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INTERNET TELEPHONY®

VOLUME 10/NUMBER 9 SEPTEMBER 2007

The IP Communications Authority Since 1998™

Packet8 — A VoIP Success Story

8x8 CEO Bryan Martin

MultiChannel IP Contact Centers
Pg. 42

Multimedia on the Move
Pg. 74

Peer-to-Peer VoIP
Pg. 58

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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

ITEXPO Basks in Sunny Los Angeles

Since this issue of our splendid magazine will be distributed at the world's ultimate IP Communications Conference, otherwise known as the INTERNET TELEPHONY Conference & EXPO, I can't help but think about expos, past, present and future.

I'm glad we're holding ITEXPO West at the Los Angeles Convention Center. I've been visiting there on and off since 1996. It's the place where Harry Newton scored a huge success with his Computer Telephony Expo in the 1990s, and its vast structure, a zillion metal-and-glass tetrahedrons welded together into something that was apparently inspired by a Buckminster Fuller geodesic dome, keeps appearing as a location used in commercials, TV productions (*Star Trek: Voyager*), fashion-model shoots, video games and big-screen movies such as *Starship Troopers*, *Demolition Man, Showgirls,* and *Face/Off*. (I used to be in "the business" so I tend to notice these things.)

One of my more amusing visits to the LA Convention Center occurred in 2002, when CT Expo shared the building with a boat show. The separation between the two shows apparently wasn't quite as distinct as you'd might expect, so yacht owners were wandering over and asking, "Is this is the place to buy a phone system for my boat?" Hmm, waterproof key systems - why not? (Venture capitalists, take note: I'm available to develop this idea.)

In 1999, the Convention Center got a new neighbor, the $375 million, 900,000 square foot Staples Center, which can seat 20,000 spectators for basketball and 19,000 for hockey. One of my best LA Expo visits involved Ziatech (now part of Performance Technologies) inviting editors to view an LA Lakers game from a suite at the Staples Center. The suites are strategically arranged in three levels in the center of the bowl. It was Shaquille O'Neal's birthday - who single-handedly scored about 70 points that evening - and a gaggle of cheerleaders visited the suite and were photographed with Yours Truly and my somewhat inebriated editorial brethren. The food was great too.

Speaking of food, I think I may be the only person in the history of world who actually gets a kick out of eating expo food: The assortment of chile dogs, rubber chicken, burgers and Caesar salads represents the true international cuisine of corporate travelers and exhibitors. Most of the time, of course, you're too busy to actually eat anything there. ITEXPO, in particular, will keep you in motion from booth-to-booth, and from conference session-to-conference session. After all, it's the premier event for helping the world's enterprises select and deploy IP-based voice, video, fax, and unified communications. It's also where network operators and service providers figure out how to profitably roll out distinctive, churn-busting services to their subscribers. The enormous Exhibit Hall will be chock-full of solutions for enterprises, SMBs, government and service providers. Every industry has its "gathering place" and in recent years ITEXPO has become a nexus where buyers, sellers, resellers, and manufacturers meet to forge relationships and close deals.

So if you see somebody in a Brooks Brothers suit clutching a laptop bag and a digital camera and (dare I say it) *zipping* about the LA Convention Center during September 10-12, 2007, yell out a hello. I can use the encouragement in my old age. **IT**

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

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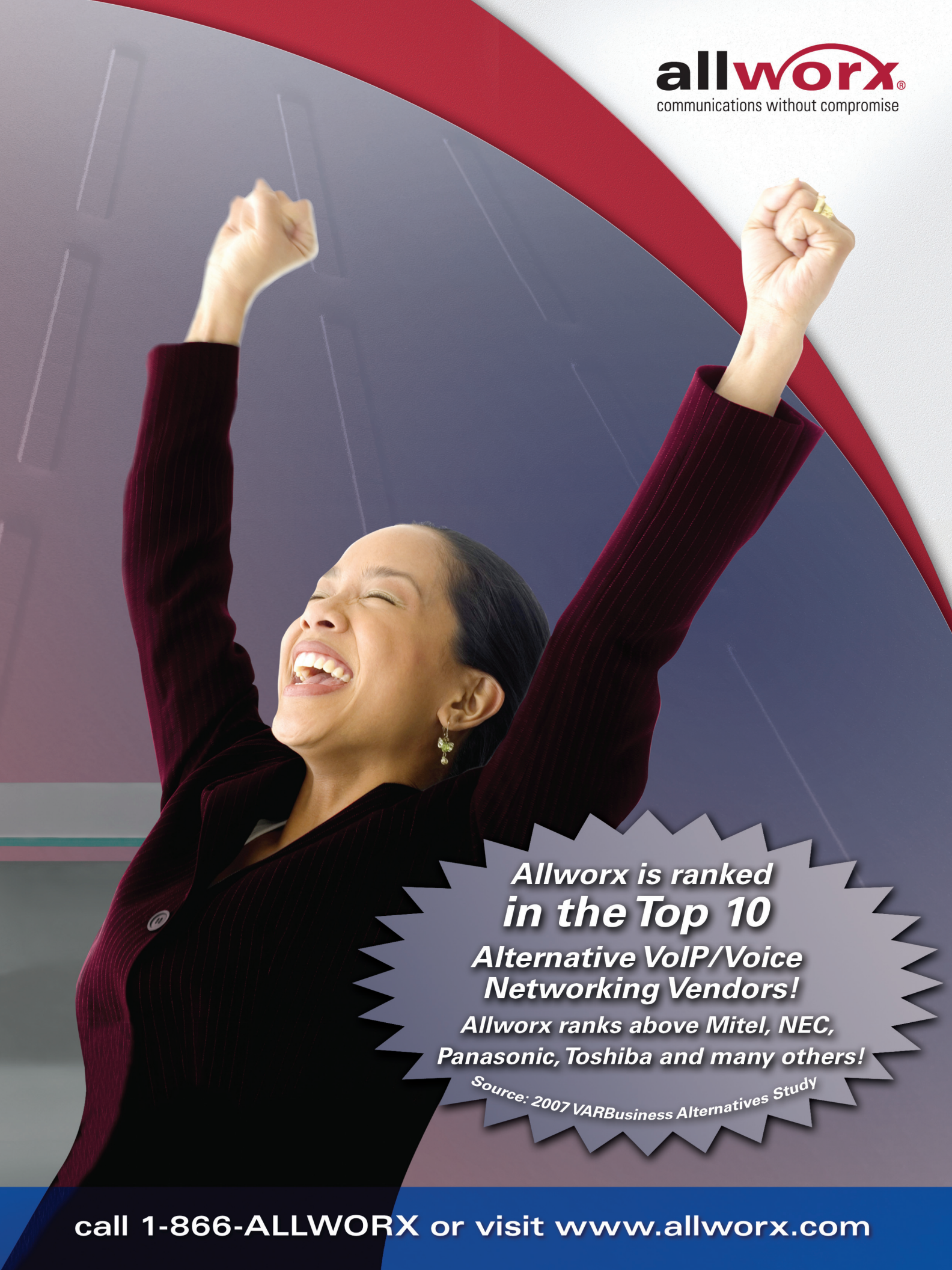
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Volume 10/ Number 9 September 2007

Cover Story

38

Executive Suite: 8x8's Bryan Martin

IN EACH ISSUE

1 **The Zippy Files**
ITEXPO Basks in Sunny Los Angeles
By Richard "Zippy" Grigonis

8 **Publisher's Outlook**
In Pursuit of SMBs, End Users and Service Providers
By Rich Tehrani

COLUMNS

18 **Next Wave Redux**
Phone Numbers and Our Evolving Communications Identity
By Brough Turner

20 **Packet Voice over Wireless**
FMC – WiFi and Femtocells
By Michael Stanford

22 **Inside Networking**
The First All-IP Olympic Games
By Tony Rybczynski, Andy Platten and Hugh McCullen

24 **VoIPeering**
VoIP Peering, Italian Style
By Hunter Newby

26 **Enterprise View**
Seamless Migration of Fax into IP Networks
By Michelle Liro

28 **Disaster Preparedness**
Continuity Planning 101: A Continuing Educational Series
By Rich Tehrani & Max Schroeder

30 **Tech Score**
Something New in IP Multimedia Subsystems (IMS) Processing
By Jeff Hudgins

32 **Nitty-Gritty**
Dialogic's Signaling Distributed Architecture (SigDiA)
By Richard "Zippy" Grigonis

FEATURE ARTICLES

42 IP Contact Centers Go Multi-Channel
By Richard "Zippy" Grigonis

46 WiFi Telephony Gets Pervasive
By Richard "Zippy" Grigonis

50 ENUM Slowly Makes Its Mark
By Richard "Zippy" Grigonis

54 Peer-to-Peer's Role in Enterprise IP Telephony Networks
By Gary Hermansen

58 Peer-to-Peer VoIP
By Richard "Zippy" Grigonis

60 IPTV Myths — Part 3: Deployments
By Hemang Mehta

62 When You Want to Transition to VoIP – Follow These Simple Rules
By Ian Colville

66 Billing & OSS in Cable
By David McNierney

70 Evolving Cable BSS & OSS
By Richard "Zippy" Grigonis

74 Multimedia on the Move
By Richard "Zippy" Grigonis

78 What American, European Experiences Can Teach Us About Meeting WAN Optimization Challenges
By Peter Schmidt

DEPARTMENTS

12 **Industry News**
34 **Case Study: The Emergence of Video Telephony**
38 **Rich Tehrani's Executive Suite: 8x8's Bryan Martin**
82 **Round-up: Enterprise VoIP Gateways**
83 **VoIP Marketplace**
83 **Ad Index**
84 **The VoIP Authority**

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What's On TMCNET.com Right Now

To stay current and to keep up-to-date with all that's happening in the fast-paced world of IP telephony, just point your browser to 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.

Incumbents Have No Automatic Lock on UC Rollouts
In our latest research survey conducted in partnership with IntelliCom Analytics, we wanted to zero in on how well positioned the incumbent voice platform vendors are in terms of being the provider of choice when the enterprise decides to deploy Unified Communications.
www.tmcnet.com/1062.1

Eight Steps to Effective IT Change Management
In today's highly competitive service desk market, IT change management has emerged as a "must-have" requirement for organizations, regardless of size. By definition, IT change management is an ongoing business process that enables organizations to continuously manage change within their IT environment.
www.tmcnet.com/1063.1

Paying Attention to Retention
I recently had the opportunity to speak with Duffy Mich, chairman and chief executive officer of Aperio CI, and get his thoughts on where the market and his company is headed.
www.tmcnet.com/1064.1

SIP Reducing the Cost of Doing Business
Broadvox is an enabler of the VoIP generation with an extensive and proven North American network of integrated VoIP softswitching and gateway technology. Read what Mark Bresler had to say about the direction of the communications space.
www.tmcnet.com/1065.1

700 MHz Spectrum Usage in Jeopardy, Test Results Poor
All the recent jockeying by media and software companies for a piece of the soon-to-be abandoned 700MHz spectrum could be for naught as initial tests by an FCC group found that prototype devices interfered with existing broadcasts during testing.
www.tmcnet.com/1066.1

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.

Click to Chat - Best Practices to Drive More Sales, Better Customer
Online sales and support have become an integral part of every eBusiness strategy. As such, proactive chat has emerged as the ideal tool for engaging potential customers at the right moment and with the right information.
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A Guide for Creating Effective Enterprise Wireless Strategies
While planning for wireless access to enterprise information, IT managers must consider five key necessities Enterprise-class security, application optimization with real-time push synchronization, broad handheld support and robust fleet management tools.
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Go to Table of Contents | Go to Ad Index

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By Rich Tehrani

In Pursuit of SMBs, End Users and Service Providers

Leading-edge companies such as Grandstream, NETXUSA, Super Technologies and AudioCodes are making SIP-based IP communications ever more attractive to both consumers and providers.

Grandstream Networks Seeks Growth in SMB VoIP

The SMB VoIP market shows no sign of slowing down and so many companies are vying to get a piece of this market which is projected to grow for many years to come. One player in this area is Grandstream Networks, specializing in delivering easy-to-use products for SMBs (Small-to-Medium Businesses) and service providers.

The company says 50% of its revenue comes from selling devices into the business sector and based on this market's growth they expect this percentage to grow.

Grandstream Chairman and CEO David Li tells me in a recent face-to-face meeting that his company's products are affordable, have an uncompromised feature set, are of high quality and interoperate with many major players such as Sylantro, 3COM, Lucent & Avaya. Finally, Li says his company provides excellent support.

I asked where Li sees the company in the next five years and he told me they want to be a major player in voice and video devices for consumers and businesses.

When asked about competition, common names such as Polycom, Linksys (soon to be known simply as Cisco) and the more specialized Snom came up.

Interestingly, one secret Grandstream customer is a political candidate whose staff uses a thousand or so phones now and may ultimately scale up to over ten thousand. (Grandstream's home state is Massachusetts so you can try deducing who it is.) It's an interesting deployment because the phones are XML-enabled, data is pushed to phones, and agents can also enter data into the telephony devices. XML allows these devices to function as IM terminals.

The company's GXP line of phones competes favorably with the major players, having a lower price point. Li tells me two new phones will be released at INTERNET TELEPHONY Conference & Expo this September in Los Angeles, CA. Both new devices will support XML, PoE, multiple lines and have a full suite of features.

The company sells primarily through resellers, unless of course you are a very large company or presidential candidate. If you are a reseller or SMB - or even an ITSP, drop by the company's site (www.grandstream.com) for details or just be at ITEXPO in LA next month to see what's new.

Interestingly, one secret Grandstream customer is a political candidate whose staff uses a thousand or so phones...

NETXUSA, Distributor Par Exellence

I recently had the opportunity to ask NETXUSA CEO Tom Boone about his business and the direction he is taking the company.

NETXUSA, Inc. is a distributor of Voice over Internet Protocol (VoIP) products and services and has a distribution channel of independent resellers throughout the United States and foreign countries that provide the local end-user installation and support services.

The company distributes products from companies such as Digium, Epygi, PBXnSIP and many others. As Boone says, "We provide industry-leading VoIP products to a dealer channel of individual entrepreneurs and the IP community. We provide solid, trustworthy, consistent and dependable service. We sell to dealers only and have 24/7 support with East and West Coast distribution centers."

Tom is one of the more colorful figures in the IP communications space who has many insights regarding this industry. If you ever get a chance to meet him, you won't be disappointed.

When asked about the current market, Boone replies, "The future is as bright as a Super Nova and as deep as a Black Hole. No slowdown in site. In some cases the U.S. is lagging behind other parts of the world, however, mostly because of end-user expectations and a demand for quality. Still, the profile of our industry has been raised considerably by companies such as Google, Apple and Microsoft entering the telecom market. It may add yet another layer of end-user confidence."

"Open Source has made the market interesting," says Boone. "Before Open Source the IT Industry was trending in the same direction of ISDN which did not catch on in the USA. Open Source applications gave the IT industry some traction and without the open source pioneers, I feel the industry would be stuck in the legacy telecom mode for quite some time. Thank you, Pioneers."

I asked Boone how he saw communications evolving over the next five years. "As a German friend once said - 'SIP - SIP - SIP'," says Boone. "SIP provides cost-effective and dependable communications. Moreover, with SIP you're limited only by your own imagination. I can see everything from tracking heart monitors to contacting your appliance repair guy when your freezer fails. And all of this via wireless and SIP technology. Aside from SIP, there will be a smooth transition between WiFi and cellular; an expanding number of home office workers with real-time private video; telephony security and feature activation with voiceprints, fingerprints and retina scans. These features are not only used in high security areas but in the commercial arena as well."

Super Technologies Hits all the Bases

Super Technologies, Inc. (http://supertec.com) and Super Technologies, Inc. DIDX & VoIP Solutions, provide worldwide clients with next-gen VoIP technologies. The company's DID over SIP clearinghouses for end-users and ITSPs have grown from 100 to 6200+ members in the past 2 years.

Super Technologies, a privately-held corporation headquartered near Pensacola, FL, started up in 1999 with just one product, Super Phone. Super Technologies now has multiple IP telecommunication products for end users, SMBs and wholesale IP communications companies. Their products include the Virtual Phone Line, IP PABX, Carrier X, DIDX, and of course the Super Phone.

I recently asked Super Technologies' Vice President Suzanne Bowen about her business and the direction she is taking the company. She started off by quoting Tee Em: "We all know the Internet killed geography a long time ago."

"The types of services we provide show how Internet Protocol-based communications have changed our company strategy," says Bowen. "Our emphasis evolved from tunnel-vision to world vision. In 1999, as a new start-up, we shipped IP phone adapters to remote areas of the world so consumers and SMBs could dial up and make phone calls over the slow Internet. Wide use of broadband and requests for having local phone numbers from around the world led to our CTO Rehan Ahmed inventing the Virtual Phone Line concept, which won the Best of Show Client Device award at Spring Internet World 2001. Open Source technologies such as Asterisk provided a reason to collaborate with now 6500 IP communications providers via another of our CTO's inventions, the DIDX global DID exchange."

"Our DIDXchange and hosted VoIP solutions help ILECs and CLECs migrate to, or add VoIP to their portfolio of services and to put their DIDs [Direct Inward Dialing phone numbers] in front of a global wholesale buying audience instead of just a few resellers," says Bowen. "Non-traditional entrepreneurial post Gen-X types get to mash-up to create new services that meet a market's needs, throwing in the power of one the most important pieces of a person's identity - the phone number. New opportunities for revenue, innovation, and collaboration abound in a world where telecom competition is fierce and exciting."

When asked about the market, Bowen quotes an AMI Partners study: "It shows that the North America SMB segment for hosted business-VoIP is set to reach $416 million this year - from about $165 million in 2005. Between 2005 and 2010, the cumulative growth rate will cross 56.9 percent."

Focusing on the U.S. growth rate, Bowen notes that "The U.S. isn't listed in the top 100 nations for growth, according to the 2007 CIA World Fact Book. The top ten are Azerbaijan, Mauritania, Guinea, Maldives, Angola, Cambodia, Armenia, Turkmenistan, Trinidad and Tobago, and Liechtenstein. Even so, a report from the U.S. Commerce Department shows the country's GDP increased at a 2.5 percent annual rate during the last quarter 2006, up from 2 percent in the third quarter. In our country, where pay raises accompany higher prices, everyone is looking for ways to improve their ROI."

"The North America SMB segment for hosted business-VoIP is set to reach $416 million this year - from about $165 million in 2005."

Bowen is impressed with what's happening these days with the hosted solutions business.

"It's hot," she says. "What influences SMBs to adopt hosted business-VoIP solutions is the predictable and often flat rate of monthly voice expenses with no up-front capital expense and toll savings for intra- and inter-company long-distance and local calling. They create business value because there's no need for on-site IT infrastructure or added capital expenses, and no need for additional IT staff. You can get flexible, scalable solutions that grow with a business, and so the ROI is faster than with traditional on-site deployments. Furthermore, a well-done service is impervious to disaster. For example, Hurricane Ivan, the strongest hurricane in 2004, turned our Florida offices into a milkshake. No roof, no door. But, everything we provide is on hosted servers in different areas of the world. Our customers never lost a day of service."

"Thousands of companies such as Kayote Networks and IPsmarx offer hosted VoIP in/out, but Super Technologies offers the same, as well as call forward management/DID management system solutions with 8 years of ongoing in-house development experience, so customers do not have to re-invent the wheel," says Bown.

Looking into her crystal ball, Bowen gave me her prognostications for how communications will evolve over the next five years. She'd like to see better ways of conveying the emotion context of messages ("mistaken conclusions occur on a regular basis.") and even invoking scents. "Aside from that, the future as always will be a case of the survival of the fittest, a struggle to keep choice in front of the customer, and more collaboration such as exchanges and clearinghouses, in the ever-evolving ecosystem of IP communications."

AudioCodes' Traveling Man

Anyone in the IP communications business knows quite well that Alan Percy is one of the most well-connected and knowledgeable players in the space. Alan's day job is Director of Business Development at AudioCodes and I swear his night and weekend job is to travel this great country of ours and the world at large and attend any and every communications event known to Man. I envy his frequent flyer account.

Percy's years in the business have given him deep relationships at companies making networking equipment, PBXs, ACDs, call center software, softswitches and just about anything and everything in communications.

AudioCodes is a provider of communications enabling equipment, gateways, SBCs and so much more. As the market evolves; I thought it made great sense to pick Alan's brain about his company and the future of communications.

"IP communications is in our DNA," says Percy. "It has been our core focus for the last 14 years of being in business. We create the tools needed to re-build the telecommunications infrastructure and deliver on the promise of IP communications."

Percy says that one of the biggest factors in IP communications is SIP. "SIP is totally changing the way applications are being built and developers, VARS and even end customers should understand how this will impact their IP Communications solutions. The biggest impact of SIP is that it delivers a common signaling and control platform. It bridges the gap between open source and commercial products, providing a common ground for interoperability. With SIP, developers can create resources and applications on their own, then integrate them together to create a service at a much later date. Earlier this year we launched a campaign to highlight our SIP strategy to a wider audience. We call this our 'Break Free' message, helping developers cast

Go to Table of Contents | Go to Ad Index

off the shackles of the legacy CTI architecture, restrictive device drivers and operating system dependence. To accomplish this, we leveraged the on-board SIP features available on virtually all of our products from gateways to media servers and our session border controller platforms. Application developers can now use SIP from end-to-end to create some pretty incredible applications. We've seen many cases where our SIP media gateways or media servers have been integrated to applications very quickly. Not in years or months, but days."

AudioCodes' customers are impressed with what can be done with SIP, but they still have a wish list for vendors. "We're seeing greater demands for increasing intelligence in our platforms," says Percy. "As real world IP communications solutions are being built, the complexities of integrating to existing equipment, outbound dialing, protocol compatibility, and reliability are hitting the integrators. That's why we constantly work with application integrators and know their pain. For example, we recently helped a customer build a range of advanced contact center applications that needed to include high-performance outbound call progress and answering machine detection with our SIP media gateways and media servers. These new features required that the edge devices [media gateways] have the intelligence to dial a number and listen to the audible feedback to determine whether a live caller answered, it was busy or was answered by voicemail. To accomplish this in the timeframes required by the FCC, we had to push the intelligence into the media gateway - making it smart enough to detect all of the possible answer situations."

