire IMS architecture is contained within the Navtel platform, this grants you the ability to easily correlate statistics amongst the entire IMS cloud and drill-down and isolate issues. The promise that IMS holds is not just SIP calling, but also instant messaging, advanced applications, and more. Well, Navtel's flexibility lets you simulate presence, instant messages, call forward, call hold, and more on a large scale. You can also easily create conditional branching call flows from the tool for advanced functionality.

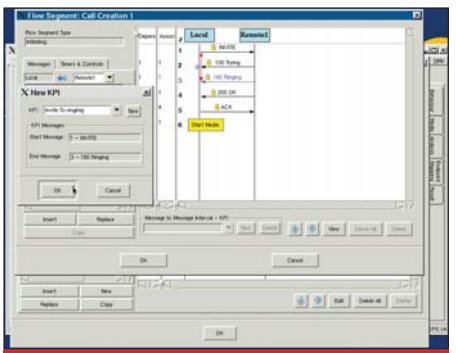

Figure 2. Ladder diagram of messages used to create KPI.

The testing tool lets you simulate real-world scenarios by specifying what percentage of the calls actually get through (connect), receive a busy, no answer (keeps ringing), are call drops, or some error. You can even send corrupted SIP messages to test what would happen. TMC Labs knows that one misbehaving SIP phone can crash your network, so the ability to send a corrupted SIP message is a nice feature.

Most importantly, using this tool you can measure response times for just about anything. While it comes by default with the ability to measure the network response time to various SIP requests such as registration (Registration to 200 OK), it also lets you define your own custom KPI (Key Performance Indicator) points. Using the graphical call flow tool you simply highlight the starting SIP message and the ending SIP message and it will automatically calculate the minimum, average and maximum response latency in real time. So, for example, you can create a KPI that measures the time from the SIP invite to the 180 ringing message (see Figure 2). It is important to note that Navtel uses hardware-based measurements. Software-based timestamp calculators are inaccurate, especially when under load. Navtel's hardware-based FPGAs are accurate up to 40ns (nanoseconds) and are unaffected by heavy load.

## Sample Test Scenario

From a single user interface you can for example configure it to run 100 registrations per second on all the endpoints, generate 10 simultaneous calls per second, with 50% of calls as basic calls and 50% of calls placed on-hold. At same time, you can generate floods, such as 50% of floods are invites, 25% are BYEs, and 25% registration and at the same time have users subscribing and publishing information.

You can also configure it such that 50% of the calls get responded to normally, 10% of calls get responded to with a busy message, 10% of the calls get responded to with PRACK, 10% of the calls will be declined, 10% of the calls will not be answered and 10% of the calls will be responded to with a user-defined error. Detailed statistics are provided for each scenario and flow so that you can track in real-time the exact behavior of the network.

## Hacker and Theft of Service Testing

Another scenario that you can easily test with this tool is what happens when the SIP registration expires. This is a critical test for any IMS network which requires stringent authentication and security. Just after the registration expires you can test whether the end point can still make a call or access any service on the IMS network. Similarly, you can negotiate one codec but generate media with another type with higher bandwidth to test the Theft of Service Protection for the devices under test.

You can set when you want to start as well as stop media during any part of the call. The stop media feature is critical because if you look at the key functions for the border gateways and session border controllers in the IMS network, one of their roles is to open signaling pinholes and then close them when the calls are terminated. So what happens when they open them, but don't close them? You then have signaling pinholes that could be exploited by hackers. The tool allows you to continue to generate media even after call termination and it can detect on the receiving side whether media was received and for how long after the call was terminated, so as to verify that media pinholes are closed after calls are terminated.

## Conclusion

One of the key advantages of InterWatch is that, with just a few simple clicks, you can initiate very complex tests. Further, Navtel claims to have the industry's highest number of emulated subscribers/endpoints, highest call and registration rates, and highest number of RTP streams per single chassis, making it the most scalable IMS testing platform on the market today. Perhaps just as important, or even more so, the user interface is easy to navigate, making it easy to configure tests without the learning curve of complex scripts. The InterWatch platform is feature-complete - we couldn't think of any feature lacking in this system. IT

**Installation: N/A**
**Documentation: Not tested**
**Features: 5**
**GUI: 5**
**Overall: A**

# VoIP MARKETPLACE



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# Broadband Growth Underlies Adoption of VoIP, IPTV

By Greg Galitzine

The DSL Forum recently announced the results of a new research project at the Broadband World Forum Europe, which took place in Berlin. The research was prepared for the DSL Forum by industry analyst Point Topic.