As for the near future, Percy says, "We'll start to depend more on 'collaborative communications' in the next five years. As we shift from an office-bound environment to more mobile and remote workers, there needs to be a better way that multiple people can work together on tasks and initiatives. Kind of a cross between Skype and Webex where we can have work areas where we can go to share ideas and content, but without picking up the phone. Think virtual conference rooms where we can join in and leave, but the room is where the common project resides. I'd like to see the equivalent of the Rural Electrifications Act of 1936 occur with broadband Internet. Much like bringing electricity to the masses, bringing the Internet to every household would raise the standard of living, close gaps in education and expand our market for IP communications equipment. Then again, I'd just be happy with a cell phone that works!"

www.tmcnet.com/976.1

Allied Telesis Launches Layer 3 Switch with Advanced QoS

Allied Telesis has launched the AT-x900-12XT/S, its new advanced Layer 3 switch that addresses market demand for a high-end switch with a low port count, providing high value for money without compromising performance. The new device comes with 12 Gigabit 10/100/1000T or SFP combination ports and one 30Gbps expansion bay.

www.alliedtelesyn.com

www.tmcnet.com/977.1

Sorenson Introduces Videophone Call Waiting Feature for Deaf and Hard-of-hearing Users

Sorenson Communications is providing a newly released call waiting feature for users of its VP-200 videophone. The new feature notifies deaf and hard-of-hearing users if a second call comes in while they're talking to someone else. The feature also gives users the option to answer or ignore the second call.
www.sorenson.com

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Simicomm Releases EasySpeak PBX, the '15 Minute VoIP System'

VoIP solutions provider Simicomm has has introduced EasySpeak PBX, a software-based phone management system for SMBs that "can be completely installed, including fully automated phone configuration, in only 15 minutes." This Asterisk open source PBX is designed for companies which don't want to deal with the hassle of installing or maintaining elaborate in-house phone systems.
www.simicomm.net

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IBM Unveils Virtual Email Security Appliance

IBM has introduced a virtual email security solution based on the existing Proventia Network Mail Security System from its Internet Security Systems (ISS) division. Using the virtual email security solution, organizations will be able to block the intrusion of malicious code.
www.ibm.com

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Inter-Tel 3000 for Small Offices

Inter-Tel has launched Inter-Tel 3000, an advanced communications system that provides VoIP connectivity to small offices. Buiding on the success if its 7000 and 5000 versions for larger enterprises, Inter-Tel designed the 3000 to specifically address the needs of the SMB space.
www.inter-tel.com

www.tmcnet.com/982.1

Cisco to Terminate the Linksys Brand

It's been just over four years since Cisco announced it had completed its acquisition of Linksys, and now, CEO John Chambers has removed any doubt over whether the Linksys brand would endure. In a roundtable with members of the European media, Chambers acknowledged that Cisco would be phasing out the Linksys brand, replacing it with the familiar grey-green Cisco Bay Bridge logo.
www.cisco.com

www.tmcnet.com/983.1

Bandwidth.com Provides Monitoring & Alert for SMBs

Bandwidth.com has announced that it is now bundling its Monitoring & Alert service into its suite of Dedicated Internet Access (DIA) offerings for the SMB market at no extra charge. The data and alert package is designed to ensure customers are able to increase security and uptime on their data network.
www.bandwidth.com

www.tmcnet.com/984.1

NEC Stepping into the Software IP PBX Space with Sphere Acquisition

If you're wondering why things seem to have been somewhat quiet over in Lincolnshire, Illinois, it's because the folks at Sphere Communications - who are normally busy enhancing their software IP PBX - have been quietly working out the details of a $42 million deal that will make Sphere part of NEC Corporation.
www.nec.com
www.spherecom.com

www.tmcnet.com/985.1

CommuniGate Pro and Pronto! Now Available for Free

CommuniGate has announced two new initiatives addressing consumers and SOHO enterprise. Considered a bold move, CommuniGate Systems is bringing its technology to the masses by offering free versions of its Flash-based client Pronto! and the CommuniGate Pro Internet Communications platform.

www.communigate.com

www.tmcnet.com/986.1

TANDBERG Unveils New Video Communication Server

TANDBERG has launched the TANDBERG Video Communication Server, a multi-application network device that includes FindMe, a new call forwarding application that personalizes and unifies business communications. TANDBERG Video Communication Server also delivers call control and firewall traversal applications that now support SIP in addition to H.323.
www.tandberg.com

www.tmcnet.com/987.1

Quintum Achieves Hardware Certification as Microsoft Partner

Quintum Technologies has announced it is a Microsoft Certified Partner - meaning that Quintum's Tenor lines ensure seamless interoperability with Microsoft Office Communications Server 2007. Quintum developed a customized configuration wizard to simplify any Tenor's deployment with Office Communications Server 2007.
www.quintum.com
www.microsoft.com

www.tmcnet.com/988.1

Big River Telephone Company Selects INFONXX

INFONXX will provide Big River with enhanced directory assistance services for its customer base. Big River callers will be provided residential and business directory assistance under the agreement. Additionally, INFONXX will provide movie information, sports scores, weather forecasts, horoscopes, lottery results, and more.
www.infonxx.com

www.tmcnet.com/989.1

Sprint Selects Unisys for Next-GenVoice Messaging

Unisys has signed a five-year, multi-million dollar contract with Sprint to help the communications provider enhance its voicemail infrastructure. Sprint will use the next-generation communications architecture developed by Unisys to speed deployment of new and innovative services for its more than 53 million customers.
www.sprint.com
www.unisys.com

www.tmcnet.com/990.1

nTelos Embracing Next Generation Wireless Broadband Technology

nTelos has chosen to upgrade its wireless network to include 3G CDMA 1xEV-DO Rev. A technology for its service areas. To deliver the required technology, nTelos has contracted telecom giant Alcatel-Lucent in a three-year, $88 million-dollar deal that includes the equipment, services, and software required to complete the network upgrade.
www.ntelos.com
www.alcatel-lucent.com

www.tmcnet.com/995.1

Time Warner Telecom Hits Milestone

Time Warner Telecom, which provides such solutions on a managed basis to customers in 30 states, has now surpassed the 10,000 retail Ethernet port mark with its service, a figure the company says eclipses that of any of its competitors.
www.twtelecom.net

www.tmcnet.com/992.1

Suburban Broadband's VoIP Service Sprawls Out with 360networks

360networks has signed a deal with Suburban Broadband which will enable Suburban Broadband to deliver VoIP services to all of its fixed line customers. As consumer demand for VoIP increases, delivering quality service has been the greatest challenge for providers. 360networks has a wholesale solution which offers quality, value, and reliability.
www.360networks.com
www.suburbanbroadband.net

www.tmcnet.com/991.1

Brazil Wireless Service Provider Neovia Chooses Redline WiMAX Solutions

WiMAX vendor Redline Communications announced that its RedMAX products were chosen by Brazilian wireless service provider.
www.redlinecommunications.com
www.neovia.com.br

www.tmcnet.com/993.1

Skype to Offer SpinVox Voice-to-Screen Messaging

Expanding from the carrier and wireless worlds into Internet calling, SpinVox, the founder of voice-to-screen messaging, has signed a contract with Skype to offer its voice-to-text service for its Internet-communication software.
www.skype.com
www.spinvox.com

www.tmcnet.com/1000.1

Cellvine Unveils Cellular Technology for Public Safety Networks

Cellvine has launched its comprehensive coverage solution set for Public Safety Networks, enabling all emergency services to maintain constant contact during routine or crisis operations. The company explains that an emergency service provider should have the ability to maintain constant contact throughout all operations.
www.cellvine.com

www.tmcnet.com/994.1

Level 3 Deploys Network Backbone Services for Leap Wireless

Level 3 Communications' Wholesale Markets Group has deployed core network backbone services, including inter-city private line, voice termination, and collocation services for Leap Wireless.
www.level3.com
www.leapwireless.com

www.tmcnet.com/996.1

VoIP Logic Releases Cortex 2.0

VoIP Logic has announced the release of Cortex 2.0, an enhanced version of its middleware offering. Cortex 2.0 is designed to enable service providers using VoIP technology in their service offerings to dramatically reduce the complexity of layering on the new technology.
www.voiplogic.com

www.tmcnet.com/997.1

Blueslice HSS Scores in Interop Testing with Motorola IMS

Blueslice Networks, a provider of multi-profile subscriber management solutions designed for global Mobile, VoIP, FMC, and M2M markets, has successfully completed interoperability testing of its Home Subscriber Server 3000 using Motorola IMS solution.
www.blueslice.com
www.motorola.com

www.tmcnet.com/998.1

Cable VoIP Providers to Pay Fees to the FCC

According to a ruling put out by the FCC, cable companies will now be required to deliver a portion of their VoIP earnings to the federal government. The contributed revenue will be used to help fund the FCC's annual budget.
www.fcc.gov
www.ncta.com

www.tmcnet.com/1001.1

Intel, Microsoft, Samsung Combine on Ultra Mobile PC

Samsung has collaborated with Intel and Microsoft to challenge the limits of mobile technology and deliver reportedly the world's first ultra-mobile PC, called Q1. Samsung Q1 defines a groundbreaking path for ultra mobile computing.

www.samsung.com
www.intel.com
www.microsoft.com

www.tmcnet.com/1002.1

Bangalore to Get Unwired

Bangalore, the IT capital of India, will soon get another feather in its cap as it is all set to become "unwired" - it will soon provide seamless wireless connectivity as a part of its "Unwire Bangalore" project. This will be achieved by combining WiMAX and WiFi technologies in a new model.

www.bangaloreit.in/unwire.html

www.tmcnet.com/1003.1

American Airlines and AirCell Partner for In-Flight WiFi Service

American Airlines has announced it has teamed with wireless data and voice communications provider AirCell to test the use of broadband services on domestic flights.

www.aircell.com
www.aa.com

www.tmcnet.com/1006.1

XCome Completes Interop Testing of OMA-IMPS Client Version 1.3

XCome Technology has concluded the interoperability testing of its OMA-IMPS client version 1.3 in the Open Mobile Alliance (OMA) TestFest 19. According to Arindam Bhattacharjee, XCome R&D Manager, "Given the importance of interoperability, with our OMA-IMPS version 1.3 client, we made significant progress towards fulfilling the operators' and manufacturers' mobile messaging needs for global scale communication."

www.xcome.com
www.openmobilealliance.org

www.tmcnet.com/1005.1

Vonage Visual Voicemail Service Goes Mobile

On the heels of its recent introduction of voicemail transcription, VoIP provider Vonage has now announced two new capabilities of its service: sending transcripts to cell phones via text message, as well as sending them to up to five email addresses simultaneously.

www.vonage.com

www.tmcnet.com/1008.1

InfoGin Takes on iPhone with 'Complete Internet Experience' Solution for Any Mobile Device

Israel-based InfoGin, a provider of web-to-mobile content adaptation programs, recently announced a new solution that provides what it calls a "complete Internet experience" on any mobile device. In launching this product, InfoGin is emphasizing that a "complete Internet experience" need not be limited to Apple's iPhone, but can be achieved with any mobile device.

www.infogin.com

www.tmcnet.com/1007.1

FCC Outlines Plans for Public Safety Network, Open Wireless Access

When the FCC convened its meeting to unveil its newest plans for the soon-to-be-vacated 698-806 MHz spectrum, it did so in the face of tremendous expectations from private, commercial, and government constituencies alike. Indeed, as FCC Commissioner Jonathan Adelstein noted, "Our decision today is one of the most significant and groundbreaking we have conducted in the time I have served. These 700 MHz licenses are the finest crown jewels the FCC has to put up for auction."

www.fcc.gov

www.tmcnet.com/1009.1

Samsung Rises to Number Two

Samsung electronics moved up in the handset world this week, surpassing Motorola to become the world's second largest vendor of today's handheld devices - despite a relative slowdown of the mobile device market overall.

www.samung.com

www.tmcnet.com/1010.1

Aruba Completes iPhone Interoperability Tests

Aruba Networks has completed interoperability testing of Apple's iPhone with its wireless LANs and has issued the device a Compatible Partner rating, according to an online report on money.cnn.com. Vijay Raman, Aruba's head of technical marketing, adds that interoperability testing mitigates risk and is especially important with new devices, like the iPhone, where pre-testing can uncover and address potential deployment issues.

www.arubanetworks.com
www.apple.com

www.tmcnet.com/1011.1

Cisco Canada Wireless Net to Power Saskatchewan! Connected

Cisco Canada has announced that its Outdoor Wireless Network Solution is being deployed by the Government of Saskatchewan to offer free Internet access to businesses, residents and visitors across the Province's largest four cities, according to a CNW news report. The first of its kind supported on a provincial or state level in North America, the Saskatchewan! Connected initiative is Canada's biggest outdoor wireless network.

www.cisco.com

SIP NEWS

www.tmcnet.com1015.1

deltathree Unveils its Latest VoIP Open Network Platform

deltathree recently launched a highly advanced network telephony back-end infrastructure to enhance the features and flexibility of its Open Network Platform.
www.deltathree.com

www.tmcnet.com1016.1

damaka Releases P2P SIP Voice, Video, and IM Mobile App

damaka has announced the initial release of the industry's first P2P mobile solution that offers voice, video, and IM. With the new solution, dual mode phone users with cellular (3G) and WiFi/WiMAX connectivity can benefit from live 2-way audio and video communications.
www.damaka.com

www.tmcnet.com1017.1

NGT Provides Managed Services for Atlantic Broadband's SIP Solutions

New Global Telecom has announced the signing of Atlantic Broadband, a top 15 cable operator. The agreement provides that NGT will become the managed services provider for Atlantic Broadband's SIP-based telephony solutions for both residential and business end users.
www.ngt.com
www.atlanticbb.com

IP CONTACT CENTER NEWS

www.tmcnet.com1018.1

Packet8 VoIP Hits the Contact Center

8x8, which has already been making inroads in the residential and business VoIP services spaces is now looking to penetrate even further into the business communications space with its new Packet8 Complete Contact Center, which combines IP-based contact center features with Packet8's Virtual Office hosted IP PBX solution.
www.packet8.net

www.tmcnet.com1019.1

XO Interactive Intros 'Contact Centre On-Demand'

Contact Centre On-Demand end-to-end contact center solution built on the tightly integrated customer service solutions from Genesys Telecommunications Laboratories and RightNow Technologies.
www.xo.com
www.genesyslab.com
www.rightnow.com

www.tmcnet.com1020.1

CosmoCom Inks Deal with Brazil Hosted Contact Center Provider

CosmoCom and Direct Talk, Brazil's major hosted contact center solutions provider, have signed a contract under which Direct Talk will acquire and operate a CosmoCall Universe platform in its region.
www.cosmocom.com
www.directtalk.com.br

DEVELOPER NEWS

www.tmcnet.com1012.1

SyChip Launches WiMAX 2.5 GHz Module

SyChip unveiled its first mobile WiMAX chip scale module. The WiMAX9xxx module enables manufacturers to quickly design and add WiMAX functionality to devices such as handsets, mobile personal computers, personal media players and personal navigational devices. Developed specifically for mobile WiMAX, the SyMax platform includes the WiMAX9xxx hardware and all the software which has the capacity to provide a turnkey system for WiMAX enabled devices.
www.sychip.com

www.tmcnet.com1013.1

RadiSys Selects Tundra Semiconductor's Serial RapidIO Switch

RadiSys has selected the Tundra Tsi578 Serial RapidIO Switch for its Promentum ATCA-9100 Media Resource Module. RadiSys' recently launched Advanced Telecommunications Computing Architecture (ATCA) Digital Signal Processing (DSP) blade uses the Tsi578 as its Serial RapidIO interconnection for large-scale DSP aggregation.
www.radisys.com
www.tundra.com

CHANNEL NEWS

www.tmcnet.com1022.1

Ubiquity Software Converges with CGI

Ubiquity Software is teaming up with the CGI Group in an effort to develop and deliver a greater range of converged voice, video and data services over next-generation networks. The alliance is expected to produce several advantages for the firms including a strategic reseller agreement.
www.ubiquitysoftware.com
www.cgi.com

www.tmcnet.com1023.1

Inter-Tel Shareholders Approve Mitel Deal

IP telephony and IP presence solutions provider Mitel said its proposal to acquire and merge with business communications solutions company Inter-Tel was approved by Inter-Tel's shareholders. Mitel and Inter-Tel will possess the intellectual property, technology depth, breadth of portfolio, managed services, partnerships, and people to be a leader in the rapidly changing IP telephony landscape.
www.mitel.com
www.inter-tel.com

www.tmcnet.com1024.1

Alvarion, Verso Enable Voice Services Over WiMAX

Verso Technologies has entered into a reseller agreement with Alvarion to provide Alvarion customers with the MetroNet VoIP Overlay Solution, a cost effective and certified solution for carrying voice and value-added services over WiMAX networks.
www.verso.com
www.alvarion.com

www.tmcnet.com/1025.1

ProfitLine Launches Sourcing Leverage Meter(TM) with Contract Administration Offering

ProfitLine announced the launch of their Sourcing Leverage Meter as part of their Contract Administration offering. The new solution offers an unprecedented view into telecom contract performance, including continually updated dashboards showing status of major milestones and commitment levels, position of pricing against current market rates, tracking of negotiation leverage on an ongoing basis and more.
www.profitline.com

www.tmcnet.com/1026.1

Report Urges Enterprises to Incorporate Wireless Expense Management Best Practices

Aberdeen Group's latest report, titled "Wireless Mobility Expense Optimization," surveyed 221 enterprises in various industries regarding their wireless policies and spend. The report highlights how Best-in-Class organizations can save over 40 percent on monthly wireless expenses per user by implementing industry best practices. Rivermine, a leading provider of telecom expense management (TEM) solutions, sponsored the report to help enterprises learn how they can be amongst the Best-in-Class by adopting automation and implementing policies to actively manage their wireless and wireline spend.
www.rivermine.com

www.tmcnet.com/1027.1

MBG Expense Management and mindWireless Expand Partnership

MBG Expense Management and mindWireless have announced a strategic partnership that will provide enhanced wireline and wireless management capabilities for companies seeking a full range of telecom and IT asset management solutions. As a result of this partnership, companies can gain a clear view of both their wireline and wireless expenditures, with an improved ability to manage expenses for all communications services.

www.tmcnet.com/1028.1

TnT Expense Management Raises Bar in TEM Industry

TnT Expense Management announced it received a favorable Statement of Auditing Standard, Number 70 (SAS 70), Type II audit report. This rigorous evaluation performed by an independent auditor provides assurance to TnT Expense Management's business clients that their data is being handled with utmost security and with business controls approved by the American Institute of Certified Public Accountants (AICPA). TnT Expense Management clients can use this SAS 70 audit as proof of their own compliance with Sarbanes-Oxley's Section 404 requiring management's annual assertion of effective internal controls over financial reporting.
www.tntem.com

www.tmcnet.com/1029.1

Telesoft Expands Government Solutions

Telesoft Corporation initiated a project to implement Telecom Expense Management for the County of San Mateo. The County of San Mateo is the ninth county in the U.S. that has chosen the Telesoft solution to manage their telecom expenses. The county was struggling with issues from managing telecom inventory and wireless expenses to validating vendor billing and contract requirements. Once implemented, Telesoft's TelMaster solution will resolve their telecom issues by managing all of their telecom expenses from a centralized database. The county should be able to realize approximately 9-15% in hard dollar savings within their first year of implementation.
www.mbg-inc.com

www.tmcnet.com/1030.1

CSCs Ian Murray Joins Quickcomm to Lead Channel Management

Quickcomm Software Solutions announced the addition of Ian Murray to the company's management team. The TEM industry has shown tremendous expansion over the past decade. "As the market matures, businesses have realized the potential savings associated with a TEM solution," commented Murray. "Ian's experience with both managed services and outsourced TEM solutions will greatly benefit the product we provide to our customers," said Quickcomm's CEO Mark Evans.
www.quickcomm.com

www.tmcnet.com/1031.1

AnchorPoint Grows TEM Business

Moving along with the growing demand for TEM, AnchorPoint announced recently it has recognized significant growth and achievements in both the first and second quarters of 2007. Customer wins were especially significant for the TEM provider who over the first quarter added a major utilities provider in the Northeast, a large wholesale club operator in the U.S., and a large county government in the Mid-Atlantic, as well as expanded in the business and healthcare industries.

www.tmcnet.com/1032.1

Asentinel and PES Exemplify Success in Strategic TEM Partnerships

As partnerships become increasingly common in the telecom expense management (TEM) industry, Asentinel and Profit Enhancement Services (PES) celebrate nearly two years of success via their strategic partnership. The partnership allows each to focus on its core strengths - for Asentinel that is providing leading edge TEM technology/applications and services, while for PES it is focusing on delivering best in class TEM outsourcing solutions backed by ROI guarantees. The relationship currently supports nearly 20 clients with aggressive growth planned for the remainder of 2007 and beyond.
www.asentinel.com
www.profitenhancement.com

www.tmcnet.com/1033.1

Avotus Appoints Richard Garnick as New CEO

Call accounting and telecom expense management solutions provider Avotus recently appointed a new CEO. The position is now held by Richard Garnick, also executive chairman of the company's board. He replaces Fred Lizza who will remain involved with Avotus by serving on the advisory board.
www.avotus.com

Looking for a VoIP Phone System?

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AltiGen Communications, Inc. is a leader and market innovator of VoIP telephone systems. Since 1996, AltiGen has shipped systems to more than 10,000 customers worldwide. We design, deliver, and support simple to manage phone systems, branch office and call center solutions that combine high reliability with integrated IP communications applications.

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ALTIGEN COMMUNICATIONS

Phone Numbers and Our Evolving Communications Identity

By Brough Turner

ENUM and P2P VoIP are focus topics for this month's issue, but while they both pertain to Internet Telephony, it's also true that apples and hamburgers are both food. The conjunction does prompt one to reflect on how telecom identities are evolving and where it will lead.

Ten years ago, our telecom identity was one or a few PSTN telephone numbers that represented places where we spent time - home, work, etc. With mobile telephony, people acquired personal PSTN numbers. They also acquired handsets that remove the need to remember phone numbers and largely remove the need to even deal with a phone number more than once - the first time you call a new person or business. Now you can address someone by their name or a "handle" of their or your devising.

The advent of VoIP introduced new addressing schemes, but also an interest in communicating between the new, small (VoIP) networks and the vast majority of existing telephones, i.e. to connect with the PSTN. Proprietary approaches have emerged and the IETF has developed a specification for ENUM that facilitates the use of PSTN numbers for VoIP services.

ENUM leverages the Internet's Domain Name System (DNS) to provide a way to translate PSTN telephone numbers to SIP addresses. Since DNS is a centrally managed, system with hierarchical delegation, ENUM inherits those characteristics. That's exactly opposite the way Peer to Peer (P2P) system attempt to work - they endeavor to avoid any central components. However, since PSTN telephone numbers are centrally assigned (by national authorities, with country codes assigned by the ITU) it's not unreasonable that ENUM be centrally managed as well.

The advent of the Internet has enabled many new communications services - email, instant messaging, blogging, social networking - and, so far, each new service comes with its own, new, centrally managed, addressing scheme. These addresses are typically names or "handles," not purely numbers, but they serve the same purpose. Where briefly it seemed we were moving to one number per person (your mobile phone number), it's now clear we're moving to rich identities with dozens of context-dependent identifiers per person.

How does P2P VoIP play in this? So far, the P2P community has not focused on issues of identity. For example, Skype has a completely distributed approach for telephone and text chat connections, but like other services, they centrally manage their address space, requiring you to obtain new names from their central registration server.

There are theoretical approaches to completely distributed identity and there are examples of distributed identities for documents in the form of Globally Unique Identifiers (GUIDs). Typically these schemes rely on numbers, chosen randomly, that are so large the chance of two people choosing the same number is negligible. There are even proposals for public key encrypted GUIDs which would allow you to identify (and screen) incoming communications requests thus addressing the problem of spam. But, so far, these proposals remain largely theoretical.

The real activity is in interconnecting communications networks, P2P or otherwise. Any communications network becomes more valuable when it reaches more people. For P2P VoIP, that means reaching PSTN subscribers, using existing PSTN numbers. In fact, despite all the new addressing schemes that have appeared with email, IM and P2P VoIP, PSTN numbers remain the mainstay of voice telephony. Today, most individual VoIP networks are too small to justify VoIP peering, so calls from one VoIP network to another VoIP (define - news - alert) network go through the PSTN. As VoIP networks get larger, that will change but the use of PSTN numbers will last for many decades - at least as long as the PSTN remains the largest telephone network in the world.

What will be most interesting is the evolving user interface as we seek new ways to manage the diverse "handles" that we, and those we communicate with, are accumulating. The mobile handset has given us an easy way to organize our PSTN contacts without remembering their specific phone numbers. But we need new user interfaces that are as automatic in coupling our chosen contact list to each of the communications clients we use including PSTN, VoIP, IM, email and social networks. This will be no small venture as, today, each communications application seems to have its own set of identifiers and relatively few provide open APIs.

Looking forward, we can expect rapid technological change, many new communications applications and a profusion of new identities. The client that wraps all this complexity in one simple user interface will do extremely well. 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.

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FMC – WiFi and Femtocells

By Michael Stanford

On June 27th, T-Mobile announced the availability of its T-Mobile@Home service. Two days later the Apple iPhone went on sale. David Pogue of the *New York Times* wrote that the T-Mobile announcement may turn out to be the more revolutionary one. This was hyperbole, to be matched against the irony-free judgment of one of my colleagues on trying out his new iPhone, that the iPhone has been under-hyped.

The phone I selected from T-Mobile was the Nokia 6086. The 6086 and the iPhone are both GSM phones with WiFi radios. The similarities end there. These two phones and their associated services are opposite in just about every way. The 6086 is a flip-phone, the iPhone a candy bar; the 6086 is a low-end feature phone, the iPhone runs a PC operating system and has a large high-resolution touch screen; the 6086 costs $50 with the service rebate, the iPhone costs $600, and Apple is rumored to get the rebate. But the most telling difference between them is the WiFi. The WiFi on the 6086 is for voice only. On the iPhone it's for data only.

Why this difference in the use of WiFi? It's not for technical reasons, so it must be driven by the business motivations of service providers and phone manufacturers. These two phones are a perfect illustration of how WiFi in cell phones is actually two distinct features that happen to be based on the same radio technology. The first of these features is FMC (Fixed Mobile Convergence) voice, which uses the Internet to deliver cellular voice service to dual-mode phones via WiFi access points. This benefits the service provider by providing network offload at a relatively low cost, and benefits the user by providing better coverage in residential areas. But if the WiFi could be used for data, it would potentially reduce the subscribers' expenditures on mobile data plans.

For high-end smart-phones, WiFi is a new checklist feature, without which the phone would be lame.

The WiFi in the iPhone is a completely different animal. It's on the phone for the same reason that cell phones over the years have acquired cameras, Bluetooth and other features. Phone makers are constantly seeking cool new must-have features to drive handset refresh. These features are added to high-end phones by the phone manufacturers against the preferences of the service providers, who would lose no sleep if their customers never bought a new phone. For high-end smart-phones, WiFi is a new checklist feature, without which the phone would be lame. In these high-end phones, the WiFi delivers a radically better Internet experience; depending on the device it can render a data plan un-needed. AT&T gets around this issue with the iPhone simply by refusing to activate it without a data plan, even if the purchaser has no desire to use AT&T's data network. But AT&T doesn't yet have a FMC capability, and if the WiFi could be used for non-FMC voice it would potentially reduce the subscribers' expenditures on voice minutes.

Recognizing these two completely distinct types of WiFi in cell phones helps to cast light on the femtocell *versus* WiFi issue. Femtocells compete with WiFi for FMC voice, but femtocell technology will have no impact on feature inflation in high end phones. So if femtocell technology is a total success, the worst case for WiFi in cell phones is that in a few years hundreds of millions of WiFi chips per year will ship in smartphones, but WiFi will absent from all the other types of handset. 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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IMG 1010 Media & Signaling Gateway

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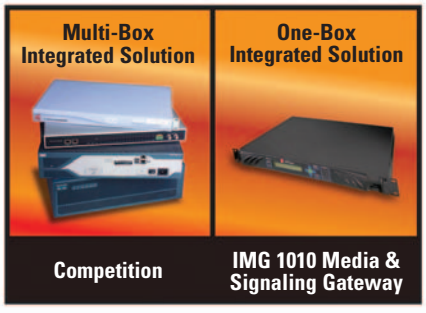

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In Harmony With Innovation™

The First All-IP Olympic Games

By Tony Rybczynski and Andy Platten and Simon Edgett



On February 12, 2010, the opening ceremonies will take place for the XXI Olympic Winter Games, and Vancouver will open its doors to 5,000 Olympic Games athletes and officials from over 80 countries. Over the next 17 days, 10,000 media representatives will deliver the Olympic Games across 20 sports to audiences in 160 countries including news, features and over 10,000 hours of dedicated coverage, to 3 billion worldwide television viewers, 20 times more than the US Super Bowl. This will be followed by 10 days of Paralympic Games events. Overall, over one million visitors are expected to participate in the unfolding drama on the slopes, racing ovals and skating rinks and celebrations of the medal ceremonies at the Games venues, while a small army of over 20,000 volunteers will be working to ensure smooth operation.

The mission of the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games (VANOC) is "to touch the soul of the nation and inspire the world by creating and delivering an extraordinary Olympic and Paralympic experience with lasting legacies." To realize this mission, VANOC has partnered with Bell Canada, its Telecommunications Provider and Nortel, its Converged Network Equipment Provider, to plan and deliver an all-IP Games network, that must deliver always on, always secure connectivity and voice services across the Games venues, spanning 120 kilometers from greater Vancouver to the Canadian coastal mountain resort of Whistler.

Meeting "All Eyes on Vancouver" Expectations

An all-IP Games network architecture will provide a high degree of agility in meeting user and application needs, improved price/performance compared to previous hybrid approaches, and opportunities for clients that simplify user interfaces. This architecture delivers increased agility by allowing anytime, anywhere connectivity over any device, and by being highly adaptive to application traffic fluctuations.

VANOC and Bell established five key requirements for the converged network infrastructure for the most important, most visible, and most watched sporting event in the world.

- Capacity: The network spans 15 Games venues and numerous non-competitive sites (e.g. two data centers, two media centers, two Athlete villages, two ceremonial sites, VANOC headquarters). It will support in excess of 10,000 VoIP phones, and up to 40,000 wired and wireless Ethernet ports on a 10 Gbps core network.

Imagine this! Hundreds of journalists, who have just taken hundreds of 15 megapixel photos at the finish line, all rush to file their pictures and stories to their agencies ahead of their competitors.

- Reliability: Carrier class core network switches will include redundant power, common control and switching fabrics to guard against single points of failure. The network has to be up- you can't ask the athletes to repeat their event because of a network failure!
- Redundancy: Redundant Ethernet switches deployed at each venue will support the entire capacity with sub-second failover in case of catastrophic failure of one of the switches. Non-disruptive operation must be maintained 7/24 for staff, athletes and press- the world is watching!
- Survivability: Survivability will be provided through a physically diversified access and core network. The Games must go on!
- Security: The entire networking infrastructure will provide secure logical partitioning across multiple networks and application types (e.g. VANOC 'Games' Applications, VANOC IT network, Bell's Telecom Services (VoIP etc.)). Users will be able to plug into any LAN port in any of the venues and be assigned the appropriate network resources based on the credentials of their device.

Unique Challenges Addressed Through Convergence Technologies

The Games is a unique event but the requirements are very similar to those of many enterprises. The resulting architecture is also very similar to converged networks being deployed by enterprises around the world.

The infrastructure includes WiFi and switched Ethernet with PoE and QoS at each venue 'wiring closet', interconnected 'across the WAN' over an optical Ethernet core. Networking and application intelligence is centralized in dual data centers. These are the focal points for running the games and administrative applications (with interconnection to hosted web portals), are the primary Layer 3 inter-connection point between the Core and Venue converged networks, and provide secure access to the Internet and the rest of the world. They also provide centralized authentication of users, dynamic WiFi radio channel and power management, and automated load balancing across WiFi Access Points. Business-grade IP Telephony is available across all the Games venues and is delivered as a hosted service from Bell.

The infrastructure being deployed for the Games has roughly the same complexity as a medium-sized bank. But there is one big difference. What is being done for the Games is like opening all the branches on the same day, with all the systems running perfectly and with transactions balanced every night! IT

Tony Rybczynski is Director of Strategic Enterprise Technologies in Nortel, and has over 35 years experience in the application of packet network technology. Andy Platten is VP of Technical Infrastructure with VANOC and previously held a senior position at HSBC. Simon Edgett is Director Olympic Technology Development in Bell Canada and has over 14 years voice and data communications experience.

Go to Table of Contents | Go to Ad Index

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Your Connection to the World

By Hunter Newby

VoIP Peering, Italian Style

Telecom Italia was one of the first major PTTs, if not the first, to adopt VoIP into their core switching infrastructure. They announced in October 2002 that their Rome-to-Milan voice route was fully VoIP whereas on the international backbone the first VoIP interconnection was established in 2001. This migration process was completed in July 2004 for the domestic core network and in November 2005 for the international backbone.

With such vision and foresight it is no doubt that they are still leading the pack in many areas including deployment. Their combined domestic core and international network is 100% VoIP - quite an accomplishment given that they have legacy interests to protect as well as a forward strategy for growth abroad.

I had the pleasure of sitting down with top Telecom Italia Sparkle executives Stefano Mazzitelli, CEO and Gianfranco Ciccarella, EVP Networks, for two separate interviews at the recent GTM in Washington, DC. The first interview was with Mr. Mazzitelli and it covered the current status of Telecom Italia Sparkle (TIS) from an overall network and company perspective. TIS brings to market a triple play of video, voice and data and each service is carried over their fully-managed MPLS network to the customer.

With specific emphasis on VoIP, (define - news - alert) the organization is experiencing positive growth in terms of minutes, revenue and margins and their VoIP platform is quite stable. Mr. Mazzitelli stated, "Our international network is all NGN, soft-switch based and our transport layer has been all IP since 2003 and we were probably the first carrier in the world to implement that". Clearly they have a strong history and experience in this regard. As the conversation turned more towards the inner-workings of the VoIP platform and services, Mr. Mazzitelli deferred to his lead technologist, Mr. Ciccarella.

The second interview with Mr. Ciccarella was more focused on the technology and the future of IP applications for Telecom Italia Sparkle as well as the market in general. The key take-away points were:

- The primary motivation for their move to VoIP was lower cost. The second most important reason was flexibility of service creation and deployment.
- Private IP connections for VoIP traffic were preferred for quality and security reasons. Public Internet connections were nice for limited amount of traffic interconnection, but as there is a significant traffic growth they would provision dedicated connections.
- Among the various technical alternatives, the preferred method of dedicated VoIP connection is Ethernet. This is due to the lower cost basis, ease of use and scalability.
- VoIP Peering for both bi-lateral and multi-lateral applications, making use of ENUM Registry, will begin to play a role in the TIS network and it will increase over time.
- Video traffic over the Telecom Italia Sparkle IP network is probably only 15% of the overall utilization today, but due to the development of video end-to-end applications, this percentage is increasing. Of course, this traffic is completely different from the Telecom Italia Alice Home TV service which spans at a domestic (Italy, Germany, France, etc.) network level. It's likely that the development of web-based video applications will need investments in the IP backbone to support it, demanding more private connections for the same reasons as voice, but also because of sheer capacity requirements between origination and destination with no hops.
- Pure transit operators with no true end users or original content could be at risk to be marginalized. In some cases these Operators could be pushed not to make investments in the backbone because transit prices are not increasing and there could be no Return on Investment for them to do so.

All this means that Telecom Italia and TIS are on the right evolutionary track and in many ways are ahead of their competition. They've applied common sense and reason and as a result have improved their procedures and bottom line in the process. Those that have ventured out in to the all-IP world are beginning to experience and see things that the others that have not, won't.

It is a distinct, strategic advantage to have realized that the lack of investments could generate, in a medium term, a network bottle-neck in the web video future. It is a future that is not far-off either. This knowledge empowers TIS to make decisions of all types (investment allocation, equipment, interconnection type and location) without having to guess, or rely on questionable "insight" from "experts". This forward-thinking mindset has helped Telecom Italia Sparkle be successful and will keep them ahead of the pack.

To view the full interviews go to:

Mazzitelli http://www.youtube.com/watch?v=I_bY7cL_MWc
Ciccarella http://www.youtube.com/watch?v=CI7WT0jbMgo

...or YouTube-search the following:

"telx|vision Mazzitelli Telecom Italia Sparkle"
"telx|vision Ciccarella Telecom Italia Sparkle" IT

Hunter Newby is chief strategy officer for telx. (news - alert) For

Go to Table of Contents | Go to Ad Index

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CommuniGate SYSTEMS

By Michelle Liro

Seamless Migration of Fax into IP Networks

Fax technology has advanced dramatically from the days of the stand-alone, walk-up fax machine. Today's network fax servers integrate directly into office productivity tools, such as multi-function printers (MFPs) and CRM systems to automate the delivery and receipt of fax documents in electronic format. In addition, production fax servers can be used to automate business processes such as sending invoices, receipts or receiving purchase orders directly to an ERP system.

The increased focus on business process automation and document management, combined with the growing popularity of enterprise VoIP networks is driving many businesses to consider IP fax solutions. Migrating fax communications to VoIP architectures has many advantages over traditional fax, but can also raise concerns about reliability, bandwidth, and security. With the right IP fax implementation, these issues can be easily addressed.

Reliability

Faxes are sent over an IP network using T.38, an ITU defined protocol for sending and receiving faxes in real-time over a packet network. However, it is important to note that within the data steam is the same ITU T.30 protocol that has been used to govern communication between fax machines for years. Although T.38 allows these T.30 packets to be transported across an IP network, fax termination point to fax termination point communication continues to be governed by T.30 when faxing in an IP environment.

Prior to T.38, packet loss in an IP networks was the biggest hurdle that fax over IP had to overcome. However, not all T.38 implementations are the same nor do they offer the same level of reliability. There are a few ways in which T.38 implementations can differ.

To ensure fax connections stay alive, T.38 endpoints employ an error recovery algorithm that transmits redundant packets. Sending redundant packets eliminates the risk that a fax session will prematurely terminate as a result of packet loss. In some T.38 implementations, the amount of redundant packets can be configured according to the local network conditions. This is an important feature because different networks or network nodes suffer packet loss to differing degrees.

A reliable T.38 implementation depends on a solid T.30 foundation. Just as all T.38 implementations are not the same, not all T.30 implementations are the same. T.30 implementations can differ greatly in performance and interoperability with all the different fax machines a company may need to connect to. It is important to look closely at a fax vendor's T.30 implementation.

Bandwidth

As with any IP-based service, the network should be provisioned to provide the necessary bandwidth, which may vary depending on usage patterns. Fax over IP is no different, however, it is important to note that a T.38 fax transmission typically takes much less bandwidth (pending packet redundancy settings) compared to simply sending a fax using G.711 VoIP. Furthermore, typical G.711 / RTP implementations are much more susceptible to packet loss compared to T.38. Unfortunately, such packet loss will result in dropped faxes, which is one of the biggest reasons why the industry is utilizing T.38 for fax over IP. More importantly, since a properly configured T.38 implementation can tolerate some packet loss, network administrators can continue to prioritize VoIP packets as a high priority via which ever QoS mechanism is currently in place.

Security

In the context of the types of security threats facing organizations, there is a fundamental difference between intelligent fax platforms (boards or boardless) and competitive alternatives. Businesses today are concerned about three main types of threats to their network:

- Network Attack
- Privacy Infringement
- Content Attack

A network attack consists of a virus or malicious attack by a hacker. This type of attack in most cases is stopped by the network's security infrastructure, such as firewalls and virus protection software. However, if a malicious packet does get through the firewall or is spawned internally by an employee, then an intelligent fax platform's 'fax only' design can immediately recognize that it is a non T.4/T.6 or T.30/T.38 packet and drop it. Thus the malicious file, comprised of many non-conforming packets, will never make it into the host system to be propagated further throughout the network.

A privacy attack involves a fax being intercepted in transit by someone other than the intended recipient or fax machine. IP fax technology does not pose any additional risk to privacy because the IP portion of the fax traffic is contained within a properly configured and secure enterprise LAN/WAN.

The final type of attack is a content attack, in which the fax content is intercepted and altered. As with privacy infringement, migrating fax to IP does not pose any additional security threats. The fax travels over IP only over the enterprise LAN/WAN, which again would be protected behind a properly configured firewall or transmitted over a secure WAN connection such as a VPN. The public portion of the fax transmission would travel over the PSTN via T.30 and would be at no greater risk than if it were transmitted in standard PSTN format.

By taking just a few simple steps, businesses migrating to IP networks can achieve the same levels of security and reliability as traditional fax, with added cost and productivity benefits of IP fax. IT

Michelle Liro is Product Marketing Manager for the fax application market at Cantata Technology, the market leader in fax and fax-over-IP platforms. She can be reached at mliro@cantata.com.

Go to Table of Contents | Go to Ad Index

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Continuity Planning 101: A Continuing Educational Series

By Rich Tehrani & Max Schroeder

The meeting of the Disaster & Business Continuity Planning Seminar at ITEXPO West 2007 marks both the second anniversary of the Disaster Planning Communication Forum (DPCF) and the announcement of some new DPCF initiatives.

First, TMC and the Enterprise Communications Association (ECA, www.encomm.org) are committed to combining their efforts to launch the DPCF and contribute to its ongoing management. The DPCF has always operated as an open forum welcoming all contributors. Since conception, the DPCF evolved into a group of vendors and resellers dedicated to educating enterprises on the need and value of business continuity planning. The goal of the DPCF was never displace any other organizations as the disaster planning industry is well-established and incorporates both the public and private sectors. Our efforts were directed to educating enterprises on the role Converged IP can play in ensuring business continuity.

It is now time to move on to Stage II and roll out additional services with the first being a DPCF Channel on the TMC website. Most readers are already familiar with TMC's Channel services as they are such a valuable research tool. For the uninitiated however, channels allow TMC readers to select specific topics and stay in-tune with those topics by browsing the site or receiving current news via automated alerts. If you have not previously activated channel services, the following instructions will provide you with guidelines:

Go to www.tmcnet.com and position your cursor on the "Channels Home" selection on the upper left-side of the page. Reposition cursor to "VoIP A-H" and then to "Disaster Planning". To activate daily news alerts on the DPCF, please select "Sign Up Here" from the red box.

Receive Daily News Alerts About 'tmc channels'!
Sign Up Here

Persons interested in DPCF related information may find the following keywords useful:
Keyword 1: "FEMA" -
Keyword 2: "NOAA" -
Keyword 3: "business continuity"

After following the instructions, you will receive an email with the subject "TMC News Alert Service" with an "Activation" link. Following activation you will automatically receive information on your selected channels and keywords.

You can also select the following link to go directly to the DPCF page: http://www.tmcnet.com/channels/disaster-planning/

The site will include selections for the "Latest News" and a "Featured Articles" section. The "Latest News" will feature automatic news feeds based on keywords associated with the subject matter of the DPCF Channel as outlined above. Links to key disaster sites such as NOAA (www.noaa.gov) and FEMA (www.fema.gov) will be included as well as other public and private sector organizations.

The "Featured Articles" section will feature previous TMC DPCF columns by Rich Tehrani and Max Schroeder plus articles written by other TMCnet editors and guest writers. In addition, this section will include white papers, checklists, press releases, guidelines, instructional manuals and other materials relevant to disaster and business continuity planning. References to specialized needs such as disaster prevention for educators and school systems (see June 2007 column) will also be included as part of the library: www.tmcnet.com/974.1

As stated above, The DPCF has always operated as an open forum welcoming all contributors. To learn more about how your organization can contribute to this project, please send an email to Rich or Max at the addresses listed below. Or better yet, attend this year's workshop at INTERNET TELEPHONY Conference & EXPO West in Los Angeles on September 10, 2007. Audience participation is strongly encouraged, so come prepared with questions for the panelists or bring materials that you feel should be included on the DPCF Channel site. This year's 2-hour workshop will host a selection of experienced panelists who will address how an enterprise can and must plan to avoid a serious interruption of business operations. Panelists will include application vendors, resellers, and managed service providers from DPCF participating companies. This workshop is also a must for resellers looking to enter this market. IT

What's New for the Disaster Planning Communications Forum

Disaster & Business Continuity Planning Seminar

September 10th, 2007 9:00 – 11:00

INTERNET TELEPHONY Conference & EXPO West

Los Angeles Convention Center

http://www.tmcnet.com/voip/conference/

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.

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

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

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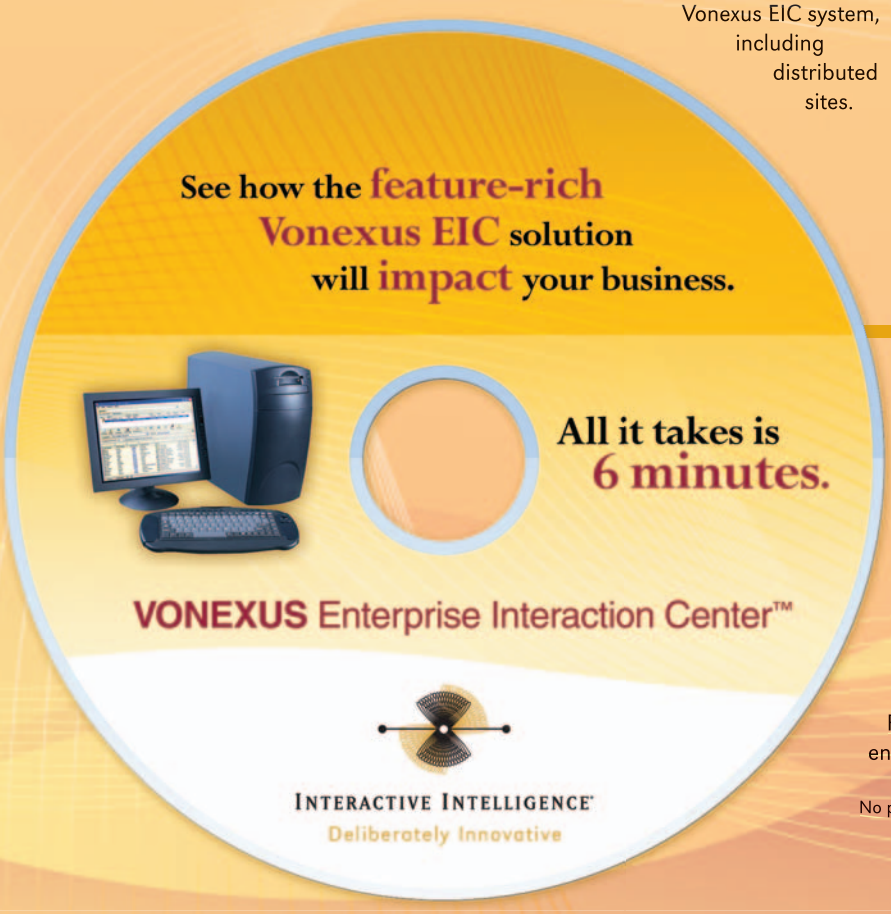

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Something New in IP Multimedia Subsystems (IMS) Processing

By Jeff Hudgins

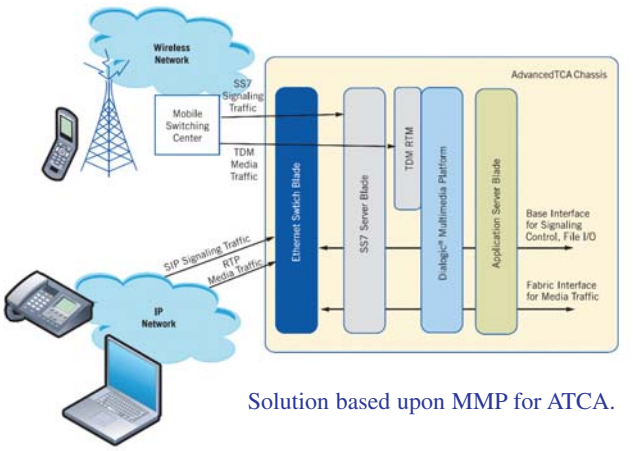
A rapidly growing number of telecom and network industry players are now deploying IP Multimedia Subsystems (IMS) technology. IMS brings a number of benefits to mobile network operators and end-users in terms of new services and the overall experience. New product and service announcements along with the evolving market have created intense competition among Telecom Equipment Manufacturers (TEMs) to deliver solutions. In this issue we will look at the recent release of the Dialogic® Multimedia Platform for AdvancedTCA, (MMP) as a critical building block to helping TEMs and others deliver IMS applications.

Tier 2 operators in high growth markets are looking to offer value-add IP-based wireless services and innovators are trying to offer more feature rich mobile applications in these markets each and every day. IMS provides a diverse open platform of resources for these applications. The mobile operator may however have their own ideas on how these applications get supported. For example, each operator may require that the application run on their own server or require individual application servers. This complexity will quickly erode the economics of scale.

The Dialogic® Multimedia Platform (MMP) for AdvancedTCA is a powerful and cost-effective product that can be used to deliver mobility applications such as voice and video mail, color ringback tones, unified messaging, and audio conferencing over IP and PSTN interfaces using standard protocols for session and media control. Its flexibility allows a choice between running customer applications locally on the MMP hard drive or remotely using standard interfaces for session and media control, while its interface capabilities enable migration from solutions deployed in existing TDM networks

"Our customers are looking for a path to higher density media solutions that will allow them to deliver their unique application services into the demanding environment of carriers," stated Jim Machi, Vice President of Marketing for Dialogic. The media platform not only realizes the scalability demanded in the Service Provider market but does so with leading price-performance. Machi explained: "By assigning processor-intensive operations to the mezzanine card we leave more power for host media processing. And because the core processing algorithms are hosted on the CPU, we have the flexibility to meet ever increasing functional, operational and mobility demands through software-only revisions."

The MMP includes both software and hardware which allows application developers to create and deploy their solutions in a very efficient manner. The figure shown illustrates one possible solution using an MMP server or gateway. In this example, the solution consists of an ATCA enclosure configured with a switch, SS7, MMP, and application server blades. The media processing is handled by the MMP blade running Host Media Processing (HMP) software.



Solution based upon MMP for ATCA.

Solution based upon MMP for ATCA

Both signaling and media IP traffic are terminated on an Ethernet switch blade which distributes signaling and control traffic over the ATCA base interface. The media traffic is handled over the fabric interface inside the chassis. For IP connectivity it utilizes the base interface for RTP media traffic. TDM media traffic terminates on the Rear Transition Module (RTM), which then routes to the baseboard for processing. TDM signaling traffic (SS7) is terminated on an SS7 signaling server blade. The SS7 signaling server and application server functions can be combined on the same blade.

Final Score

The Dialogic® Multimedia Platform (MMP) for AdvancedTCA appears to deliver on its promise. The product is designed for maximum flexibility and hardened for carrier class environments. Not only does it offer a feature-rich blade solution, but the ATCA architecture provides a High Availability (HA) environment with NEBS Level-3 compliance. As TEMS and Tier 2 operators look for more creative ways to be competitive, the MMP's price-performance ratio will make a significant impact to the market. 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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Dialogic's Signaling Distributed Architecture (SigDiA)

By Richard "Zippy" Grigonis

As any telecom-related application scales up, coordinating the activities of many computing and telecom resources scattered about becomes more and more important, not to mention difficult. Historically, the first major problem was simply coordinating what was happening among the plug-in boards on a backplane and how a PC could talk to a PBX. Just a year after Carl Strathmeyer at DEC concocted the first CTI-PBX link in 1985 ("Computer Integrated Telephony"), Dialogic (www.dialogic.com) introduced the first telephony bus for resource sharing, the Analog Expansion Bus (AEB). The "resources" connected to AEB where in most cases Dialogic boards that fit into a PC AT-expansion slot, such as the DTI/124, D/4x and AMX line.

In 1989 Dialogic introduced the first 12 channel DSP-based voice processing board, the first T-1 interface board for voice processing, and with them the first digital TDM (Time-Division Multiplex) bus for resource sharing, the Pulse-Code Modulation Expansion Bus (PEB). In 1990, Dialogic's rival, Natural MicroSystems (now called NMS Communications, www.nmss.com) along with seven other vendors, developed their own more powerful inter-board TDM/PCM highway, a bus standard called the Multivendor Integration Protocol, or MVIP-90. Inspired by the old Mitel ST bus reference design, the 2 MHz MVIP-90 bus supported 512 timeslots.

These incompatible 'mezzanine buses" were based on a ribbon cable that hopped from board to board, attaching to a connector at the top of each board.

Increasing demands for bandwidth, the number of active ports and processing led to Dialogic developing yet another Computer Telephony Bus, SCbus, the core of the Signal Computing System Architecture (SCSA). The led to a major "bus war" between MVIP and SCSA that was resolved with the joint development and approval by the ECTF in 1997 of the H.100 CT Bus hardware standard (and H.110 for CompactPCI form factor boards).

Most of these early systems introduced the idea of a common resource model, wherein there appeared real-time resource management and dynamic resource sharing. A CT Server could handle multiple operations simultaneously and in real time, such as calls to call centers, fax systems and Interactive Voice-Response (IVR) systems. SCbus allowed "hyperchannels" to be set up so that one server could call upon resources residing in another via a particular timeslot.