According to the Point Topic numbers, IPTV users increased by 179% in the 12 months to 30 June 2007.

The report tells us that there are over eight million people connected to IPTV services worldwide. Europe added over three million subscribers over the research period, making it the strongest market both in terms of growth (231%) and total subscriber numbers, with almost five million customers.

Regionally speaking, Asia Pacific holds the second spot, with nearly 2.2 million subscribers.

"Top markets like France (2,550,000 customers) and Hong Kong (938,000 customers) show that IPTV can be deployed rapidly to large numbers of subscribers, if the market conditions are right," said Point Topic Senior Analyst John Bosnell.

Bosnell believes that more growth is in the offing if IPTV providers stay focused on the customer. "Competitive and clear bundle pricing and content deals will help to attract customers to IPTV services," he says.

"Developing and agreeing standards will help to simplify the delivery process and drive higher take-up in other markets too," Bosnell added.

Next on the IPTV subscriber number "hit parade" comes The Americas, with combined IPTV take-up of just over 1 million IPTV subscribers across Canada, the U.S. and Latin and South America.

The research also measured the growth of broadband access. Point Topic's research points out that DSL continues to dominate broadband growth with over 200 million of the world's 313 million broadband subscribers connecting via DSL. The percentage of DSL's market share lead is relatively unchanged over the course of the last year, with cable coming in with almost 22% subscriber share, and just over 10 per cent using FTTx.

According to the research presented at the Broadband World Forum:

*Western Europe continues to have the most broadband users, with 72 million of the 86 million broadband subscribers using DSL. The Eastern Europe DSL market, while small (less than 14 million), is the region with the strongest growth (over 60 per cent in the 12 months to 30 June 2007).*

*The USA has the most broadband subscribers (over 63 million), but China tops the DSL subscriber list with over 44 million of its 59 million broadband users connected via DSL. 15 countries now have over three million DSL subscribers, and 29 have over one million subscribers, with Portugal passing the one million mark in the second quarter of 2007.*

Speaking to the research, Robin Mersh, chief operating officer at the DSL Forum, stated, "The figures illustrate that DSL remains a vital tool in the successful delivery of bandwidth-hungry bundled services."

## More Growth, Closer to Home

Focusing our attention on North America, recent research presented by Paul Budde Communications shows that in addition to the continued increase in broadband, mobile growth too is the norm across North America. Budde's research also bears out the fact that VoIP continues to grow in Canada and the U.S. This is significant to readers of *Internet Telephony*, as recent press surrounding providers such as SunRocket and Vonage would lead one to believe that VoIP was not enjoying widespread acceptance.

It also looks like North American cable providers are the real beneficiaries here, reaping the benefits of a consumer market looking for less expensive phone service coupled with added features and ease of billing.

Another interesting statistic I found in the Budde research is that while Canadian mobile carriers are able to offer wireless coverage to over 98% of the population, only 58% of Canadians were mobile phone customers.

**Canada**

- In 2006, the Canadian mobile and broadband sectors continued to enjoy double-digit revenue growth rates.
- During 2006, mobile subscribers increased by approximately 10%, compared with a 17% increase during 2005.
- Broadband subscribers reached 7.7 million by end 2006, placing Canada ninth in the world in terms of broadband penetration.
- Cable VoIP experienced significant subscriber growth in 2006, growing from around 270,000 to nearly 1.1 million subscribers.

**USA**

- Mobile revenues grew by around 14%, driven largely by increased SMS and other data revenues and by increased minutes of use.
- At current DSL growth rates, the number of DSL subscribers is expected to exceed the number of cable subscribers during 2008.
- By end 2006, there were approximately 230 million mobile subscribers, up 10% from the previous year, amounting to a 72% penetration rate.
- VoIP continues to grow rapidly, reaching approximately 16 million subscribers by end 2006.