Today, with the rise of the vast Internet/PSTN hybrid network, telecom applications have a much bigger canvas on which to paint. Signaling between different kinds of components has become a more sophisticated and distributed affair, with a focus on higher-level signaling challenges involving both the traditional SS7-based "Intelligent Network" (IN) and newer "next-gen" packet networks. This has led to more intense interest in middleware and the development by Dialogic of its Signaling Distributed Architecture (SigDiA) for creating and deploying high-performance, distributed, cross-platform, cross-OS signaling applications. SigDiA is an architecture sufficiently flexible so that signaling protocols can run on a board, on a Dialogic signaling server, or on an application server. SigDiA supports automatic failover, load sharing and signaling offload. SigDiA is now integral to Dialogic's entire range of SIGTRAN/SS7 protocols as well as its SS7 boards and signaling servers.

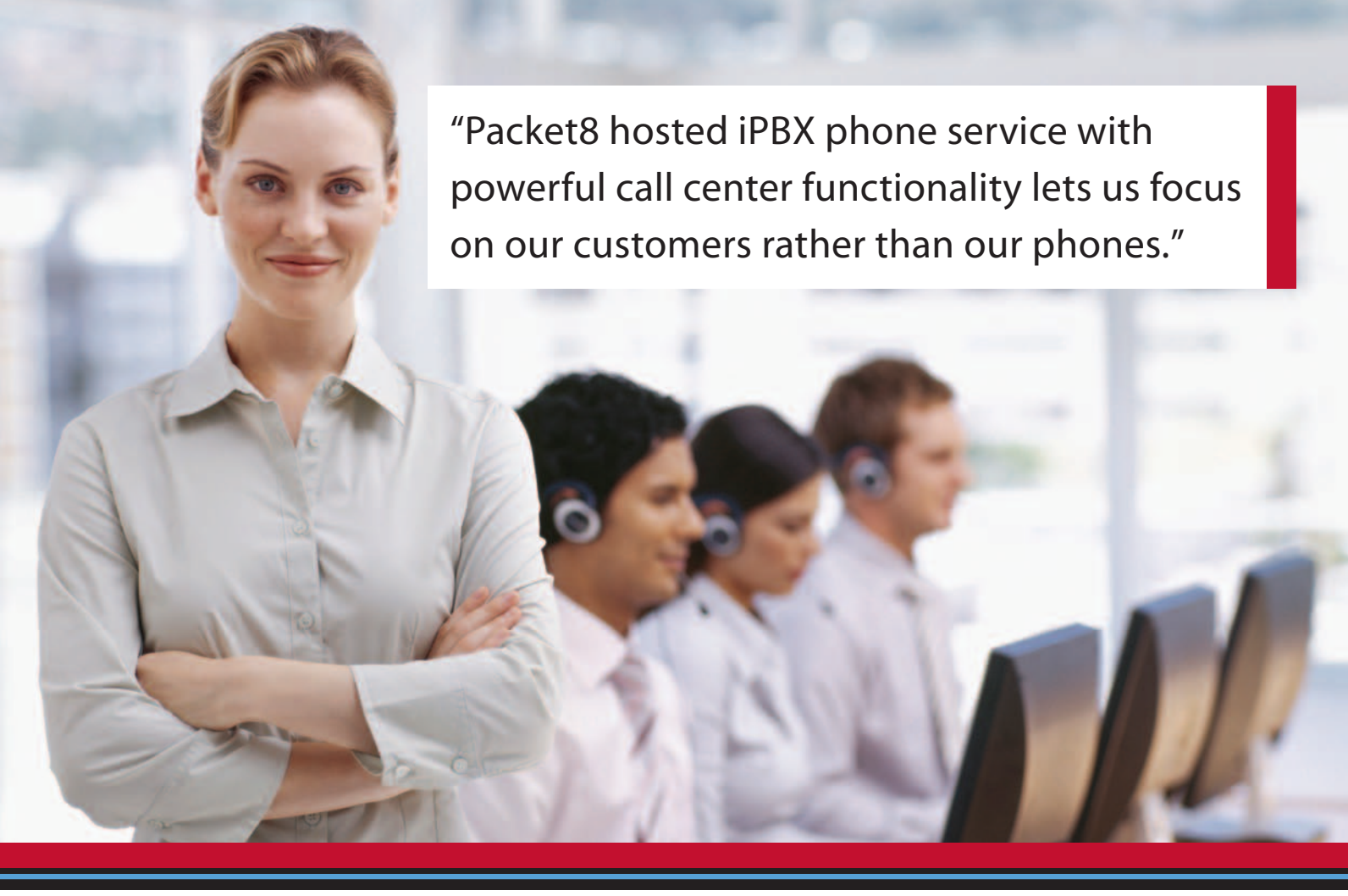
SigDiA allows those developing large systems the flexibility to mix-and-match the best platforms and form factors for optimum price-performance and time-to-market. It allows for card offload and blade server distribution, shared signaling network access, and supports signal message monitoring on TDM and IP to enable distinctive service delivery and enhanced security.

You can find this technology in products such as Dialogic's SIGTRAN and AdvancedMC products, particularly their SS7 boards. You can find SigDiA underlying the Dialogic SS7G21 and SS7G22 Signaling Servers, both equipped with Signaling Interface Unit (SIU) software that provides signaling connectivity for distributed, multi-system-based telecom applications. The SS7G21 and SS7G22 offload signal processing from application servers and can run various signaling protocols (including specific local variants), allowing for deployment anywhere in the world. The servers can be ordered with an optional SIGTRAN signaling gateway (SGW) software, making them a modular component in next-gen networks and service platforms, providing the all-important interface between SS7 and IP networks.

Optional Digital Signal Conversion (DSC) software enables the SS7G21 and SS7G22 to do protocol conversions between SS7 circuit-related protocols and access-signaling protocols, including ISDN and SIGTRAN M2PA for long-haul configurations.

Various sorts of middleware architectures such as Dialogic's SigDiA and the Service Availability Forum's (SAF's) high availability and management software interface specifications add "pseudo layers" to the OSI Reference Model and will move from *de facto* standards to real ones over time as their utility becomes more recognized. IT

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



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The Emergence of Video Telephony: VRS!Snap and Ojo

It's not going to wipe out voice-only communications, as the Buggles might have suggested in their music video, which helped launch MTV back in August of 1981, but video communications is gaining momentum at long last and will take its rightful place in the communications space. It just took some time and a boost from IP-based technology to bring the video quality to a new level.

As with any emerging technology, it will require time for widespread adoption - unless a company has the seemingly endless marketing resources Apple displayed in advance of its iPhone launch. Though it may not be growing as quickly as some other technologies, video telephony has a place in the future of communications, of that there is no doubt - more than 90 percent of communications is non-verbal, after all.

"Video telephony is clearly the next generation in telecommunications, in terms of completing the duality of telecommunications - where you have two-way data, two-way voice, but one-way video," says WorldGate Communications chairman and CEO Hal Krisbergh.

Indeed, WorldGate has been among the pioneers of video telephony, having created its Ojo video phone - which, if you pay attention, can be seen on the CBS weekly drama NCIS, as well as FOX's hit series *24*. Exposure in nationally-broadcast programs can only increase awareness of video phones that are able to deliver on the promise of video telephony.

The problem historically, explains Krisbergh, is that prior video endpoints failed to deliver the kind of video quality and performance to which people have become accustomed. So, as the Ojo was developed, the question then became, who would be the early adopters - every technology has a group of initial users that ultimately help launch the product on a larger scale.

As WorldGate examined potential target markets - and certainly a case can be made for the enterprise customer or the college student - a different target emerged altogether. It was an audience that was surprising, yet obvious at the same time. It was also the one user group that would clearly benefit, perhaps more than any other single group from video telephony - the deaf and hard of hearing community.

"One market was acute in its need, and that was the deaf and hard of hearing community," said Krisbergh. "When you think about it, it's kind of obvious, because they can't call on a [normal] telephone, something we take as a basic form of communication."

Indeed, the deaf community immediately makes sense as a market for video telephony solution - but that only solves part of their problem. Certainly, with video endpoints, like the Ojo, at both ends of a call, hard of hearing callers could easily communicate with their friends and family and others fluent in signing. But other calls would still present issues.

Krisbergh explained that this is, in fact, an issue that Congress wrestled with many years ago, looking to facilitate means for hard of hearing consumers to communicate with the rest of society - typically that was accomplished inefficiently with a typewriter. More recently, however, a new technology has emerged, called Video Relay Service (VRS).

VRS, in essence, employs an interpreter that connects the deaf caller with any third party, communicating through signing with the former, and with voice with the latter, effectively translating the conversation for either side.

But while WorldGate had developed the Ojo phone, it does not have the means to support a VRS service on its own. However, Aequus Technologies does. Aequus provides technologies and technology related services to people with disabilities and the deaf community, and has a series of services and businesses specifically designed for those audiences. Snap!VRS, in fact, is an Aequus company that provides VRS services for the hearing impaired, and even in the earlier days of WorldGate, before the Ojo, was looking for ways to work with WorldGate to develop a solution.

So, as Founder and CEO of Aequus Richard Schatzberg explains, once Aequus heard about the Ojo, it was a natural extension of his company's existing projects. Using the Ojo and Snap's VRS technology, the two companies have partnered on a major push to bring enhanced IP-based communications capabilities to the hearing impaired community in the United States - a community that, according to Schatzberg, might be as large as one million potential users. The partnership with WorldGate, says Schatzberg, "is a major step up for folks in the deaf community in terms of the technology."

Go to Table of Contents | Go to Ad Index

By Erik K. Linask

With the partnership in place, the companies tested the service for nearly nine months, and have now officially gone live with the Ojo-based service. The first Ojos began shipping into the field in mid-July of this year.

The process is fairly straightforward, with the bulk of the calls initiated by deaf customers. According to Schatzberg, a user simply has to touch the SELECT button on the phone, which places a call to the Snap!VRS service center, where it is placed into a call queue, and is subsequently answered by the next available operator. The customer then provides the interpreter (operator) with the phone number of the third party he wants to reach, and the agent places the call to that third party using Snap's call center infrastructure. The same agent then serves as the relay facility - thus the name Video Relay Service - for the call, translating voice to sign language for the deaf customer, and sign to voice for the hearing user.

While the hearing impaired customer requires an IP connection and Ojo phone to use the service, the leg of the call placed to the third party is sent through the PSTN and requires no IP connectivity nor a video endpoint. Of course, adds Schatzberg, if both parties have video endpoints, the two parties can communicate directly, bypassing the Snap!VRS facility.

An additional benefit for the deaf users, on top of now having the means to communicate with the global community at large, is that the service is subsidized for them. Certainly, providing adequate services for the disabled has long been a concern for the government, and by providing them a communications mechanism at no cost is part of that agenda. The only requirement for the deaf individual, explains Schatzberg, is he must have broadband access at the home or office, wherever he is using the Ojo phone.

"Other than that, there is no incremental cost," he says. "We pay for the Ojo and we provide it to the customer, and we also pay all of the network fees."

The Federal government subsidizes the use of the VRS service, but not the hardware (i.e., Ojo), but Schatzberg says the phones aren't expensive, and he expects that as Snap!VRS adds users, it can build additional efficiencies into the system and build on its scale. Krisbergh says there are currently about 100,000 VRS users in the United States.

He also says the new service has generated significant excitement within the hearing impaired community and, along with Schatzberg, believes offering the service to this user group can only help increase the focus on video telephony services.

"All the people that will be using the phones will all have family or friends that will also be using it," said Krisbergh. "It can provide a fascinating nucleus for network or viral marketing and give it a real start."

The major problem with previous attempts at bringing video telephony services to market has been the quality of service and the poor reputation video services have - if you turned to the cable news networks for live coverage from Baghdad, for instance, you certainly experienced delays, synching issues, and jerkiness. But, while most services have failed to live up the promise of IP-based video telephony, Krisbergh says, "One thing I know is we have delivered on that promise," quoting user surveys, which his company conducts on a monthly basis, claiming none of ten users say their service exceeds expectations.

Krisbergh further explains that WorldGate essentially rejected previous work on video endpoints and services, opting instead to expend the necessary resources on optimizing screen size and limiting packet loss over the Internet. He adds that, although WorldGate is a

small company, it found a niche that most of the world gave little attention to, largely because the technology wasn't yet available.

"Everyone was so focused on VoIP that they forgot about video telephony," he says. "My vision of video telephony goes back 20 years. I just wasn't able to do it because the technology just wasn't there."

He even remarked that, once the opportunity presented itself, and WorldGate was able to successfully develop its product, he, himself, was among the most stunned. "The most important thing we did was set criteria for the quality," he says. "I must deliver high quality - if it doesn't I don't want to waste my time with it. It must give a sense of being there, a sense of comfort, a sense of really talking to the person."

With the Ojo, he believes WorldGate has achieved its goal of being able to provide full motion video with no noticeable delay. He also is not surprised that the two firms are already enjoying the fruits of their labor, because it is a segment of the population that, by nature, places tremendous value on non-verbal communication, and he expects this project will prove to be merely the tip of the iceberg, that video telephony will receive a major push from it.

WorldGate, in fact, is working with BT, New Zealand Telecom, and others on project abroad, but even in the United States, according to Schatzberg, the Snap!VRS service is beginning to reach new heights, with both government agencies and larger businesses expressing interest.

Snap Telecom is currently involved with a number of state agencies on projects, including the State of Georgia, where it has placed Ojo phones in the state's Regional Vocational Rehabilitation offices throughout the state, so that deaf customers can make VRS calls from those offices. In addition, the facilities have access to a VRI service, which differs from VRS in that

both parties are in the same physical location, but they use the Snap!VRS interpreter in lieu of having an outside interpreter come to the office. (VRI is not federally funded.) Schatzberg says he also has received calls from several Federal agencies that are interested in its services.

The Ojo has been designed to easily work within the confines of corporate IT infrastructures, which also makes it an ideal opportunity for businesses looking to enable members of the deaf community more easily integrate into work environments, which is a benefit to the hard of hearing community, the businesses, as well as the nation as a whole.

In fact, Snap!VRS has already been contacted by many corporations looking to deploy Ojo hardware for their deaf employees, ranging from Fortune 100 businesses in technology, pharmaceutical, and other industries, to very small consulting and service oriented companies, says Schatzberg. While he hasn't noticed a trend in terms of the types of businesses, he adds he has been "pleasantly surprised at the number of larger companies that have looked favorably upon the technology."

Many of these companies have diversity initiatives in place and are looking to hire an increasing number of deaf or hard of hearing employees. The Ojo/Snap!VRS combination makes it considerably easier to accomplish that, as it creates a substantially enhanced work environment for those employees. While some of these installations are on-offs, the company is currently looking at one installation of nearly 50 phones and another of more than a dozen.

Much of the interest is a result of a general awareness of the Ojo. Snap!VRS has a presence at many community and industry meetings and conferences focused on the deaf community. Also, as people begin to use the service at home, they increasingly become aware of its business applications as well. All of this, explains Schatzberg, has created an influx of online applications as well as calls from businesses looking for ways to better serve their hard of hearing and deaf employees.

Clearly, the consumer and business applications of the Snap!VRS service provide much needed assistance to the community it targets, providing deaf individuals with an enriched communications experience they have not previously enjoyed. But, there is an even more wide-reaching industry trend that can develop from it as well - the video call center.

While the deaf community are the early adopters, the technology can easily be extended to any business in any industry.

"It just so happens that we're currently servicing the early adopter community, but this same infrastructure can be leveraged to provide similar services to the non-deaf population," says Schatzberg.

The Snap!VRS call center, in fact, is no different from any other call center, other than having video phones for each agent. The network infrastructure has been specifically designed for maximum video call volume, and, according to Schatzberg, there has been no degradation of video quality at peak call volumes.

Certainly, as the video telephony industry grows, the Snap!VRS infrastructure will become a model for call centers worldwide. The benefits of such deployments will extend far beyond simply enabling face-to-face communication. Anyone that has ever had cause to call a customer service center has likely questioned the professionalism of an agent at one time or another. Undoubtedly, the addition of video communication will have a profound impact on the level of professionalism and, consequently, problem resolution.

For now, despite its growth, the service is still in its infancy. But the benefits for government, enterprise, and call center deployments - for both the deaf and the hearing communities - have the potential to produce a growth curve far steeper than Krisbergh or Schatzberg can imagine.

This is a very powerful technology that we believe will have an enormously positive impact," concludes Schatzberg. "WorldGate has proven its ability to engineer high-level solutions, and we look forward to a very long-term and mutually beneficial relationship."

For more information on the Snap!VRS service, (news - alert) please visit www.snapvrs.com, and for more on the Ojo video phone, (news - alert) visit www.ojophone.com.

Featuring:

8x8's Bryan Martin

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.

Bryan Martin
CEO, 8x8

The IP Communications landscape has changed tremendously over the past year, including consolidation, service shut downs, and, of course, constant innovation of products and services. On a daily basis, new products and service offerings are announced that take advantage to the latest technologies to drive growth and enhance communications capabilities for businesses and consumers alike. Perhaps the area that has witnessed the most growth of late is the hosted VoIP space, as 8x8 will attest - it recently reported its first profitable quarter.

In addition to introducing innovative new services, a requisite part of successfully running a technology-based business, 8x8 has developed a business model that has driven its growth, perhaps faster than anyone could have predicted. Rich recently spoke with 8x8 CEO Bryan Martin, who explained how the company's Packet8 service has been able to achieve sustainable growth and how 8x8 differentiates itself in a marketplace full of both players and pretenders.

RT: You recently announced your first profitable quarter since the launch of Packet8. How does it feel to be the first profitable consumer VoIP company?

BM: I feel very fortunate to have been a part of the team that turned 8x8 around after the telecom bust hit us so hard six years ago. When I became CEO of the company in February 2002, all of our service provider customers that had been buying our VoIP technologies had gone out of business or had shut down their new IP communications initiatives. We started our own service - "Packet8" - in November 2002 as a way to bring all of those technologies to market ourselves as a service provider. We have never looked back since.

Since day one, our goal has been to build a profitable, worldwide phone company with zero debt and, as our most recent quarterly results demonstrated, we have now achieved that goal. We have made more money, faster, than any other pure-play VoIP service provider in the business. 8x8 is living proof that a technology-driven, well-managed, independent VoIP provider can deliver outstanding replacement phone services to consumers and businesses while operating a financially successful company.

iRT: How did you do it?

BM: In one of my first interviews on CNBC after becoming CEO, I predicted that success in the VoIP service provider market would be a "marathon and not a sprint." We have grown our business with an eye towards a return on our investments and, while we may have grown more slowly than some of our competitors, we now have a profitable customer base and a sustainable business model, while those that chose to grow at any cost are no longer in business or are on their way out. We never lost sight of our underlying business goals and focus on the numbers in making our business decisions.

We also pushed the technology and R&D side of our business hard, as we were not satisfied with merely offering a replacement voice service that mimicked copper networks and their antiquated limitations. We introduced our first video services in 2004, our first hosted PBX services for businesses in 2004, and continued to develop and enhance the capabilities of these services over time. We also pushed the development of new customer premises equipment, including the co-branded Uniden/Packet8 first cordless consumer VoIP phone in 2005 and our latest invention, the Tango video terminal adapter. We were delivering working VoIP E-911 services more than a year before the FCC mandated it, and intend to continue to push the bleeding edge of the technology curve in this industry.

RT: Where did others go wrong?

BM: I have read a lot of opinions lately that state that service providers who do not own their own network are doomed to fail. This statement is wrong in the modern VoIP marketplace. However, I do believe that service

Go to Table of Contents | Go to Ad Index

providers who do not own their underlying technology are doomed to fail. Many of our former competitors are no longer in existence because becoming a VoIP service provider looked so much easier than it actually is.

I have always said that it is easy to walk onto a rugby field, but very difficult to walk off. If you do not control your own technology in IP communications, then you are unable to control your own destiny. You are at the mercy of equipment and softswitch vendors and your features will be identical to your fellow competitors who are using the same technology, if they work at all. You will also pay these technology vendors dearly and will be at a price disadvantage to companies like mine who own and control all of the software and technology used in their services, including the software on their networks and the firmware in their customer premises equipment. We can deploy unique features, like video and business service applications, faster and cheaper than anyone else in the market. We fix our bugs faster, too!

You also don't need to own your own network, and all of its associated debt and expense, to deliver high quality communications. Businesses subscribed to Packet8 Virtual Office, by far our most discerning customers, represent the lowest churning segment of our customer base. This statistic proves that we can provide superior telecommunications services over networks we do not own because we own the underlying technologies that make our services possible.

RT: You have openly invited SunRocket customers to switch to your service after their well-publicized bankruptcy. How is this going?

BM: We have been swamped with business since July 16, when SunRocket began to shut down its network. As of the first week of August, we had signed up more than 22,000 SunRocket subscribers, with 61% of them ordering our annual calling plans, providing tremendous cash flow into our business.

While our fulfillment, number porting, and customer service facilities have been overloaded with the new business, I am pleased to report that the majority of these new customers have been thrilled with the speed and proficiency we have demonstrated in transitioning their service and phone numbers over to Packet8. We are exceeding their expectations and providing better service than they had with SunRocket. I can't tell you how thrilled we are to provide a new home to these customers.

RT: Why should customers switch to your company's service?

BM: First and foremost, after going through the "chains on the door" experience that these customers suffered with SunRocket's closure, they should know that they are signing up with a stable, respected, long-term service provider. 8x8 has been in business for more than 20 years (I have been with the Company for more than 17 years), and we are publicly traded (Nasdaq: EGHT), which provides financial transparency and reassurance that we will be around to provide customers' IP communication needs for a long time. We are one of the emerging "Broadband Bells" of the 21st century and will not disappear in the middle of the night.

Second, our services are among the most mature in the industry, with features not offered by anyone else in the space, and at price points that are significantly less than what is available from the Bells, the CLECs, or the local cable company's fixed line service.

SunRocket's demise does not mean that saving money with VoIP services is out of vogue or no longer possible - it simply means consumers have to be careful whom they choose as a service provider.

Finally, we have always placed a huge emphasis on customer service. All of our call centers are on-shore here in California, and we will never send a customer's call for help or technical assistance overseas to India or the Far East. The Bells are making that mistake now and it will cost them in the long run.

RT: Tell me about your new services, like in the call center space and remote installation. What are customers saying about these announcements?

BM: Our new hosted call center services greatly diversify the suite of Packet8 Virtual Office business communication solutions we have offered to date. The new call center services enable both iPBX dial tone and multimedia contact center functionality. Packet8 Complete Contact Center, as we've named this new suite of business services, enables companies to quickly deploy and operate multi-channel contact centers within Packet8's hosted iPBX infrastructure without the time and expense of purchasing, installing and maintaining costly, specialized call center equipment and software.

We have been using the service in our own call centers for several months and our agents are enamored with the services' features. Our business customers have also been asking for these capabilities for some time. The service includes skill-based routing of calls, emails, web chats, and voicemail messages; real-time monitoring and reporting; voice recording and logging; historical reporting; multi-tier menus with customer-entered digits; and queue look-ahead logic for reporting the number of calls in queue and expected wait times to your callers; plus CRM integration with leading software packages such as Salesforce.com and Netsuite.

RT: What pains are you solving for your customers?

BM: We are offering turnkey IP communications services with features and capabilities our customers did not previously have at price points lower than what they have ever paid before. Our main goal is to ensure that our customers can sign up for our services and begin using them without any hassles or specialized technical knowledge. This goal is why the support component, both before and after the sale, is such an important ingredient for our success.

In the business space, hosted telecommunications services are a new concept to most business owners when they think about their telecommunications needs, but one that these business owners embrace once they see how easy it is to adopt IP communications from a provider like 8x8. With over 8,000 U.S. small businesses now using Virtual Office as their primary phone system, we know that these early adopter business owners are, indeed, realizing the cost and performance advantages of our IP communications services and we believe we are on the brink of mass adoption of these services by the more then 23 million U.S. small businesses in existence today.

RT: Are you on track to hit your professional goals? What else are you working on?

BM: I'm an engineer by background, and the greatest thrill in my professional life is to see new technologies and services launched into the marketplace. There is nothing like sitting in the lab the night before a product launch, knowing that the product and service before you, unique in the entire world, will be purchased and used the next day across the globe by your customers.

I also believe, as one of my fellow Board members preached to me long ago, that anything worth doing is worth doing for money. We are starting to see the Packet8 business accomplish both

goals, with world-changing technologies and profitable growth. So yes, I am very satisfied with my professional accomplishments at 8x8.

Late last year, California Governor Arnold Schwarzenegger appointed me to the California Broadband Task Force for the Business, Transportation, and Housing Agency, where I am currently serving as Chair of the task force's Emerging Technologies and New Applications sub-committee. Our goal is to recommend policies and actions that should be taken by the State of California in order to further the adoption of broadband technologies and applications across all demographics, a critical necessity to keep California and the United States competitive in the 21st century. I believe this work is critically important to our collective technological future.

RT: What do you think of the 700 MHz spectrum auction?

BM: I don't know much about it, other than what I read in the trade journals. In general, and based upon his regulatory actions the past couple of years in VoIP, I would have to say that if FCC Chairman Martin supports the current spectrum auction process, then it is probably not good for the small, innovative, non-incumbent providers.

RT: Will this have bearing on SMB or consumer VoIP services?

BM: Eventually, yes. But mobile/cellular IP communication services has been one of those topics that the press publicized early on, well before the relevant technologies underlying the services had been developed. We are making progress, but I predict it will still be some time before we see widespread adoption of wireless IP communication services. The industry is just now beginning to take baby steps. We are not there, yet.

RT: What should potential customers know about 8x8/Packet8?

BM: They should know that 8x8 is a well-managed, fiscally responsible company with 68 awarded U.S. patents in the fields of communications, Voice-over-IP, and video technologies; that we have been based in Santa Clara, California for more than 20 years; that we handle all of our customer service out of service centers located right here in California; and that we are dedicated to listening to and learning from our customers. We run a Packet8 customer community at http://community.packet8.net, where our customers can interact with our employees and management team.

RT: Where will Packet8 service be in the next 3-5 years?

BM: My prediction is that we will be big, a 21st century "Broadband Bell," and wildly profitable. Having said that, we will still be deploying new applications and services long before others have thought of them. I also predict that we will still be utilizing our own IP communications technologies to provide the best possible customer experience, support and service in the industry, no matter how large we become. IT

IP Contact Centers Go Multi-Channel

IP contact centers were novelties until just a few years ago, occupying just a few percent of the world's installations. Recently, however, the appearance of both robust, advanced technologies and more solid Internet broadband has set many companies along various migration paths to hybrid PSTN/IP contact centers. Multi-channel/multi-modal capabilities are becoming the norm, with customer 'calls' being anything from email and faxes to chat, SMS, MMS, instant messaging, voice and even video. Such 'calls' tend to 'escalate', starting from chat, say, to voice or video.

We start with Aspect Software (news - alert) (www.aspect.com), which helped to get the whole call center business going years ago by offering the industry's best ACD (Automatic Call Distributor). Back at the turn of the century, when it was known as Aspect Communications (before it merged with Concerto Software in 2005), Aspect was already involved with IP with its IP Contact Suite, an IP-driven, centralized multichannel contract center framework that combined a software platform, applications and connectivity to front- and back-office systems. The system could handle remote agents via IP and Aspect's IP Network InterQueue enabled control of multiple contact centers as if they were a single operation, with VoIP as an option.

Today, Aspect Software is known for such call center applications as its Enterprise Campaign Manager, which can be used with several productivity-boosting modules in the Aspect portfolio, such as the Aspect Conversations and Unison Predictive Dialers for outbound and blended call management, and the Aspect Ensemble Pro for unified contact center management.

Mike Sheridan, Aspect's Senior Vice President of Strategy, says, "Most of our installed base is still TDM, but as our customers look to add new seats, home workers, or move their centers to IP in general, we're seeing a lot of companies choose VoIP, particularly SIP [Session Initiation Protocol]-based VoIP. Percentage-wise, anywhere from 20 to 40 percent of our agent shipments per quarter for ACD [Automatic Call Distribution] are VoIP in nature. On the dialer [outbound] side, which makes up less of the total, we see very little VoIP. That speaks to the popularity of at-home, virtualized operations for sales, as opposed to, on the dialer side, collections services, which are typically done not via IP in a virtual manner, but right in a call center. There's less of a business benefit for VoIP in such basically outbound call centers."

"VoIP is starting to 'happen' in call centers everywhere," says Sheridan. "Within a few percentage points difference, it's largely the same mix throughout the world as far as TDM *versus* IP shipments. You'd think that, with an emerging market, more would be done quicker with VoIP. We do a lot of sales in the Asia, Pacific and Australia region, but the mix is about the same. It speaks to the maturity of the market. Korea has a very mature contact center market, and they've been making investments for years but there's not a huge driver for them to swap out their existing TDM installed base to go to VoIP, unless they happen to be doing things such as home agents or they're deliberately moving their centers to IP."

"Here at Aspect we just moved our corporate facility from Westford to Chelmsford, Massachusetts, and in the process we went totally VoIP. We use Asterisk for the switch. We of course set up our customer contact center at the same time with our own Aspect Ensemble Pro for unified contact center management on top of the open source Asterisk system. The driver for us to move to VoIP was because we were moving our whole facility, which is the case for many companies these days."

At Envox Worldwide (news - alert) (www.envox.com) Vice President of Product Marketing John Joseph says, "Our two main product lines consist, on the one hand, of tools and platforms for developing voice self-service applications, and on the other of software enabling CTI and intelligent routing relating to the contact center. We have several different toolkits for developing things such as IVR [Interactive Voice Response] systems, and those are enabled for traditional networks as well as IP networks. What's important to us from a design philosophy is to have a single platform with which you can develop on and move forward. That's been a good selling point against our competitors that have differing product lines for IP and the PSTN."

Joseph elaborates: "So, you can develop a self-service application that initially works with the PSTN, then, as your business changes and as you do a pilot for VoIP, you can leverage the work you put into your application and easily transition it to an IP-based network. That's what we're up to on the self-service side. On the call center side we have a product line called Envox CT Connect, which we acquired from Intel. It's been around for about 15 years. CT Connect software provides CTI capabilities such as screen pops, intelligent routing and monitoring functions. If you're developing an app for a contact center, you can build your application, such as a monitoring app, to our CT Connect API and then we provide backend, out-of-the-box integration to more than 30 PBXs and ACDs, including IP and traditional switches from Avaya, Nortel, Cisco, Siemens, and others. Over 1.25 million ports are deployed on our self service platforms and there are over a million agents to whom calls are routed using our CTI software. We also provide services and we can do turnkey solutions. We sell both direct and to VARs and VADs."

"We see SIP as a great standard as we move forward," says Joseph. "All of our products are based on industry standards, such as VoiceXML and CCXML [Call Control eXtensible Markup Language] and MRCP [Media Resource Control Protocol], which enable you to piece together a very cost-effective and viable solution for various environments."

Go to Table of Contents | Go to Ad Index

By Richard "Zippy" Grigonis

"We definitely see an increase in the number of companies moving to VoIP, including some of our major customers," says Joseph. "It's driving the replacement of a lot of systems out there, which is where we get a lot of our business. We see a great deal of interest in what we term IP Communications in both the contact center as well as service providers. Then there's the matter of communications such as SMS [Short Messaging Service], email, chat and even video. The ability to handle all that from a single infrastructure is a big selling point to enterprises today. There's been a lot of change over the past five years, probably more than over the previous 20 years. There's some uncertainty over where all of this is headed, but it's pretty clear that the way we communicate and the applications that we use to communicate and what parts of an organization work together will change. You really must design for flexibility as we all move forward and plan that you want different modes of communication within the contact center. Your infrastructure should allow you to change applications and adjust things. You don't want a solution that freezes you in time, even though to some degree you'll always have limitations. But the more you can preserve that flexibility, the more you can assure that your business will be competitive in the future."

"We see companies experimenting with advanced functionality such as video and trying to figure out what the value proposition is for their customers and what's the correct timing and approach to add that into their call center," says Joseph. "The same thing applies to the use of other communications modes, such as SMS."

"Another major trend relating to contact centers is concern over how a network should be set up," says Joseph. "Just how much does a company want to centralize their operations? Do they want to deal with at-home agents? There are some corporate culture issues that crop up with that kind of transition. But I think there is a turning point in terms of how to design your network, support strategy and systems for the future. The decisions you make now will set you up for flexibility and low-cost, or just the opposite."

Joseph's colleague, Sanjeev Sawai, Vice President of R&D at Envox Worldwide, says, "A certain amount of hand-holding is still necessary. There are several scenarios. In the case of large enterprises that have had TDM-based call centers for a long time, they have established procedures and applications; the challenge there is to make sure that you change out the infrastructure and that all of the new applications you're installing work well with the other applications and the agents. Because of the cost points of IP contact centers, there are many small and medium-sized contact centers appearing that don't necessarily follow that scenario, and the challenge there is to educate these smaller companies and ensure that what they buy works right out-of-the-box because they don't have the level of IT help that you need to get something sophisticated up and running. But once it is up and running, productivity increases."

"We have a very strong partnership with Salesforce.com," says Sawai, "There the combination of Envox software with their CRM system really takes a tremendous number of capabilities formerly available only in larger call centers, and pushes them all the way down to small organizations. Even a call center of just a few agents can benefit from such significant capabilities. Many of those companies have added CRM systems in the past, perhaps to power their sales teams, but they never went back to 'connect the dots' between all the data they were collecting and information about their customers, to their support organization. Now, however, they're able to do that, largely because of things like IP technology and hosted services. They can do it cost-effectively and the setup charges are minimal and the solutions have been proven to work together, so you can combine the solutions easily. We're starting to see customer service organizations have much greater capabilities as a result. We think that translates into better service for their customers."

Virtual Call Centers

One major trend for smaller and medium-sized businesses has been hosted and distributed "virtual" call centers.

Jim Dvorkin, the CTO of Five9 (www.five9.com), says, "We enable companies to create a VoIP contact center with a PC and a broadband connection. We're a market leader in providing hosted, on-demand call center solutions. Any company considering buying or upgrading their premise-based call center infrastructure from vendors such as Avaya, Aspect, Nortel or Cisco, would consider Five9 as an on-demand alternative. Our migration path doesn't require up-front capital equipment investment. Basically we provide all of our virtual call center technology from our data center in the U.S., which is connect-

ed to the telecom network to place and receive phone calls. From the data center, calls travel using VoIP. Every agent on the Five9 network is equipped with a softphone similar to Skype that runs on their PC. Obviously a broadband Internet connection is necessary. Typically our agents use headsets connected to their PCs. They come to work in the morning, they log into the Five9 application, and immediately through their Skype-like softphone they're able to receive the calls from their call center and make outbound calls if necessary."

"Different companies, both small and large, rely on Five9's capabilities," says Dvorkin. "We have customers that range anywhere from five seats all the way up to 200 seats. Our customers are not just in the U.S. but also across the globe in India, Latin America and Europe. Some industry reports indicate that there's a strong trend of replacing the existing call center infrastructure with VoIP solutions. Many existing call center vendors such as Avaya, Nortel, Aspect and Alcatel, offer VoIP options to their existing hardware, and sometimes customers go for that. Sometimes the systems are being replaced completely by a brand-new VoIP call center - Cisco is a market leader in doing that."

"Basically Five9 plays a role in that trend by providing an on-demand alternative for companies to consider and 'pay as they go' as opposed to investing in a big project in terms of time, money, resources, and doing a forklift upgrade or replacement of their existing call center infrastructure," says Dvorkin.

"In the past two or three years, the Internet as an infrastructure became mature and more robust," says Dvorkin. "Lots of bandwidth is available that is very inexpensive. That creates a huge leverage for new delivery mechanisms and new business models, such as Five9's, which in turn makes these new solutions available and affordable."

CosmoCom (www.cosmocom.com) is another major player in offering hosted contact center or "network-based" contact center services via Network Service Providers (NSPs). CosmoCom's (news - alert) Contact Center On-Demand (CCOD) helps NSPs increase their margins, capturing some of the revenue that normally escapes to vendors of premise-based equipment. CCOD also allows operators to protect existing sources of revenue (e.g. simple transport services) from price-driven churn.

Now You See It

Of all of the multiple channels that can be plugged into the modern contact center, voice is still the "killer app" which is why many of us still refer to such centers using the term "call center". Of course the word "call" has been expanded to include such various "channels" as email, chat, texting, and now video calls. Video is still a rarity, but it's starting to catch on. Take OneContact from Portugal's COLLAB (news - alert) (www.collab.pt), an IP-based 3G contact center solution that offers full multimedia contact management across instant messaging, voice and video. COLLAB's software solution relies on just the ubiquitous SIP standard and a media server. OneContact lets you create multi-site contact centers in a distributed model, so contact center agents are able to work from any location. All contacts are handled in the same queue using the same routing and ACD rules regardless of what media a customer uses to contact the center.

Recently, RH Telecom, the leading Bosnian mobile network operator, selected HERMES SoftLab to implement a new contact center and helpdesk solution for their customer care operations. HERMES, in turn, selected COLLAB's OneContact solution. BH Telecom will now have a next-gen contact center along with trouble ticketing and knowledge base applications. Thanks to OneContact, customer service representatives will be able to receive customer "calls" from different channels such as voice, email, web, SMS, fax and even USSD (Unstructured Supplementary Service Data, a GSM technology standard that supports the transmission of information over the signaling channels of the GSM network).

Making the Transition

With all this talk of migration paths for enterprises and network operators, we forget that the vendors themselves have their own migration path, since they must re-engineer their products to work with the current hybrid TDM/IP Communications environment.

For example, Yours Truly remembers when Witness Systems was simply a company that specialized in recording technology for call centers in the circuit-switched world. Now, as Verint (news - alert) Witness Actionable Solutions (www.verint.com), their portfolio has increased considerably, with contact center solutions ranging from recording to quality monitoring, analytics, and performance management. Witness Systems' Impact 360 workforce optimization has been combined with Verint's ingenious actionable intelligence solutions, resulting in a considerable solution set for contact centers ranging in size from fewer than 100 agents to giant, multi-site/virtual installations.

Robert Barnes, Director of Recording Platforms at Verint, says "There are still many TDM contact centers out there, but most of the new-styled businesses certainly are IP or a mixture of IP and TDM. They're served predominantly by such major players as Avaya, Cisco and Nortel. Avaya has been particularly strong in the call center space. Avaya and Nortel were a bit late into the game, but they're leveraging their experience and their installed bases very efficiently these days."

"Just about every greenfield operation that comes along is based on IP," says Barnes. "If they don't immediately adopt IP, they at least certainly want to understand how they're going to move to it within the next two years. They're looking at migration strategies and making sure that they're not signing themselves up with a system that is TDM-based that ultimately prevents them from moving from IP. IP is of course where standards-based platforms play very well."

As IP continues to penetrate into the contact center industry, customers will be surprised as to how easily and how many different ways they can reach customer service representatives, and contact center owners will marvel at how well their systems can bring any member of their staff with pertinent expertise into a "call". Moreover, seamless connections with the back-office environment have eliminated the old bugbear of sequestering agents in front of multiple consoles. IP Communications may finally put the "service" back into customer service. IT

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

Go to Table of Contents | Go to Ad Index

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WiFi Telephony Gets Pervasive

WiFi telephony, once exotic, continues to become commonplace, first in vertical markets such as healthcare, retail and manufacturing, and now in the enterprise. The only question that remains is whether workers will be using dual-mode cellular/WiFi devices that can roam seamlessly between those two wireless worlds, or if a given company's investment in existing infrastructure dictates that their corporate communication system act more like a "mash up", with calls and multimedia being forwarded to separate devices as needed. This appears to be more a matter of "corporate culture" and how quickly legacy equipment is to be replaced.

With all the hubbub over WiFi telephony, people forget that WiFi itself is simply a wireless extension to Ethernet, with access points acting like Ethernet LAN jacks. Unlike the LAN card in your desktop PC, however, a WiFi phone can roam about to the point where Quality of Service (QoS) can degrade, given that more than one device can access an access point simultaneously and given WiFi's limited range of a few hundred feet. Moreover, Ethernet itself was never that great in the QoS department, since its Medium Access Control (MAC) layer protocol for sending and receiving packets (or "frames" in Ethernet parlance) has, despite a few improvements since the 1970s, been a relatively primitive contention-based process that doesn't allow for QoS.

The IEEE 802.11e standard also implements a QoS feature normally found on the PSTN - admission control to the network.

That's one reason the Wireless Multimedia Extensions (WME), now known as WiFi Multimedia (WMM), were formulated by the WiFi Alliance trade organization, based on the WiFi QoS enhancement specification (IEEE 802.11e). WMM changes the Ethernet MAC layer to enable a prioritization scheme (vaguely reminiscent of Cisco's MPLS for larger wireline networks) that defines four types of traffic: Voice (e.g., VoIP on WiFi phones), Video, Best Effort, and Background. WMM doesn't guarantee throughput however, since, unlike your friendly local Ethernet wall jack, your WiFi-enabled phone can easily wander away in the hands of a user and disappear from the network entirely.

The IEEE 802.11e standard also implements a QoS feature normally found on the PSTN - admission control to the network. During certain time intervals a given access point has total control of the medium and determines which mobile stations can transmit. Also known as WMM2, a similar mechanism called the Point Coordination Function (PCF) was in the original 802.11 MAC layer specification, but few vendors ever implemented it. Also lumped under WMM2 is an additional feature, Unscheduled Power Save Delivery (UPSD), which conserves handset batteries by allowing them to "sleep" periodically.

Wither WiFi?

Amazingly, at the end of 2006, Dan Jones, writing at Light Reading's Unstrung online enterprise wireless publication, boldly went where no pundit had gone before, predicting that the WiFi handset market wouldn't survive through 2007. He believes that dual-mode cellphones made by such companies as Motorola, Nokia and Samsung will displace dedicated WiFi handsets. Of course, that didn't stop SpectraLink (news - alert) (www.spectralink.com), just prior to their acquisition by Polycom, from introducing their NetLink 8000 Series Wireless handsets a few days later, available with 802.11a/b/g radios - consumers are accustomed to 2.4 GHz "b" and "g" WiFi, but enterprises appear to be moving to the additional, clear 5 GHz channels afforded by "a". (Still, many existing WiFi phones work with "b" such as ZyXEL's WirelessIP5000 VoIP Phone, or with "b" and "g", such as ZyXEL's Prestige 2000W v2 WiFi VoIP Phone.) Now with the Polycom acquisition, SpectraLink has an even better set of sales channels.

As Ben Guderian, Vice President of Marketing for Polycom's SpectraLink division says, "The acquisition by Polycom occurred March 26th. That went smoothly because there wasn't much overlap between the Polycom products and ours, and there are some really great opportunities for synergy to bring wireless products into the

Go to Table of Contents | Go to Ad Index

By Richard "Zippy" Grigonis

Polycom VoIP deskset business."

"Of course, even prior to the Polycom discussions, we were identified as a company that went after the SMB market and telephony service providers. With Polycom we have a ready-made channel to go after that. We haven't done a whole lot yet regarding dual-mode because we still have a lot on our plate in terms of satisfying the mainstream WiFi telephony market which still consists of the vertical markets. And of course we do a lot of business with our OEM partners."

Just prior to the Polycom acquisition of SpectraLink, there occurred a similar event, Motorola's acquisition of Symbol Technologies (news - alert) (www.symbol.com), thus furnishing Motorola with a ready-made enterprise mobility business. Symbol was always known for its voice-enabled mobile computing devices catering to the needs of such vertical markets as retail, warehousing, logistics and transportation, government, healthcare and manufacturing. For example, consumers visiting upscale retail outlets may encounter Symbol's MC17 consumer shopping terminal that hastens the shopping checkout process, locates items, checks pricing and finds complementary products and personalized promotions and recommendations. In the enterprise, Symbol's RFS7000 Wireless Switch has voice-centric features and capabilities, supports Motorola's Wi-NG architecture for campus-wide roaming across subnets, and offers expanded failover capabilities, enhanced quality of service (QoS) and increased voice capacities.

Symbol offers such QoS-enhancing features as WMM, WMM2 and SIP Call Admission Control that allows enterprises to define the number of voice calls that can connect to an access port to prevent overload and degradation of service. Voice prioritization can be done even with packets originating from legacy voice solutions that don't support WMM. Symbol's implementation of Multi-BSSID establishes a separate virtual wireless LAN for voice traffic, improving voice performance and eliminating the processing of unnecessary messages by mobile devices, improving battery cycle times and overall battery life expectancy.

Moreover, since security has been such a problem with WiFi over the years, Symbol offers their Wireless Intrusion Prevention System (Wireless IPS) to protect corporate wireless network infrastructures, mobile devices and wireless traffic from external threats. Wireless IPS enables you to proactively monitor your wireless network for weaknesses and fix them before a hacker intrudes. It can also help with eliminating "blind spots" in your WiFi coverage. The plug-and-play Wireless IPS has a distributed and centralized architecture, and performs its analytic duties while consuming minimal bandwidth.

Security upgrades have also been done to the Sipera IPCS 520 from Sipera Systems (news - alert) (www.sipera.com). It's a pizza box-sized device that complements existing security gateways and firewalls with application-level intrusion prevention, denial of service (DoS) prevention, troubleshooting, network-level security and spam/voice spam filtering. The Sipera IPCS 520 can be deployed in active mode in the path of subscriber traffic or passive mode on a mirrored port. It can be deployed without an IP address as a "bump in the wire", with no network configuration changes required. It's designed to enhance security for those service providers offering services based on the Session Initiation Protocol (SIP), IP Multimedia Subsystem (IMS) or Unlicensed Mobile Access (UMA) technologies. The Sipera IPCS 520 supports 100,000 users and 10,000 simultaneous sessions with 2Gbps of throughput in IDS/IPS mode.

To secure dual-mode phone service, the Sipera IPCS 520 serves as an IDS/IPS security solution at the service provider edge while enterprise-class Sipera IPCS products are deployed in the enterprise "Demilitarized Zone" or DMZ (a server or small subnetwork situated between the trusted internal corporate LAN and an untrusted external network, such as the Internet), allowing secure integration of dual-mode phones with the corporate IP PBX.

Consumer WiFi Telephony

Although WiFi Telephony's early successes were in the vertical market workplace, residential users of Vonage's VoIP

service can now avail themselves of "Vonage WiFi Phone" which is made by UTStarcom (news - alert) (www.utstar.com) and accesses the Vonage service by connecting to wireless Internet WiFi hotspots worldwide at no additional cost. The device provides a 200-entry phone book, speed dialing, a call log, and various ring tones.

And speaking of UTStarcom, their latest residential WiFi handset is the F3000. With its clamshell design, it supports 802.11b/g, SIP, SDP, RTP, DHCP and TFTP, as well as the usual call feature set (three-way calling/call waiting, call rejection/redial/mute, call transfer/call forward, etc.)

Another interesting WiFi handset is the Ascom i75 by Ascom (news - alert) (www.ascom.com) fits wireless telephony, wireless messaging and a wireless personal alarm into a single device for users in manufacturing, health care, retail and "secure establishment" segments. Part of a whole wireless system portfolio, it's compatible with the Cisco Compatible Extension (CCX) version 2. If you break your handset, Ascom's Virtual SIM feature allows you to transfer your personal profile and settings from a central server to another "system-associated" handset. Ascom's VoIP Gateway allows smooth integration with a circuit-switched PBX or public switched telephone network to provide voice communication between Ascom VoWiFi handsets and any other phone in your organization. The VoIP Gateway can handle up to 1,000 Ascom handsets and comes with T1 or E1 interfaces and 60 simultaneous speech channels to the PBX. Protocol support includes QSIG, NI-2, 5ESS, DMS 100, and the E&M CAS trunk protocol.

Of course, HSDPA (High-Speed Downlink Packet Access, also known as High-Speed Downlink Protocol Access) may finally get going at full throttle with cellular services in the form of so-called "Evolved HSPA" (also known as: HSPA Evolved, HSPA+, I-HSPA or Internet HSPA) the 3G mobile data protocol defined in 3GPP release 7, it provides theoretical data rates up to 42 Mbps on the downlink and 11 Mbps on the uplink. If that happens, perhaps small businesses will replace LAN wall jacks with docking stations for their cell phones! IT

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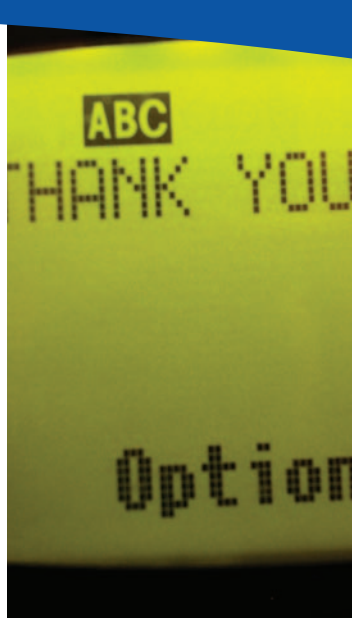
Go to Table of Contents | Go to Ad Index



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ENUM Slowly Makes Its Mark

ENUM (TElephone NUmber Mapping or "electronic numbering") is a protocol suite designed to unify the standard E.164-format telephone numbering system with the Internet addressing system (DNS, or Domain Name Service). The phone number is used to obtain NAPTR (Naming Authority Pointer) DNS records in a DNS database. The ENUM process thereby stores phone numbers in the public DNS and transforms your 15-digit telephone number into a sort of universal identifier for sending calls to various trusted devices and applications - voice, fax, mobile, email, text messaging, IMS applications such as Push-to-Talk, location-based services and the Internet.

Arbinet (news - alert) (www.arbinet.com) provides an electronic trading platform where 900+ fixed and mobile service providers buy, sell, deliver and settle 12+ billion minutes per year. Steve Heap, Arbinet's Chief Technology Officer, says, "The IETF originally conceived of ENUM for a world without service providers. Someone with a VoIP phone could have put their phone number and its IP address in some ENUM registry or database. Then, some other person in the world trying to call them would just directly query this registry in some way, get the IP address of the distant person, and set up the call through the public Internet with no service provider being needed. This became known as Public ENUM and a few countries have done trials of it, but to me these are going nowhere. It's too much of a geeky-paradise idea with no business model, so most customers don't have the slightest interest in it."

"Public ENUM ... It's too much of a geeky-paradise idea with no business model, so most customers don't have the slightest interest in it."

"The basic concept of ENUM however is good," says Heap. "The originating service provider can find and set up the call or the session to the terminating service provider. That idea of peering one provider with another is what really interests the industry, since it establishes a connection between both users and providers, and the provider can then collaboratively generate some 'incremental service' capabilities on top of that connection, be it better quality codecs or, in the cable TV world, the caller's name appearing on the TV. And the quality of the call should be better because there are not intermediary translations from one technology to another. And of course you've cut out all of the intermediate PSTN carriers that currently get involved in a call along with the costs they incur."