The key takeaway is that while some regions are experiencing higher rates of growth than others, the overall trend is overwhelmingly positive. Broadband, and in particular DSL, is growing around the world, driven in large part by customers' insatiable demand for high bandwidth to support applications such as VoIP, IPTV and more. Wireless use is increasing too, to the chagrin of fixed-line carriers everywhere.

As we look ahead to 2008, let's hope that we continue to see an increase in the availability of broadband so that users can continue to adopt new and exciting IP communications applications such as VoIP and IPTV. IT

*Greg Galitzine is TMC's Editorial Director.*





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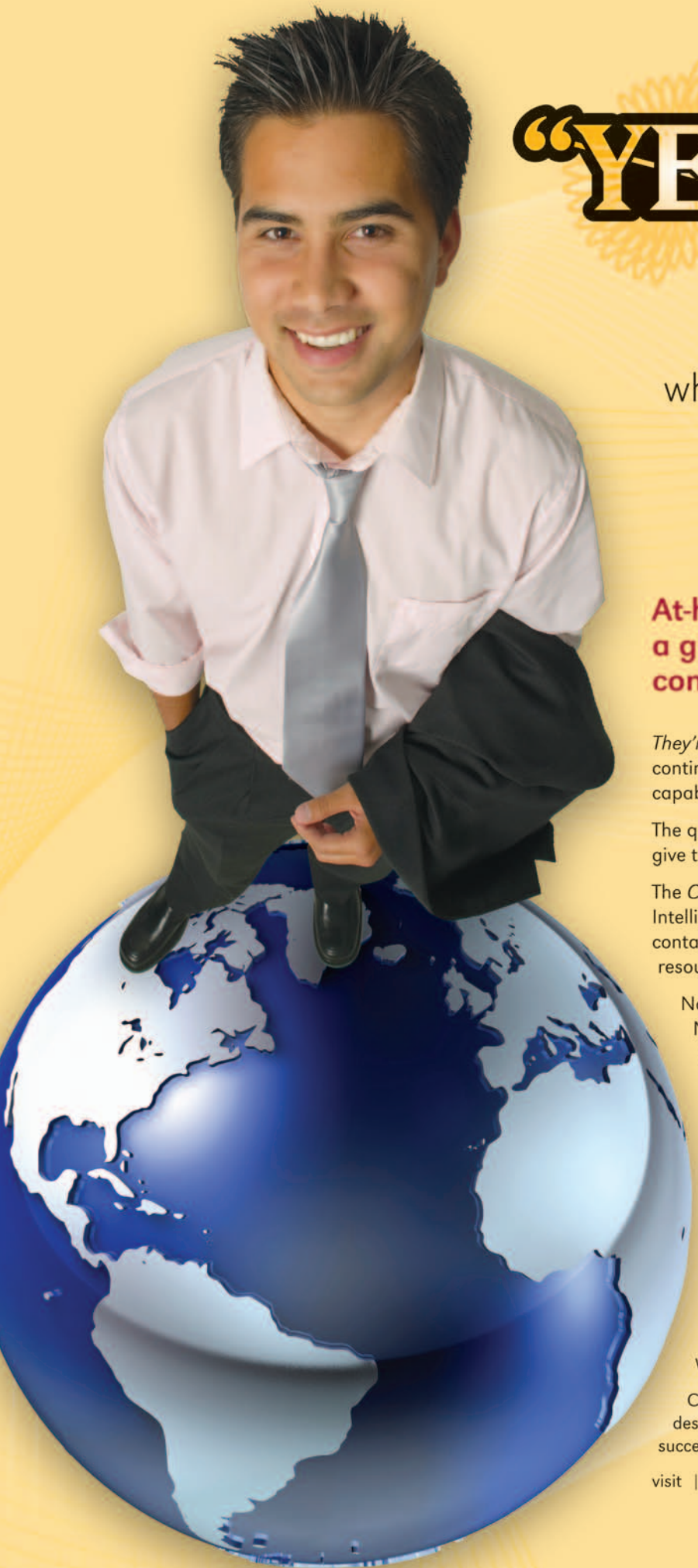

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