To really fathom the mysteries of ENUM you should find yourself a DNS expert, so Yours Truly rang up Nominum (news - alert) (www.nominum.com), known for their carrier-class, scalable, reliable and secure DNS and DHCP (Dynamic Host Configuration Protocol) servers and Layer 5 to 7 networking solution sets.

George Smine, Senior Director of Product Marketing at Nominum, says, "ENUM started as an IETF protocol and then it made its way into the ITU and then into some regulatory bodies across European countries and even in America. We realized that ENUM initiatives were going take much longer to achieve reality than anyone had thought. You see a bit more activity in Europe where there have been some trials of public ENUM."

"Right now we see the industry converging towards something that's called Private ENUM or Carrier-ENUM," says Smine. "There are multiple reasons for that. The first concerns the transfer and the ownership of the data sets in a public ENUM space. Imagine having your telephone number being stored out there in the Internet. How do you teach consumers that that's how they can manage their phone numbers? This would be a case of what people sometimes call End User ENUM. Or, think of carriers' reluctance to divulge their numbering plans or how they have some advantages of routing a phone call across the complex web of interconnects and settlement agreements and termination rates that they have with other providers. Having a single converged view of every telephone number out there in the public Internet is not something that's very conducive to their operations. Why should every carrier share their 'crown jewels' and put that information out there, thereby helping anybody with a SIP phone a way to bypass the traditional carrier? Questions also arise as far as opting-in and opting

Go to Table of Contents | Go to Ad Index

By Richard "Zippy" Grigonis

out, and this is where you see many lawyers entering the game. Moreover, how do you really facilitate the end user's interaction in all of this and manage it? And what is the Quality of Service [QoS], what is the expectation by an end user in having a phone call delivered to their handheld device if they're the ones managing that phone number?"

"ENUM thus raises a lot of issues and that's why we've seen ENUM take different courses and paths," says Smine. "The basic idea of ENUM sounds great, putting all of these phone numbers in a public DNS, but it's going to take a while for it all to happen. You may see some grassroots efforts and some countries may be able to achieve that a bit faster than others. The U.S., because of its size and the number of carriers and the number plans that are very big here, may take longer than some other countries for ENUM to fully materialize. Instead, we're seeing more Carrier-ENUM implementations taking hold, which are private databases being managed internally as part of the network, like any networking element, and independently done by each carrier on their own."

"Nominum saw how the Infrastructure ENUM or Carrier-ENUM was used and the glaring need for having operators interconnect with each other," says Smine. "We saw how ENUM serves a purpose in serving as a database on IP. Not exactly like a signaling control point in SS7, but something akin to that. Products such as Acme Packet's Session Border Controllers and things such as softswitches can rely on the database to retrieve and do the number translation - not so much just being able to find a mechanism for mapping a phone number to DMS and resolving it, but also to figure out what the possible routes a carrier can use to interconnect to other providers. What's interesting about this is that, when we look at VoIP growth, very often we tend to look at VoIP at the edge. We compare it with Skype, Yahoo broadband, consumer VoIP growth and adoption by cable providers, and in a way we measure this usually by what's going on at the edge. VoIP is not just happening on the consumer front, it's happening on the business front with such things as IP PBX adoption. But there it's a bit harder to gauge the numbers because although enterprises have IP PBXs, they may still connect to carriers via TDM lines."

"What's interesting is that interconnects are moving to IP," says Smine, "so large and even small carriers who interconnect with other carriers and some enterprises are noticing that many of their interconnections should be moved from TDM to IP. So there's a move towards IP interconnects as the core of networks between wholesalers and retail carriers, which makes the network now look more like a doughnut, where at the core you're getting an IP explosion, and, at the edge, you have this erosion of Class 5 switches that are serving traditional TDM customers who are now moving to IP. That's where we saw the move to ENUM growing and so we launched our product Navitas, what we call an ENUM routing directory. It's a database that sits in the network and its main task is to store a very large set of numbering plans, be they based on prefix routing, number portability, or whatever. Navitas is very scalable and can store a massive amount of data, and it can serve as the main repository for facilitating the interconnect routes and managing traffic between carriers and even for retail telcos. This has placed us in a state where we're serving data that helps carriers achieve least cost routing or what we call Best Path Routing, wherein a call is delivered not only based on the cost, but also based on the quality of the call in conjunction with the cost and based on the bandwidth capacity available on the network or on particular routes."

ENUM Keepers

VoEX, Inc., is a VoIP managed-service provider offering a global peering infrastructure. VoEX maps phone numbers to resolvable IP addresses by com-

bining a carrier-grade VoIP peering infrastructure with the world's largest (250 million+) Carrier ENUM registry.

VoEX's Cyril Matthews, Director of Registry and Network Services, says, "In terms of the Private *versus* Public ENUM view of things, we're taking a more private, or 'carrier ENUM' approach, using it to facilitate specific peering relationships of ours, both for our customers, those who use us for termination services, as well as for those folks who we have relationships with who have their own end users and have us interconnect to them and then we terminate calls to them. So we're mediating from that standpoint."

"We view ENUM as a technology that facilitates business arrangements," says Matthews. "One key thing we've done in our ENUM deployment is that we're using it not just to facilitate peering between ourselves and other VoIP-based providers, but we're using it to peer between those folks and the PSTN. So, as we've done over the years in our traditional telecommunications-based business, we're supporting TDM carriers as well as IP-based carriers. We believe ENUM's value is not just mapping VoIP-to-VoIP but VoIP to the PSTN. What we've done as a part of our offering is that we've gone out and negotiated relationships with traditional TDM carriers as well as VoIP carriers. Of the 250 million members that we have in our ENUM database for routing, most of those are TDM-based endpoints and there are many wireless carriers represented. The advantage is that by using us for an interconnect, we're really able to cut out a lot of the traditional intermediaries in the telephony network."

"There's a fear that Private ENUM can lead to walled gardens, but, in effect, everybody ends up peering with everybody else," says Matthews. "We break down those walled gardens because if you have carriers that are, say, TDM-based, you can get to them through the PSTN. But those that are IP-based are not always as easy to get to.

"We view ENUM as a technology that facilitates business arrangements..."

So by taking both the TDM-based folks and IP-based folks and connecting them to VoEX and what we call our peering grid, both these groups can reach one another. We break down those walls. Rather than having a carrier create their own walled area and then devolve back to the PSTN as your 'least common denominator' form of interconnect, we're using ENUM and our VoIP infrastructure to provide that interconnect, and it's a more direct form of peering in many cases."

Not-so-Hard Hardware

Ideally, telecom services providers such as VoEX should be able to call upon hybrid network-friendly equipment that encompasses private, Carrier-ENUM.

It just so happens that NetNumber Inc. (news - alert) (www.netnumber.com) offers the Transactional IP Telephony Addressing & Numbering (TITAN) platform, a flexible, carrier-grade, multi-protocol, next-gen addressing infrastructure that service providers and interconnect carriers license to support multiple IP and SS7/C7 address resolution services.

NetNumber's Founder and Chief Strategy Officer, Douglas Ranalli, says, "We're a provider of addressing and routing technology to the communications industry. As such, addressing and routing in a converged network involves many protocols. You've got all of the SS7/C7/SIGTRAN protocols such as AIN 0.2, INAP, PCS1900, IS-41, CAMEL, and so forth. So you've got that whole world of existing circuit-switched addressing and routing and then you have the new IP protocols; from an addressing and routing perspective, those would be ENUM, SIP and DNS. NetNumber builds the addressing and routing platforms called TITAN, which is essentially a converged addressing and routing platform. It supports existing SS7/C7 protocols and all of the emerging IP protocols, to allow carriers to actually perform addressing and routing appropriately, in a converged network."

"So, we're a provider of technology to participants at every level of the industry," says Ranalli. "We license our technology directly to service providers; some of our biggest customers are AT&T Cingular, British Telecom and Level 3. We also license technology to networking 'intermediaries' or companies that do the routing of voice calls - VoIP transport companies such as Arbinet and VoEX, and we license to content providers, companies that deliver content to, say, mobile phones. The mobile industry is a leader in the convergence of telephony with IP because mobile networks today have associated parallel data networks. There's lots of interesting work going on in the mobile space regarding the introduction of IP services, but yet mobile devices are fundamentally telephony devices, so they have some interesting routing and addressing requirements."

"For example, if Yahoo has an SMS message that it wants to deliver to a mobile phone," says Ranalli, "given a dial telephone number, how do you actually find out which carrier 'owns' that phone number? In order to deliver that text message to the mobile phone, a 'pure IP' company such as Yahoo needs to access classic telephony data. They need to know from a portability perspective who presides over a given telephone number. Fortunately, our TITAN platform provides Yahoo that addressing and routing service so that they can accurately deliver text messages to mobile phones. Cisco has licensed our TITAN software for global distribution, and Motorola has licensed it too."

"We double our revenue every year, so from our perspective we see a very

Go to Table of Contents | Go to Ad Index

nice growth rate in next-gen technology and such things as ENUM," says Ranalli. "I would say it's more interesting than merely 'steady growth' but we believe that we're still at the very early stages of this industry. We anticipate that the industry will unfold over the next 10 to 20 years. This is a long-term, very exciting growth space. The convergence of the telephony world with the IP world in general is a transition that will take another 20 years to complete. For us, that creates lots of interesting opportunities that we see our customers pursuing."

Another device that finds itself dealing with ENUM is the session border controller (SBC), such as those made by Acme Packet, one of the premier SBC vendors in the industry.

Acme Packet's Seamus Hourihan, Vice President of Marketing and Product Management, says, "Our service provider platform enables providers to use their own ENUM registry to make IP-to-IP calls without the need for PSTN connections."

"Back in April 2006 we announced that we support ENUM on our platform to make queries to ENUM registries, or as our partner Nominum calls, them, IPRDs or IP Routing Directories," says Hourihan. "We do a lot of work with the VPF [Voice Peering Fabric] group of companies that has an ENUM registry, such as Telcorida, Neustar, VeriSign and XConnect. Many of the VPF members use the ENUM registry. Not all VPF members put their numbers into that registry and exchange calls for free, but an increasing number do."

Acme's Director of Solutions Marketing, Kevin Mitchell, says, "We recently held a webinar about the role of ENUM and session border controllers in enabling wholesale carriers to provide services. Our equipment can be found in some cable operators where ENUM is either being tested or is in early pilot trials. Pretty much all of our cable operator customers have ENUM plans."

"An SBC is deployed at an IP network border," says Mitchell. "In an interconnect or peering environment where ENUM is generally going to be used, the SBC is the ingress/egress point for signaling media. At that point you can make the determination of where this call and its signaling should be forwarded to for the next 'hop' and you can query into an essential database that has this type of information. It can do a translation from traditional phone numbers so you don't have to change your dialing scheme. ENUM makes a lot of sense. This basically augments local routing policies that are SBC also has. You can't just simply forward a call on to the next hop without knowing what the state of the network is or how it's performing, so we have mechanisms that measure QoS from the signaling and media perspectives and these contribute to the overall routing decisions."

So, perhaps in the not-too-distant future the entire human population will carry around ID cards, each displaying the "universal identifier" - a single 15-digit phone number. They may be a bit too long for automobile license plates, however. IT

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

Peer-to-Peer's Role in Enterprise IP Telephony Networks

Peer-to-peer's role in enterprise IP telephony took the unusual path of migrating from the consumer market space to the enterprise market. As market demand for high quality communication grows, IP Telephony providers are looking to supply the best in peer-to-peer communication tools for the enterprise market.

The availability of technology has spanned a number of decades since Internet Relay Chat (IRC) one of the first popular real time communication applications was developed. It evolved when companies such as ICQ improved the technology making it easier for people to send text messages and collaborate on line. AOL spurred the instant messaging market along with other providers such as Yahoo! and EarthLink to evolve the popularity of peer-to-peer communication. Now nearly a billion people use instant messaging, which has opened up the door for peer-to-peer's role in enterprise IP telephony.

Whether an enterprise has officially embraced P2P technology or not it is currently being used by employees with or without an IT department's consent. It has the potential to become a disruptive force in the enterprise IP telephony market but the reality is that P2P's role in enterprise IP telephony is still nascent with a lot more room to grow before it becomes a conventional solution for real-time communication.

The initial phase of IP communication growth was driven by cost reduction. While compelling, this alone is no longer sufficient to justify the money enterprise spends on communication. In addition to lowering costs, there are many other benefits including an improvement in applications features, a higher quality of voice than Public Switched Telephone Network, improved employee productivity, which all enable corporations to adapt to the globalization of their workforce. There are also improvements in customer satisfaction as corporations are able to quickly respond to customer needs with the advantage of real-time IP communication.

The P2P network opens up a new range of communication tools from instant messaging, voice, real-time video, videoconferencing all using one common infrastructure. From the perspective of business communications, this convergence brings multiple applications together, which previously operated over different networks. Operating on a single network reduces a company's communication costs. P2P-based VoIP services are tools allowing greater collaboration for work-related purposes - especially those working at different locations.

Recent research from Gartner has indicated that "instant messaging will be the de facto tool for voice, video and text chat with 95 percent of workers in leading global organizations using it as their primary interface for real-time communications by 2013."

At the bottom line real-time, peer-to-peer communication is an improvement in efficiency and costs for the enterprise environment. If you can run a company with more collaboration and improved employee productivity, better financial results can be achieved. Additionally quicker responses and more ways for customers to communicate enable enterprise to reduce customer churn and improve satisfaction. There are also benefits in achieving a reduction in travel costs with real-time voice and video conferencing.

Corporations with employees in offices around the world, as well as down the hall are beginning to utilize P2P to chat with their colleagues in real time. Employees find it easier and more efficient to chat with an instant message than email or placing a telephone call. This latest communication method is in some cases supplant existing communications channels. However, P2P communication will not replace more formal communication methods such as email rather it will compliment its use in the workplace.

P2P for enterprise offers real-time communication and presence, which are essential elements missing from email and phone services. With P2P communication identifying the presence of another

Go to Table of Contents | Go to Ad Index

By Gary Hermansen

user in real-time allows for people to show their availability, which enables more efficient communication and collaboration in the enterprise market.

An intuitive assumption is that the phrase "Can I call you?" has become the most commonly sent instant message before a call is placed using P2P VoIP. Instant message clients such as Google, Yahoo and AOL make up approximately 70 percent of the IM mark and all have voice capabilities, which provide high-quality voice communication. Gartner analyst, David Mario Smith reports that "although consumer IM use has been predominant in business, we expect penetration levels for enterprise grade IM to rise from around 25 percent." So although consumer P2P IM is predominate, the demand for enterprise level P2P communication will rise significantly.

As enterprise IP telephony moves forward, it will be less about reducing communications cost on a converged IP network and more about improving productivity and creating new business applications that incorporate voice, video and web conferencing to enhance customer satisfaction and multiple means of improved communications. Increasing globalization and growth of geographically dispersed organizations, along with a rising number of telecommuters drive the need for Web converged conferencing as a means of linking dispersed work groups.

One of the biggest challenges as we move forward is maintaining a high quality of voice and video in the IP telephony market. Quality of Service will be crucial to the successful adoption of real-time IP communication. Even under extreme conditions when the network is congested there must be a better than PSTN quality as there is a potential for adoption in the enterprise market to be slow if enterprise does not have the best available voice engine and video engine technology. QoS is subject to network impairments, such as latency and jitter, and is magnified with the use of WLANs. However, there is an expectation that at least the same reliability and quality of PSTN must be there with a move to a packet based system. PESQ and MOS testing have shown the leading providers of real-time IP communication tools surpass this basic standard.

Better voice and video quality is required to make unified communications and convergence possible. The acceptance and ultimate spread of converged conferencing is tied to the baseline quality and the expectation that it will be there at all times.

With the emergence of converged real-time IP communication, IT managers now have the challenge of managing multiple IM clients. Now, they must develop company policies which go beyond their traditional role of managing the data on the network while at the same time carefully ensuring employees can carry out their jobs effectively. As consumer IM is already prevalent, enterprise cannot afford to use security and compliance as an excuse for not implementing the best P2P solutions. Smart companies and IT departments will learn to take advantage of this technological development or else they will be viewed as impeding communication efficiency.

There are additional security measures to implement with P2P. These new channels of communication create new avenues of attacks. Spam over Internet Telephony (SPIT), vishing, denial of service and malicious file transfers are problems that need to be solved.

P2P telephony may offers cost-savings by eliminating the need for call servers. However, it could also provide enterprises with possible operational difficulties when they deploy a decentralized communications set up as applications and features reside in the end point in a P2P environment. Enterprise needs to protect itself against inappropriate content entering, leaving, and being propagated throughout the organization along with security & compliance remaining critical issues.

Interoperability is another challenge. For the past 15 to 20 years, applications were released with different architectures, network protocols, and user interfaces. Convergence and integration efforts will necessitate communication providers to make their applications work together with a common user interface.

Acceptance will be required to overcome the challenge of obtaining wide organizational use. Wide organizational use will be important to further the growth of converged conferencing. Only a few departments, such as marketing and sales, are using Web conferencing.

It will be a significant challenge for convergent conferencing to be adopted as a grassroots communications tool.

Small and medium sized businesses (SMBs) alongside the international markets represent untapped opportunities for providers of enterprise IP telephony. Conferencing and collaboration technologies hold promise with transformative power over the ways companies do business and how individuals communicate. Quality of voice, ease of use, and pricing will be key factors.

All of the challenges facing the implementation of Peer-to-Peer in the enterprise IP network indicate plenty of opportunities for innovation. Several companies are beginning to develop technology that bridges the PBX islands and integrate the applications.

Peer-to-Peer VoIP will become a significant force in the market and companies such as IBM are leading the way in the Peer-to-Peer enterprise space. The IBM Lotus Sametime application includes: instant messaging, Web conferencing, voice capabilities, mobile devices and point-to-point video. It allows employees to communicate with supported public IM networks such as Google, Yahoo, AOL and mobile clients offering telephony and video integration. The application is a security-rich system minimizing risk and promoting regulatory compliance.

There are multiple market dynamics that are working in the P2P Enterprise IP Telephony arena as several major enterprise software providers are looking at the desktop environment as a valuable space for communication via applications that have incorporated P2P with presence and include voice and video as a module. With enterprise versions of consumer IM clients, enterprise will observe an increase in productivity and enabling applications with real-time communication and collaboration will only benefit the industry overall. As more and more enterprises adopt P2P telephony there will be recognition of the undeniable reasons as to why P2P's role in enterprise telephony will play a larger importance in enterprise. IT

Gary Hermansen is CEO and President of Global IP Solutions (GIPS). (news - alert) *For more information, visit the company online at www.gipscorp.com.*

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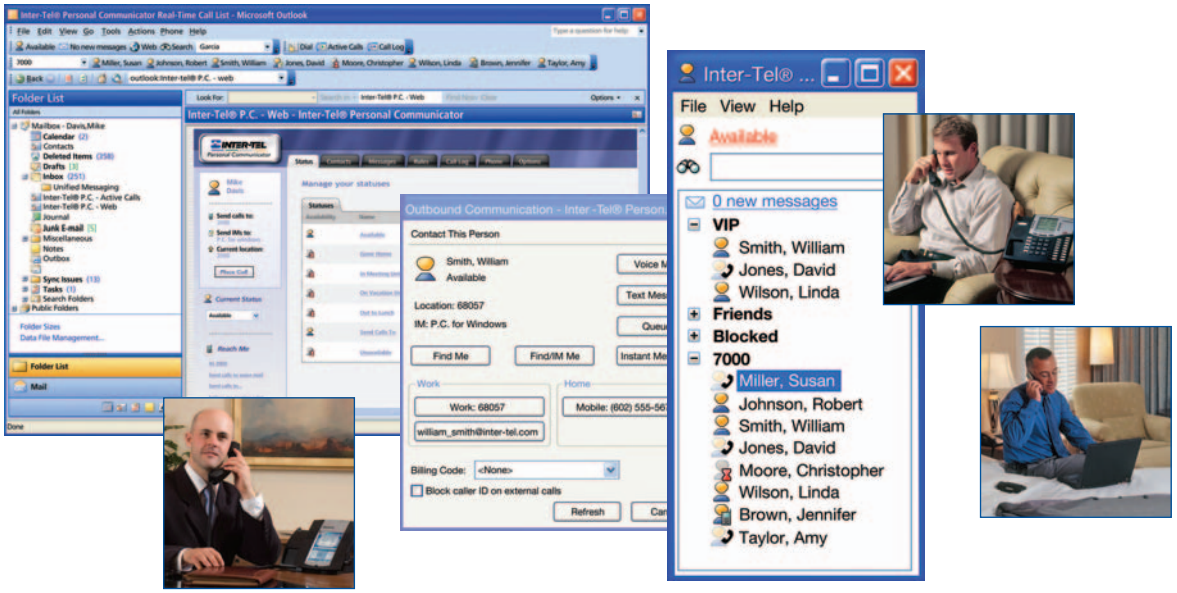

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Peer-to-Peer VoIP

The are three basic levels of "peering" in the telecom universe: 1) VoIP Peering (also called Voice Peering) wherein one VoIP provider forwards calls to another directly without crossing over to the PSTN; 2) peering at a middle level where an enterprise peers and "federates" data with its partners and/or customers; and finally 3) "peer-to-peer" IP phones that plug into a corporate LAN and coordinate amongst themselves to become a voice system. A fourth "semi-rogue" level is where one finds gamers and peer-to-peer file sharing by collectors of music and other files, a process that eats bandwidth and can interfere with the first three if done in an inopportune setting (e.g. the office).

At the highest level of peering, carriers enjoy use of the Voice Peering Fabric, established in New York in 2003 by Stealth Communications (news - alert) (www.stealth.net). It's basically both a telephony traffic exchange environment (via the VPF Minutes Market and VPF ASP Market) and a distributed private Ethernet network for service providers and enterprises. The VPF enables members to directly connect to each other, avoiding needless delays.

VoIP Peering is facilitated by such technologies as ENUM (TELephone NUmber Mapping, also known as "Electronic Numbering") a protocol suite that unifies E.164 format telephone numbering system with the Internet's DNS addressing system so that VoIP users can be called from both IP and PSTN networks. (See the article on ENUM elsewhere in this issue.) In April 2004, the VPF ENUM Registry was introduced to route phone calls among one another directly across the VPF without traversing the PSTN.

The VoIP managed-service provider VoEX (news - alert) (www.voex.com) also uses ENUM to map the world's phone numbers to resolvable IP addresses, combining a carrier-grade VoIP peering infrastructure with what they claim is the world's biggest Carrier ENUM registry (over 250 million phone numbers) that interconnects IP, TDM and hybrid-network service providers at very low prices.

Community Congestion?

BlueNote Networks (news - alert) (www.bluenotenetworks.com) is known for its SessionSuite Business Communications Platform that delivers SIP-based voice, video and other real-time interactive communication services to extended enterprise users as an integral part of an enterprise IT applications architecture or Service Oriented Architecture (SOA).

Hal Clark, Senior Product Manager for the telephony side of BlueNote's product offering, says, "Ultimately, given the technology of IP networks, conceptually at least, direct communications on a peer basis makes a lot of sense, in particular for individuals working at a distance who don't need a lot of services or if the services they need are sufficiently compartmentalized for easy distribution. Where the peering approach begins to get congested is when it's applied to the idea of 'communities', in particular enterprises that need many more services than just a raw, basic peer-to-peer system found running over a corporate LAN. These peering communities are generally served by a collection of services. It's like network voicemail. Peer-to-peer is nice as long as you're online all the time and your device can take messages, or people can IM you in the middle of the night."

"We've had solutions for those discontinuities in the past but they've been related to service providers or PBXs or something like that," says Clark. "Those types of communities where some service or some social affiliation defines what that community is, is something that I believe will survive. But how those communities interoperate becomes an interesting issue. To me it's very much like the way the American telephone system operated before the consent decree decades ago that established AT&T as a monopoly so that people could literally talk to each other. In earlier days you signed up with a telephone company and you could talk to people as long as they also subscribed to phone service with that particular phone company. The individual companies didn't know or didn't want to interconnect their networks. To a certain extent that situation exists now with many peer-to-peer communities. They're either using proprietary protocols or just a service provider-managed VoIP type of service, which may or may not actually be strictly peer-to-peer in nature. In any case, the key issue is about how those communities talk to other communities."

"Ultimately, that situation can 'flatten out' given that all of these peering communities are on the same network, so it should be a lot easier technologically than it was with the early circuit switched voice network to get them to interoperate or interconnect," says Clark. "There still has to be some kind of infrastructure in place to bring that about through a transition period until normal network mechanisms such as DNS and directory services can help make a true peer-to-peer federation actually appear

Go to Table of Contents | Go to Ad Index

By Richard "Zippy" Grigonis

among these communities."

Greg Pisano, Blue Note's Director of Market Development, says, "We think of an enterprise as a community largely built around certain services. The enterprise has its own ideas as to how they want to enable their employees to work productively within an IP type of environment and give them the ability to then federate with these peer-to-peer communities directly as opposed to having everybody communicate by going out through a PSTN gateway and come back in via old legacy telephony approaches. There are of course cost implications of doing it that way."

"An interesting option is for the peering exchange between communities - or even enterprises - to actually occur at the uppermost carrier peering level," says Pisano. "Today, the carriers are basically collecting all of this traffic 'within their walls' and they try to control it and force it to flow through their 'metering points' or 'toll booths', as it were. In reality, these are just switches sitting at Internet peering points. Some VoIP carriers are already beginning to exchange traffic across those particular points. The technology allowing that to happen in theory should also be accessible by other communities to exchange traffic as well. That would reduce PSTN conversions and change the cash distribution among the service provider community. That's exactly what the lower-end peer-to-peer market is trying to do to. After all, why does it cost so much money to make a phone call, when it now has a fairly low value when you consider how much the call really costs?"

Forging Quality Connections

Ubicom (news - alert) (www.ubicom.com) is a technology supplier that provides both chips and software for various home applications. They use a highly optimized architecture in terms of both hardware and software. They employ a multithreaded processor and some very compact, fast code for doing things like gateways and endpoint devices such as audio and video players, not to mention VoIP products such as ATA (Analog Telephone Adapters).

Keith Morris, Vice President of Marketing, says, "We've been trying to improve the quality of experience for all of these next-gen applications in the digital home. VoIP is one such app, video and online gaming being another. All of these applications are very sensitive to packet latency and loss. An early problem we solved was to look at WAN uplinks and to figure out how you guarantee that things such as VoIP and online games don't get mangled by many other applications such as email, web browsing and also peer-to-peer file sharing. We found that there were a lot of issues in the market. One was that a lot of equipment out there didn't scale very well as you increased the number of connections through the boxes, so we could see a huge drop-off in the performance of the overall box once you started opening lots of connections. Fortunately, our equipment can now support tens of thousands simultaneous connections without any degradation in performance."

"We also looked at how all of these different applications interact with each other," says Morris, "and how you completely, automatically, without any user intervention, find those applications that are latency-sensitive and give them high traffic priority, then find those interfering applications such as peer-to-peer file sharing and move them into the background."

"All of this technology can be found in our StreamEngine portfolio brand," says Morris. " So, we're about putting intelligence into the customer premise equipment [CPE] in the home such that all of these next-gen applications will work seamlessly without any user configuration, and, for that matter, without the need for a service provider to come in and try and manage a user's application in the home. Service providers are good at providing end-to-end connectivity and deliver services end-to-end. But we're now in an interesting environment where content isn't just going to be emanating from the service provider - there will be many sources of content both from within and without the home. The next generation of CPE equipment needs to adroitly manage traffic that's both service provider-related and user-related. And that's what we do."

Peering will be a fact of life for businesses both large and small as time goes on. But whether this will lead to a healthy business environment or a congested network of "walled gardens" remains to be seen. IT

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

IPTV Myths — Part 3: Deployments

For the past two issues we've run a fascinating series of articles authored by Hemang Mehta, IPTV Group Product Manager for Microsoft TV, focusing on the technical aspects of the burgeoning IPTV market and the myths surrounding the consumer experience. In this final installment, Mehta discusses some of the common misperceptions about IPTV deployments.

Myth: IPTV won't be with us any time soon.

The reality. IPTV is already operational today in more than 20 countries, in dozens of major markets. Though no deployment currently extends beyond several hundred thousand homes, this is changing rapidly as major incumbent telcos take on the large investment required to create and operate nationwide IPTV systems. In the United States, for example, as of June 2007, AT&T has deployed its U-Verse service in more than 20 markets.

Virtually all forecasting organizations see IPTV becoming a major force in pay-TV delivery services, growing from a few million IPTV subscribers globally today, to anywhere between 25 and 40 million in three to five years.

The Explanation. Like many new ideas, only entrepreneurial operations invested in IPTV until it was clear that services were feasible, economical and acceptable to service providers and consumers alike.

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This took roughly five years to achieve, and for many industry watchers, particularly smaller equipment suppliers and start-up companies looking to leverage the IPTV opportunity, it's been a long wait.

As telephone companies' voice revenues - their major source of income - began to decline due to increased competition and general price erosion, it has become apparent that IPTV services are one of the key ingredients in revitalizing telco revenues. That has led to some brave decisions and a bout of infrastructure development, which is now happening at a relatively rapid speed.

Triple-play services will create attractive service bundles, which in turn will reduce churn. For this to happen, IPTV must be rolled out quickly.

Many other countries are currently ahead of the United States in IPTV and will also be broadening the scope of their systems at the same aggressive rate. Given the time it has taken for cable and satellite to extend their footprint across the United States and the world, there doesn't seem to be long to wait until IPTV comes to your town and those 40 million IPTV forecasts begin to look conservative.

Myth: The truly innovative features and applications of IPTV won't be available for several years.

The reality. It is true that the networks of many telecommunications operators around the globe are not ready to support the full weight of IPTV applications. But with more than 200 million broadband lines currently installed around the globe, this is changing rapidly. It is also true that many of the early IPTV pioneers were either small companies or the operators themselves. Now the market has been clearly established, with several of the world's largest and most successful technology companies behind it, expect to see service providers benefit and able to more rapidly drive the market.

The explanation. The very first IPTV installations happened during 2000, so this industry is less than 10 years old. In the early days, IPTV was "me-too" TV: it did not scale, didn't always work, and much of the content went unprotected into the consumer world.

Since then, we have seen many innovations, such as IP-based DVRs, multiple picture-in-picture capabilities, mosaic interfaces and high-definition TV. Home media sharing capabilities that allow consumers to enjoy their personal content like music and photos on the TV is also already available.

To get each of these IP technologies to market in volume, the access networks had to be in place and core networks needed to be bolstered. In copper-based networks, this was only possible with the arrival of the ADSL2+ and VDSL2 chipsets bringing greater bandwidth to last-mile lines. These newer flavors of DSL are only now rising to volume deployments. Likewise, bringing these new facilities to market requires an entire ecosystem of technology providers and stringent testing to ensure that systems, once delivered, won't later fail.

Go to Table of Contents | Go to Ad Index

By Hemang Mehta

When you take into account the growing availability of third party developer tools that become available, the speed with which innovative services and applications will be developed and deployed will only accelerate. Microsoft, for example, recently released an application developer toolkit that will allow third parties to develop unique services and applications such as video-on-demand portals, multiview sports pages, or personal portals.

The good news is, the IPTV industry is now virtually through the testing phase of its development, and with each successful IPTV installation, the systems are achieving the robustness of cable TV, with the promise of rapid service evolution ahead. IPTV today already provides a better TV experience to consumers via its fast digital channel change, more intuitive and integrated search (taking advantage of the robust two-way network) and picture-in-picture features. And the future looks even better, with the promise of highly personalized and connected content and services.

Myth: IPTV is more expensive than cable or satellite.

The reality. In most of the countries where IPTV is being deployed, cable and satellite TV operations already exist, and yet IPTV is gaining ground. Obviously the telco operators, the initial IPTV providers, are convinced that in light of the features their IPTV service has to offer, they can price their offer very competitively opposite the cable and satellite TV competition, especially when bundling the IPTV offering with their broadband access and phone service.

The explanation. The cost of an IPTV system differs most dramatically from cable and satellite TV at the point of the last-mile network, and the equipment required to view IPTV services in the home (often called customer premises equipment). The largest costs are upgrading last-mile lines to ensure they are capable of carrying an IPTV signal and the set-tops that need to be supplied at the customer end.

Set-top box prices are all a function of how highly the set-top components can be integrated, thus bringing down the component count, the volumes of central chips and other major elements that are ordered and produced. While IPTV operators are waiting for these prices to fall, they have all shown that they are willing to subsidize set-tops against future IPTV revenues during the interim.

The cost of access lines is a very different issue for each operator and depends largely on the cost per line of the DSLAMs and how well all that copper wiring to the home has been maintained or replaced by fiber or coaxial cable.

IPTV systems will have an immediate impact on the prices of both cable and satellite pay-TV services, and we are already seeing a downward price spiral in cable and satellite pricing in regions where IPTV has been introduced.

IPTV has some advantages, in that it has the example of cable and satellite content deals to guide it, and IPTV operators can use care and hindsight and competitive experience to select the right content bundles for new markets.

In the end, all IPTV systems will be constrained by content costs, but by using an IP infrastructure, which delivers all services using the same IP packet switching, there are inherent cost advantages when it comes to offering a triple play. IT

Hemang Mehta is IPTV Group Product Manager for Microsoft TV.

When You Want to Transition to VoIP – Follow These Simple Rules

Enterprise customers face a dilemma - they hear about the great reasons for moving to VoIP, but are mindful of the thousands, if not tens or hundreds of thousands, of dollars invested in their current PBX equipment. Should they trash that PBX (or, perhaps, sell it on eBay) in favour of new VoIP solutions, or is there a (relatively) pain free way of migrating to a VoIP capability? Just how easy is it to move to an all IP solution? This article looks at the steps involved in a practical migration strategy and advises those considering a transition to VoIP.

Three Steps to VoIP Heaven

"Now there are three steps to VoIP heaven; just follow the rules and you will see. The formula for VoIP heaven is very simply; just follow steps one, two and three."

First things first; I must apologise to Eddie Cochran for adapting his classic hit.

Second things second, if you are looking for a VoIP transition strategy, you could do worse than heed Eddie's words.

So, what are those steps?

Let's start from the premise that you are an enterprise of reasonable vintage, which means you have traditional, TDM-based PBX equipment. Let's also assume that, for the sake of the examples herein, you have a main headquarters building (HQ) and one or more satellite, branch offices. If this is not the case, the steps remain valid; you just have to adjust the scope of each step to suit your circumstance.

Step One - Get a Gateway.

There are alternatives to getting a gateway, such as asking your PBX vendor to upgrade or VoIP-enable your existing TDM switch with an 'in the skins' VoIP card. This means hardware and software upgrades, to provide a SIP or H.323 interface and an IP connection. However, there are at least a couple of issues with this approach, which can be pretty significant.

Firstly, consider the cost; is this likely to be a low cost option? I rather think not as most PBX vendors are not charitable organisations. Secondly, will the installation of the VoIP card mean you have to give up a TDM circuit card in its place? You may not have the spare capacity in your PBX to accommodate an additional line card. You can think up some more objections yourself.

A more cost-effective approach is the hybrid one involving a gateway.

A gateway is an external device that connects to the legacy PBX equipment on one side and to an IP network on the other. Its job in essence is to convert call control and audio from the traditional format provided by the PBX (e.g., Q.931 call control, μ-law speech) to packet-based information for the IP network (e.g., SIP for call control, G.729A speech) and vice versa.

Why are gateways more cost-effective? Well, for one thing, the gateway vendors don't have the same opportunity as the incumbent PBX vendor does to capitalise (prey) on your situation. They have to be competitive. However, they also need to differentiate between each another, and this applies to features as well as price.

There are off-the-shelf commodity gateways, to suit most needs, readily available. Be sure the ones you shortlist support the requisite protocols but, in particular, offer support for the supplementary services you make use of between your HQ and branch office(s).

You will need a gateway that offers transparent transit of essential features, such as call forward and call transfer, between your HQ PBX's Q.931 protocol, via SIP (or H.323) and your satellite PBX's protocol(s).

If you have inherited a number of disparate legacy PBXs in local branch offices, you will need to find a gateway that supports a range of protocols, perhaps even a few old (ancient by today's standards) CAS protocols. The last thing you want to do is to be buying gateways from several vendors.

Go to Table of Contents | Go to Ad Index

By Ian Colville

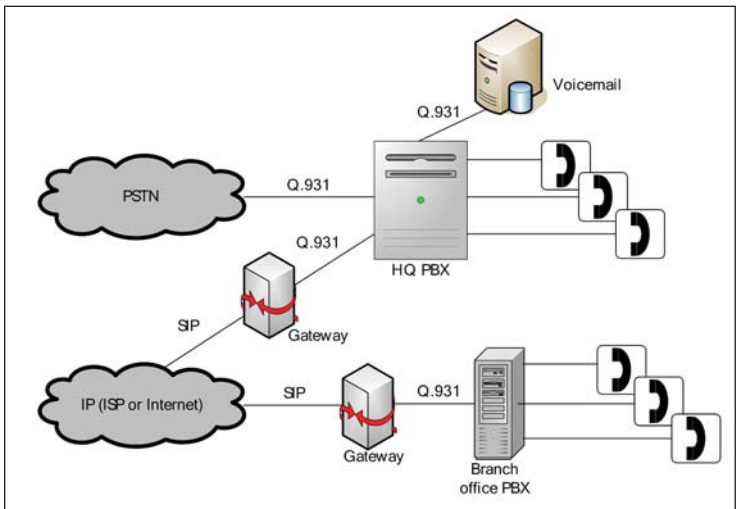

Figure 1. Gateway installation

Figure 1 illustrates our first step.

Step Two - Migrate Your Peripherals and Branch Office(s) to IP-based Platforms

At some stage you are going to have to dispose of your legacy PBX platforms and where better to start than in your branch office(s). This approach is less risky, less disruptive to your organisation and has less negative impact on your cash flow - you can spread the cost by planning the roll out over time.

During this stage you should swap out your old PBX for a shiny new IP-PBX and get some of those SIP phones you've always wanted. This achieves an easy transition to VoIP, in premises where it causes least unrest, and is lighter on the pocket.

You will no longer need the gateways you purchased for each branch office, but you can always sell them on eBay, along with the PBXs (or your local museum may be open to a donation).

In conjunction with moving to an all-IP situation in your branches, now is also the time to consider converged applications. What does that mean?

No doubt you will have some additional applications serving your organisation. From simple voicemail, through IVR and ACD to contact centre platforms, for example. Of course, these will also be TDM-centric, but step two means they too must go.

As the objective is a transition to VoIP, you will need to replace these with IP-based application platforms. But, remember the term 'converged'. This is important, as you have yet to replace the HQ PBX system (yes, you've guessed it - see step three) and so the application platform will need to number TDM connectivity amongst its attributes.

When sourcing an application platform, take a close look under the covers. Don't let the vendor fob you off with a system that lacks platform architecture integrity. This refers to platforms that have been designed from the start with a core architecture based on IP. Many traditional equipment manufacturers have attempted to retrofit existing products with new IP interfaces. In most cases, these products are not as reliable or cost efficient. What you are seeking is an IP product that has TDM connectivity as an option; something you will need for

the remainder of the transition period (wait for step three).

Your application platform will need media processing resources; the essential features needed for e.g., DTMF recognition and the recording of messages in a voicemail system, or the playback of prompts from an IVR platform. Viable systems will offer integrated and scalable converged functionality, based on multi-function resource boards from respected enabling technology vendors such as Aculab.

Look again for key attributes: designed from the ground up as an IP platform; provides media processing resources in both IP and TDM environments; can operate with a wide range of popular IP codecs (to allow you to readily interface with the IP world outside); offers TDM connectivity and a portfolio of circuit switched signalling protocols to choose from; has the density needed for your scale of operation; and the scalability to grow with your success.

Step two is illustrated in Figure 2.

Step Three - Replace the HQ Switch and Say Hello to St. Peter

This is the final step and no doubt the most expensive and disruptive, however, you've got to bite the bullet some time if you want to take advantage of all that VoIP has to offer.

In this phase you must finally dispose of your main legacy PBX platform and, as with the branch office(s) before, install a shiny new IP-PBX and some more of those SIP phones. The timing of each step is for you to determine, but don't forget, the end goal back when we started was to move to an all IP infrastructure in three careful steps.

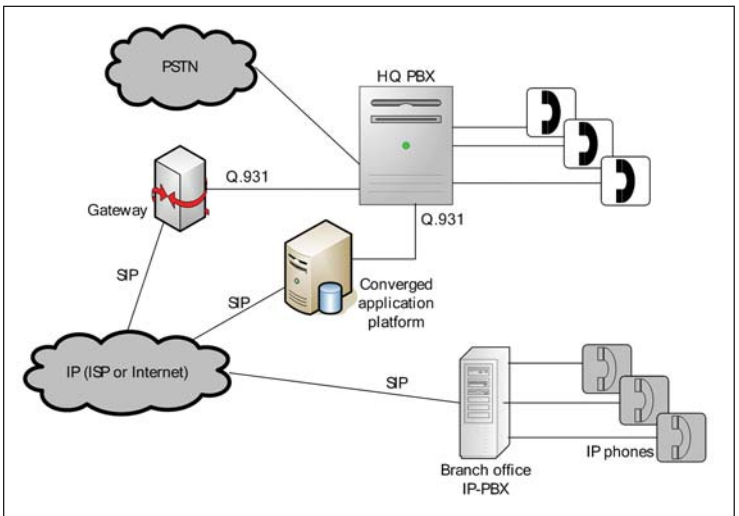

Figure 2. Converged, IP-based platforms

The remainder of your enterprise infrastructure is all IP by this stage, prepared and waiting for the cut-over at HQ. Here also, your IP-centric application platforms, with their media processing resources, are by now entirely IP-based. You will have simply disconnected the TDM connections and reconfigured the IP-side connectivity inherent in these platforms. There is nothing to dispose of or trash here, as you continue to benefit from these applications just as you've been doing since step two. Your centrally located (or hosted) application platforms remain accessible by any of your users, from any location, in or out of the office.

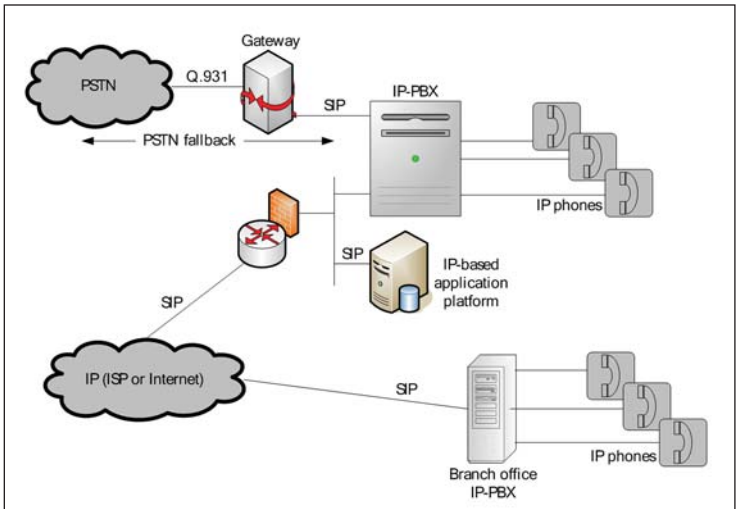

Figure 3. All-IP infrastructure

So the final piece of the transition jigsaw falls into place when your switch over to an IP-PBX. Now you can enjoy the full benefits of enterprise wide mobility, presence, unified messaging, etc. Give yourself a pat on the back for a job well done.

By the way, you don't have to throw out the gateway that was previously in use at HQ. You can reuse this gateway to provide a PSTN fallback capability, which is a good idea if you are of a nervous disposition.

Step three is illustrated in Figure 3.

That's all there is to it; quite straightforward I'd say. But if you don't believe me, just listen to Eddie. He said it was easy - just follow steps one, two and three. IT

Ian Colville is a Product Manager at Aculab. He can be reached at Ian.colville@aculab.com

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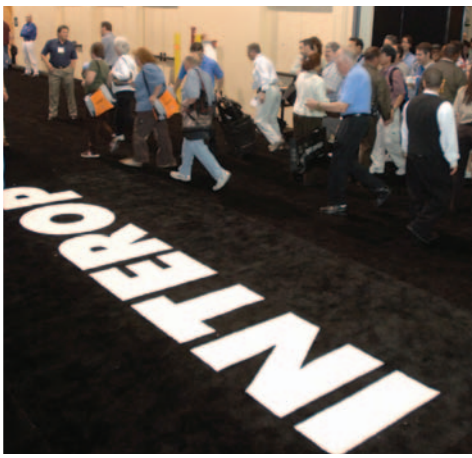

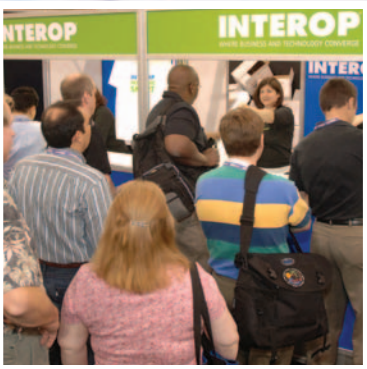

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Billing & OSS in Cable

Cable MSOs are undergoing a renaissance, experiencing significant demand for their broadband services and deriving new revenues from services like DVR, VoIP and VOD. Many industry analysts now view pure play VoIP providers as doomed due to cable's increasing stranglehold on the VoIP market. MSOs are also reaching into other new sevices, such as mobile to complete the quadruple play, and into new customer segments, such as SMBs and enterprises.

However, forward-looking MSOs also see threats on the not-too-distant horizon. Fiber connections with even greater bandwidth are being deployed at ever increasing rates with initial deployments targeting major metropolitan areas and residential communities. Meanwhile, WiMAX promises ubiquitous wireless bandwidth sufficient to deliver TV-quality video.

The threat of disintermediation looms with the introduction of direct-to-consumer offers from media companies. Pressure from both the marketplace and regulators/legislators to unbundle video services by providing a la carte offers is increasing. And the ever increasing threat of the core video services market shrinking as teens while away the hours on YouTube, MySpace and other social networking and UGC sites rather than sitting in front of the TV is becoming a reality.

All of this change presents significant challenges for a legacy billing & OSS infrastructure that was designed for traditional cable TV services. Many MSOs now find their hands tied by their existing infrastructure and now seek ways to enhance their systems and processes without disrupting their ongoing operations and revenues.

Billing & OSS Then

Cable MSOs are notoriously conservative in their infrastructure spending and this has served them well. Nevertheless, as the cable businesses grew throughout the 1970's and 1980's from a niche market to a core lifestyle service, the need for robust operational systems became apparent, as did the difficulty and costs of maintaining their own homegrown systems. As a result, third party solutions from companies like CableData (later DST Innovis) and First Data's Cable Services Group (later CSG Systems) became commercially available.

These solutions focused on the business challenges faced by cable operators during this period. Consider the service offerings of the time: bundles of TV channels with two or three tiers - basic, enhanced, premium - with options for a couple of movie channels. As a result, the resulting operational systems focused on the ordering, provisioning and billing of these simple bundled video services and tasks like scheduling truck rolls and managing inventories of set-top boxes became the priority. Billing systems were often referred to as Subscriber Management Systems (SMSs) because rather than complexities in services and offers, these systems, which closely resembled those from the utilities industry, focused on order scheduling, customer car, payments, and collections.

Vendors like DST Innovis, CSG Systems and others built large-scale statement production and outsourced contact center facilities to assist with the purely operational aspects of the cable industry. The software products and services from these and other companies served the industry well as it grew from a cottage industry into multi-million subscriber operations with a service as pervasive as electricity or phone service.

However, along with the broader communication and media industries that surround it, the cable industry is undergoing fundamental change.

Market Transformation

Competition in the old cable world revolved around franchises from state and local governments. Once an operator received a franchise, they enjoyed the position of exclusivity until the first signs of competition arrived from satellite providers like DirecTV and Dish TV. Today, cable operators offer an advanced portfolio of communications and media services while the triple play of voice, data and video services is quickly morphing into a quad play including mobile. As a result, competition comes from not only the DBS providers, but also from telcos, mobile operators and others seeking a play in the "online world".

Even the tight and sometimes strained relationship between the cable MSOs and their business partners, the broadcasters, is undergoing change. In the world of video, 75% of programming comes from fives companies: Disney (ABC), General Electric (NBC), Viacom (CBS), News Corp (Fox) and Time Warner (CNN). With DVR's time-shifting and ad-skipping capabilities, the relationship between the MSOs and the programmers has come under increasing pressure as both try to balance new, technology-enabled services with the existing advertising-based business models.

How do services like DVR and mobile impact billing and OSS systems? By offering mobile, MSOs now compete with the incumbent mobile operators who have always delivered innovative offers and promotions. Within the telecommunications industry, mobile operators have traditionally been the most innovative when in comes to service packaging and promotion. Cable billing & OSS systems were neither built to deliver mobile services nor designed to support services with such a high degree of subscriber churn.

Cable billing & OSS systems were not built to facilitate experimentation with new business models either. Services like DVR

Go to Table of Contents | Go to Ad Index

By David McNierney

and VOD now require MSOs to balance the uplift in subscriber revenues with the potential of decrease ad revenues, not to mention the strained relationship with their broadcast partners. They also need to manage the "cannibalization effect" of introducing new services that impact other discretionary services like pay-per-view that represent existing revenues streams.

Much of the cable market transformation has been enabled by technological developments and next-generation networks. Operators like Cox have invested significant resources in multi-service architectures like IMS - another example of a technology with a profound impact on back-office systems. For example, the IMS specification calls for rating, charging and balance management capabilities that introduce both functional gaps integration challenges in MSOs existing systems.

Another significant market transformation impacting the billing & OSS systems is the introduction of both IPTV and internet video. As fiber operators like AT&T and Verizon rush to emulate the video packages offered by MSOs, cable operators are now facing competition on their "home turf". While they have increased their revenues by winning the battle for VoIP services, they now face a similar challenge that will require them to be even more creative and nimble with their core services.

Meanwhile, teenagers are increasingly spending their free time on YouTube and MySpace, or playing online games, rather than being the couch potatoes of the past. While the short-term impact on the business model and ad revenues remains unclear, the potential for IPTV and internet video to be as devastating to core video revenues as VoIP has become to the telecom industry is very real.

Billing & OSS Now

The cable community, which is a tight-knit group of peers that often share best practices, understands the need to re-tool itself for this new, multiservice world. Marketing and product management executives within the MSOs understand that the competitive landscape is changing, yet their hands are often tied by their existing billing & OSS systems and vendors.

The demands of the MSO marketing executives also need to be reconciled with a legacy of tightly-controlled infrastructure investment, resulting in a demand for billing & OSS solutions that can clearly demonstrate return on investment. This presents a difficult challenge - how do you quantify market agility in the face of s uch diverse competition and rapid technological change?

With a view towards convergence through IP and the internet, an entirely new generation of vendors has emerged, leading the effort to "turbocharge" existing MSO systems infrastructure. The challenge for the incumbent cable operators parallels the challenges faced by incumbent telcos: upgrade the back-office infrastructure to meet the new challenges while leveraging existing investments.

Challenges with high-profile initiatives like Comcast's project Bedrock, which consolidated provisioning systems from Comcast and the acquired AT&T Broadband, underscore this need. Many MSOs have deployed billing & OSS enhancements on a service-by-service or segment-by-segment basis. For example, MSOs have introduced new usage-based billing capabilities into their existing billing infrastructures for the introduction of new mobile services.

Other MSOs have implemented new billing capabilities for new customer segments like the commercial segment. SMB and enterprise customers have very different requirements, including contractual and reporting requirements, so it makes sense to focus on solving these new requirements without disrupting the systems that support the existing consumer segment.

Industry standards bodies, such as the Telemanagement Forum's OSS Through Java Initiative (OSS/J), have also contributed to the enhancement of existing billing & OSS systems to meet the new market needs. They and others have invested considerable effort to demonstrate how

third-party billing & OSS systems can interoperate with existing systems and other third-party products to deliver a 'New Generation OSS'. The IPDR organization has worked diligently to standardize the flow of information from networks to the downstream billing & OSS systems.

The Way Forward

As cable MSOs race to win the broadband war while preventing disintermediation and fighting off newcomers like Google, the path to a nimble yet cost-effective billing and OSS infrastructure may not be so clear. Introducing new capabilities like prepaid, eWallets or IMS-capabilities like charging, requires MSOs to evaluate the various ways to solve the problem. Should they rely on their existing vendors, build strategic capabilities internally, or leverage the new generation of third-party products?

Operators like Canada's Videotron have already deployed billing & OSS enhancements to enable them to compete more effectively in the multiservice world. Rather than rolling out these capabilities to all segments and all services, they focused on enhancements that would facilitate the rapid introduction of their new mobile offering, enabling them to win customers from the existing mobile operators. Their new pricing & rating capabilities are now being deployed for the remainder of the quad-play services and will deliver unconstrained pricing and packaging capabilities to their marketing organization.

MSOs must also consider new competitors in the form of technology companies like Google and broadcasters like Disney. These companies do not carry the baggage of old, monolithic billing & OSS systems. Instead, they are designing back-office architecture with a clean view of voice, video and content services and their associated business models. Analysts such as HeavyReading's Caroline Chappelle have acknowledged that many of the new entrant's architectures heavily leverage the ERP model rather than the old-world billing systems from traditional vendors.

Those MSOs that wait to turbocharge their billing & OSS systems may find the multiservice wave has passed them by. These days, a renaissance does not last very long. IT

David McNierney is Vice President, Market Development, Highdeal. (news - alert) For more information, visit www.highdeal.com.

Evolving Cable BSS & OSS

Cablecos - and telcos for that matter - are in 'de-silo' mode, adopting advanced, common architectures to aid in the quick deployment of many new services. Equally advanced Operations Support Systems (OSS) calls upon automation that aids subscribers in provisioning and getting their service up and running. More automation equals fewer truck rolls and thus greater profitability. The Billing Support Systems (BSS) and "back office" connections are also now more sophisticated; these systems can generate all sorts of documentation and valuable analytic output.

For example, Irvine, California-based Primal Solutions (news - alert) (www.primal.com) provides platforms and solutions specifically designed to streamline IP transaction management while supporting the rapid rollout and delivery of IP-based services. Their IP Correlytics (IPC) platform integrates transaction management and correlation analytics to identify, track, manage, and assure IP transactions, from customer activity through revenue and settlement. It's capable of collecting all network events from multiple-service providers, in various formats, which allows for improved monetization, auditing and revenue assurance.

Mark DiCamillo, Primal Solutions' Vice President of Marketing and Product Development, says, "Much of our initial billing work was done in wireless and paging. Around 2003 we hooked up with Time Warner Cable to help them launch their initial voice service, a facilities-based VoIP play. We've been with them ever since. Recently we launched with them their Business Class Service, a VoIP-based commercial offering. We're a major player in providing rating, mediation, billing, revenue assurance and settlement in the cable industry, primarily around the voice offering, but in some smaller players we actually do some video-on-demand."

"Our IPC platform takes a unique approach to rating, mediation and settlement," says DiCamillo. "It takes a true end-to-end view of transactions or activity taking place on the network. We look at what happens from the moment a call or service request hits the switch all the way through to the point where it's finally settled out not only with the customer using the service but also with any third party providers, LECs or anybody else who facilitate the communication. We take an end-to-end, 'cross-silo' view that's fairly unique."

"In building and documenting the transactions we maintain the system state," says DiCamillo, "so at any given moment we know what particular state a transaction is in, whether it's just a switch record or whether it's a switch record that's now been correlated to a piece of information that's come from something like a rate table, or whether it's been billed, and if there's a corresponding record from a LEC that states what the charge was from their end for terminating that particular call, and so forth. Our methodology is patent pending. We wrote our application in Java and it's a complete Service-Oriented Architecture [SOA]. It's designed to be incredibly flexible. We built most of the interfaces that define the transactions in XML, which allows establishes more of a configuration exercise instead of a pre-programming exercise when you add a new switch type or type of call record."

"One key industry change taking place right now regarding the cable companies is that they see a particular opportunity with SMBs," says DiCamillo. "Cablecos believe that telcos have underserved that market, so they're bringing enhanced customer service and aggressive pricing to earn share in that area."

"Not all billing solutions offer what ours does, such as our support for a hierarchical billing structure so that within your billing entity you can have division and business units," says DiCamillo, "and you can roll up charges into different groups and look at the business from that respect in terms of communications costs. We also support account codes, so professionals such as doctors and lawyers can bill their communications to individual clients. The professionals can go online with their account codes, enter them, and see what the billing is for a particular client."

Do-It-Yourself Service Provisioning

Just as the customer self-help aspects of IVR (Interactive Voice Response) kept the size of corporate call centers down to a reasonable, profitable size, so too do modern OSS systems provide automation to help consumers drive the provisioning process. JacobsRimell (news - alert) (www.jacobsrimell.com) is one of the leading providers of these user-centric service fulfillment solutions.

David Jacobs, CTO and Co-Founder of JacobsRimell, says, "We focus on three

Go to Table of Contents | Go to Ad Index

By Richard "Zippy" Grigonis

different areas. The first is residential services, the second is business IP services, and the third is subscriber information management. The reality is that both residential and business services, from our point of view, are built on top of subscriber information management. So whether or not our customers specifically use our capability, it's still inherent in the core platform. Our whole starting position is that the world is less about devices, homes or account numbers; instead, it's about individuals having entitlement to be able to obtain a service. What cable operators have done right is to recognize their role in life as a sort of 'super duper content aggregator' wherein they can take content applications and deliver them to the end user. Because cablecos are coming from a situation where they've been content aggregators, this mindset is not a change for them. It's basically more of the same. But they now can leverage things in a very interesting and exciting way."

"For years we've all been looking for the 'killer application'," says Jacobs. "It will probably end up being the ability to 'mash together' different services. It's arguable that what the operators absolutely need right now is something that allows them to do that, and that's largely where our subscriber information management capability comes from. We already have a strongly-deployed residential capability doing well in a number of different accounts. We're also growing into the area of IP Services. For a year now we've had our first customer in this area, Cbeyond, which focuses on SMBs. We're looking to grow these concepts into other areas as well."

"As VoIP starts to take hold," says Jacobs, "it's clear that the future will be based on SIP signaling. We realize that there's a related opportunity we're looking to exploit, where SIP user equipment needs a fair amount of configuration and there's nothing out there that really manages to do it, so we've just launched our QuickStart for SIP User Equipment, which is about how to mass-configure hundreds of network devices simultaneously with a common template, yet making each instance specific to each respective end user. We've launched it as a software appliance and that's not only focused on the cable industry, but also Internet Telephony Service Providers [ITSPs]. No integration is necessary. We've also recognized the opportunity to insert some capabilities into this single software appliance so that it can work with legacy equipment and do fulfillment of the full stack. We call that the QuickStart Business Voice Package. With it, operators can rapidly implement and launch a range of business VoIP offerings."

All Play and No Stress

At Sigma Systems (news - alert) (www.sigma-systems.com), their All Play and Sigma OSS Service Management platforms help to deliver any service, any network, any device, any time. All Play is essentially an advanced next-gen converged service creation and delivery environment, bringing together multi-technology networks and integrated services across any residential consumer, or business user's device. Operators can now manage an integrated view of all network assets. Services can be optimized and reused, including services delivered via business partners. At the heart of the All Play concept is Sigma's Service Management Platform (SMP), powered by ServiceBroker, a real-time, J2EE-based intelligent service control engine serving as the foundation to manage subscription, on-demand and real-time VoIP, Internet, wireless, commercial services, IPTV and video services across any network technology, on any functional device.

Sigma's Vice President of Product Marketing, Preston Gilmer says, "A key trend we've seen globally is that operators realize that they can't have the operational 'silos' by service line first. So whether it's triple-play, x-play, or 'All Play', the provider realizes it must have

a common OSS and a common service fulfillment platform. That's where we play. We can take an order from some system, be it a self-care portal, or a BSS system, or a handheld device - we can get an order from a partner, manage that order, put together the appropriate business and workflow processes, then provision and activate the appropriate network elements, applications servers, service delivery platforms, or whatever is in the way and must be dealt with to bring those applications or services to a consumer or their device. In our deployment experience, in order to provide complex bundled services and be able to change and modify them and get them out, you really need to work with one common OSS."

"The other thing we definitely see emerging relating to this - we have three different deployments in this area - is basically 'service reuse'," says Gimer. "You hear a lot about this in the IMS world, but we're actually doing it without any type of IMS infrastructure. There exist operators that are looking to reach customers, no matter how. They don't care whether it's via cable, or two-way broadband satellite, or DSL, or WiFi, or whether they're doing it directly or reselling it. These types of operators want to define a common set of services or service definitions for high speed data, voice, video, or whatever, and they want to be able to reuse them. We have several implementations of this, such as at Rogers Cable in Canada where they use our common infrastructure to manage ISP and high-speed data services over cable, and they use the same infrastructure to do it over their WiMAX network. They offer slightly different packages but essentially the same types of services. Also, Portugal's largest cable operator, TV Cabo, uses the same common platform where they manage cable, voice, video and data services from our platform. They also manage WiFi, two-way satellite and DSL resell, so they're basically reselling access through their business partners or their telco owner. They are doing this to get consumer access and reach thus market share anyway they can. Again, they're using the same, common infrastructure to do that."

Cable companies took forever to test VoIP thoroughly. Now their innovations threaten to leapfrog them ahead of more traditional telcos and service providers. IT

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

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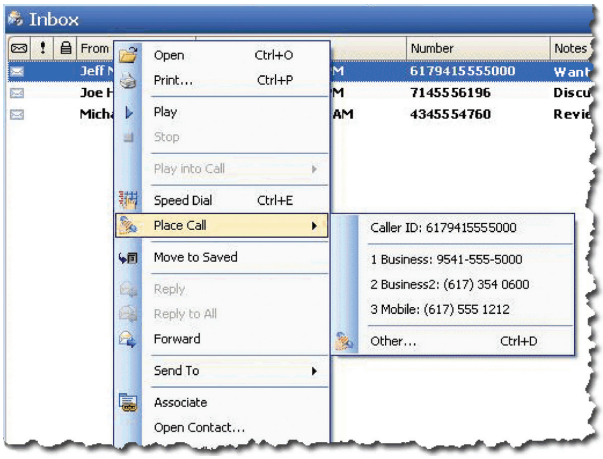

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Multimedia on the Move

One of the tantalizing promises of 3G wireless network technology (made possible by the 3GPP and 3GPP2 standards), is mobile multimedia, which for most of us means Mobile TV. People over the age of 60 find it puzzling. People aged 25-60 find it useful for checking stocks, news and sports while on-the-go. Youngsters somehow consider it something absolutely necessary for their day-to-day survival.

At Accenture (news - alert) (www.accenture.com), Arjang Zadeh, Managing Partner for Network Practice, Comms and High-Tech Operating Group, says, "We at Accenture are doing considerable work in DVB-H [Digital Video Broadcasting-Handheld] mobile broadcast TV implementations for various service providers. Also, we are into managing content acquisition and management for service providers, since they sometimes obtain content from different sources, convert everything to a format useful for mobile devices, and then put it on the provider's content management platform. We're doing quite a bit of that in Europe."

"Another big area consists of the handsets themselves," says Zadeh. "Once a service provider is operating in a multimedia environment, there appear compatibility issues involving the software that must run in differing versions of a handset. Even device vendors can become involved. Thus, we've built a practice devoted to handset testing. For various service providers and some device makers, we are in effect doing rigorous handset testing. For each version of the multimedia software, hardware and type of content, we perform rigorous regression testing to ensure that everything works correctly before sale to subscribers. That's interesting for us, and important for providers, device manufacturers and ultimately, consumers."

"In all, we do considerable work in all areas: network, service platform management, content management, IT, CRM and handsets," says Zadeh. "We also do a good deal of handset software development based on different operating systems."

"In terms of where the industry's going, there are different forms of mobile multimedia content that the industry currently delivers," says Zadeh. "As I said, we focus on broadcast content, such as DVB-H. Bandwidth is of course the major consideration. Will the customer pay for a sufficiently long Mobile TV subscription to justify the cost of both the bandwidth and supporting infrastructure incurred by service providers? Obviously, some providers dwell in a paradise-like world of monopolies, but most of them aren't and must keep an eye on their bandwidth expenditures. The bandwidth cost for many of them is significant and they must make a business case for it."

"Then there's the big issue of electrical power. DVB-H has been designed precisely with the selling point of allowing the handset to turn itself off-and-on automatically at opportune moments to conserve the battery charge and be more power efficient," says Zadeh. "Even so, any time you actually tackle something like video you will inevitably be expending more power than for voice."

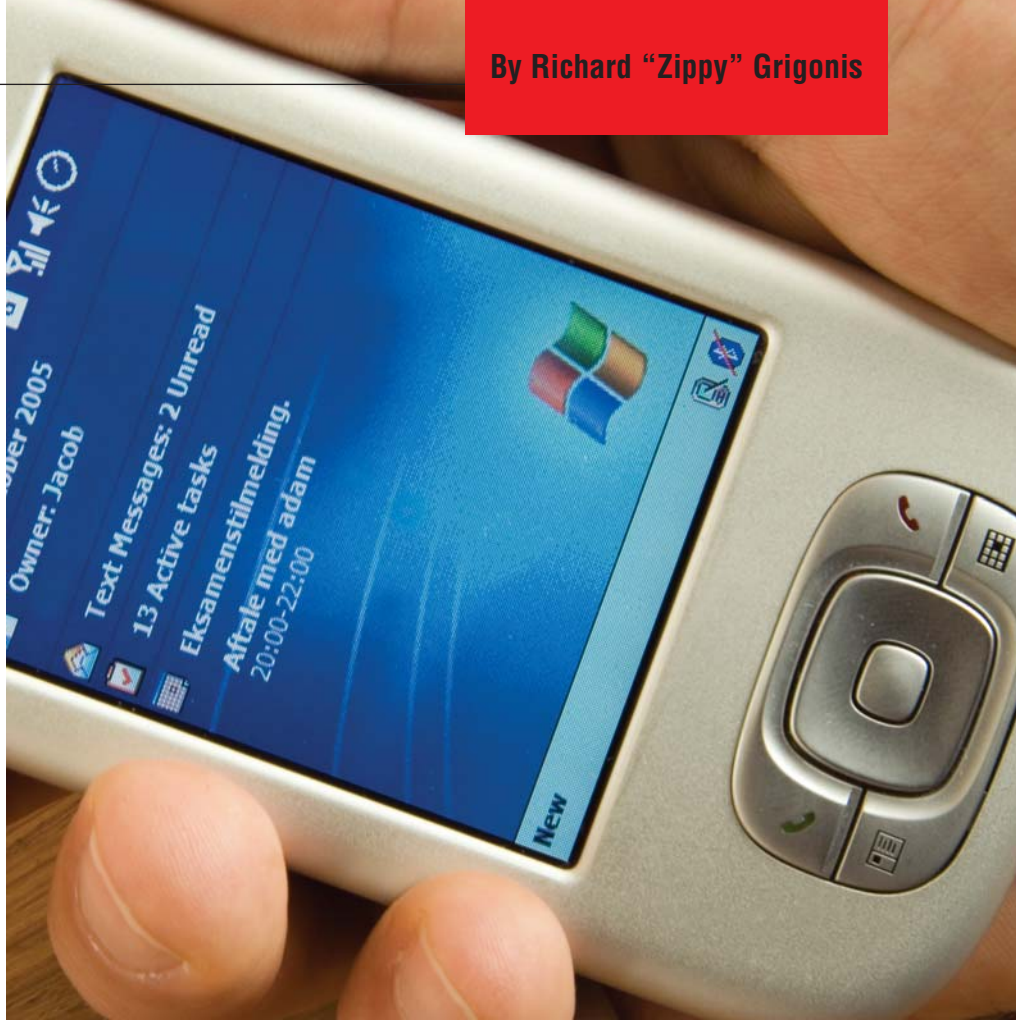
"Finally, there's the matter of reliability of the Mobile TV services. We know how difficult it is to achieve reliable video on normal broadcast TV platforms," says Zadeh. "The same applies for such things as DVB-H platforms. It comes down to: Are customers willing to pay for a semi-reliable service that will be power hungry to boot? What will the churn rate be? Will the service providers find all of these costs acceptable? If video actually reduces churn, then it's a no-brainer. But the jury is still out concerning whether adding video to the mobile services bundle will be as successful as IPTV added to a residential triple or quad-play bundle, since they are totally different propositions. After all, Mobile TV relies upon a very small device with a small screen. It's not as compelling an experience as a 60-inch TV. Still, it's probably okay for niche content such as news or sports. I hope I'm wrong that the churn reduction brought about by Mobile TV won't be such a big differentiator as IPTV in a 'normal' landline services bundle. We'll see in a year or two."

Vancouver-based Mobidia (news - alert) (www.mobidia.com) is another company that helps wireless operators to control, manage, and monetize IP data traffic and offer their mobile subscribers innovative and hopefully churn-reducing services, such as a live video sharing service supporting live, handset-to-handset video sharing on existing phones and networks. Mobidia's Wireless IP QoS and IP Bearer Management Services system software is used by wireless operators for the dynamic management of data traffic on the uplink and downlink.

Gary Tauss, CEO of Mobidia, says, "Several things are affecting the whole field. First, there's the whole issue of multimedia and 'openness'. Three big forces are pushing here: First are the carriers that have designed the way you use your cell phone to access the Internet using a sort of portal concept under their control. Their WAP browsers and everything else is all about pointing you to them and then controlling where you go on the network. Many cell phone users today don't exactly enjoy that experience, particularly if they've used the Internet before. Secondly, there are the content owners such as United Artists, NewsCorp and Disney, who see big dollar signs at the mention of mobile multimedia. You'd expect mobile multimedia to be like using your PC to go out onto the Internet, but these guys want a channel model like TV, where basically there's some premium channels that you see first and then maybe if they can't get you to use any of their paid offerings, perhaps there's a back door that's hard to use

Go to Table of Contents | Go to Ad Index

By Richard "Zippy" Grigonis



but will lead you to Google."

"Finally, you've got the Internet model," says Tauss. "Google is investing a lot in this area to deploy a mobile phone and utilize the search model where you search for something and then the appropriate media appears. Questions such as 'Is the screen big enough?' and 'Would you watch a long movie?' and 'Do you need a keyboard on your phone?' are in many cases driven by the user's past history. If you're familiar with the Internet/search model, then you want a phone with a keyboard and open access. If you're coming from the TV content world, you want a few drop-down menus to get to your favorite shows. And if you're the carrier, you're trying to drive all of this through your big site so you can charge either for advertising or a subscription model. I find that, as we talk to various people, particularly about the technology, we get a lot of blank stares because it all really depends on where you're coming from and what you care about."

"For example, if you're a 'content guy' then you're not concerned about how much bandwidth is available and all of that," says Tauss. "Instead, you feel secure that something like Qualcomm's MediaFLO System will take care of optimizing mobile multimedia delivery. Or, you probably believe that a separate broadcast network will be set up just for you and you'll get your content out there and they'll pay you for it. On the other hand, if you're Google, you care a whole lot about available bandwidth, because you want to deliver websites and advertising dollars for hits. So you're very concerned that portal data may take 40 or 50 seconds to download. This, in turn, drives the whole argument over what's really video. The 'TV view' is that video must be paid for; it would be mostly pay-per-view, video-on-demand, with premium content and channel-oriented. That's opposed to the Internet guys who want everything to be free to the user, such as YouTube and MySpace. And finally there are the carriers, who are just trying to sell subscription-oriented services and items such as Verizon's V CAST service."

"Another division is - do you believe this world is heading toward a downstream-oriented scenario where you mostly just watch things being played on a mobile phone, or will there be a two-way, more interactive system?" asks Tauss. "Your belief system can drive the underlying technical problem, which is determining how much upstream bandwidth you need. That in turns leads to questions about whether the backhaul network is sufficiently big, and things like that. If you believe in video sharing, then you're probably really concerned about that, because even though a Sprint or Vodafone is announcing great new edge networks, unfortunately their backhaul may still be only 64 Kbps, so even if the last mile is really fast, if one segment narrows to 64Kbps, then that's all you can move."

"Mobidia entered the field believing that carriers want to boost their revenue per customer," says Tauss. "But it's expensive for AT&T to steal subscribers from Verizon, and it's not a very stable way to gain market share. So they've got to offer something new - video services. We focused on fixing the terrible video experience the customer gets today. Moreover, most systems are designed in such a way that they just don't take advantage of what's out there. So we developed our handset and server architecture to do what's called IP Service Management over the wireless link. We can now get videos apps out there; even real-time, two-way video."

"Other underlying long-term issues must be dealt with," says Tauss. "One world believes everything should be IMS-based and all applications will be 'controlled', but unfortunately, Google, Microsoft, Yahoo, SAP and Oracle don't live in that world. There's nothing that would allow all of these applications and the non-carrier and carrier-sponsored stuff to actually co-exist. So, we built a system where we could do that and perform the bandwidth management and prioritization necessary to support real-time communications applications. It allows lower-speed, pre-upgraded networks such as GPRS to handle live video traffic between normal handsets. Carriers can now prove there's a demand for these services, and use that to justify the billions of dollars that they're looking to invest in enhancing their infrastructure and creating more services. And our aptly named CU Buddy is a live P2P video app that can conference up to five participants together using wireless phones or devices."

Yours Truly finds that mobile multimedia does grows on you. But it would grow on me more at $10 a month than the present dollar per video clip. IT

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

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What American, European Experiences Can Teach Us About Meeting WAN Optimization Challenges

European and American enterprises have been taking differing approaches to WAN optimization, but there are signs that they are starting to converge. The historical differences were due to a number of factors, including bandwidth price differences and dissimilar relationships with their carriers. The trend has been that Europeans take a longer-term, strategic approach to WAN optimization in partnership with their carriers, while American firms have generally focused more on the short-term, using their own resources to solve critical problems as they arise. The trend now is for U.S. firms to start thinking more strategically about WAN optimization, while European companies are adopting many of the tactical solutions first offered in the U.S.

Why the differences?

There are two primary reasons for the different continental approaches. First, bandwidth charges are higher in Europe - in fact, there is still much usage-based or MPLS class-based pricing. At the same time, flat rate pricing is much more prevalent in the U.S., and some enterprises here are even obtaining CoS at no additional cost from their carriers.

The second difference is the relationship between enterprises and their carriers. In Europe, many more enterprises buy managed services from their telecom providers than in the U.S. Analysts estimate that carriers manage 70% of enterprise routers in Europe, while that is true for just 30% of U.S. firms.

The pricing model differences probably stem fundamentally from Europe's history of "Postal, Telegraph and Telephone" companies (PTTs) as government-sponsored monopolies. Each country had their own PTT with its own tariff structure, and usage-based pricing was the norm. When the Internet came along and IP won the war versus ATM, the PTTs hung onto their usage-based pricing models, and the relatively more regulated European market did not experience the race to the bottom on bandwidth pricing that we saw here in the U.S. in the '90s.

In contrast, the breakup of the Bell System eliminated the U.S. monopoly PTT at the same time that TCP/IP began its conquest of the enterprise WAN. The U.S. venture capital markets did what they do so well in the '90s, creating thousands of new ISPs and overbuilding backbone capacity. Flat-rate pricing was born out of rabid competition and pools of venture money. WAN provisioning was quickly driven towards being a commodity, and the lack of profitability inhibited most service providers from being able to innovate with their service offerings beyond just bandwidth. Enterprises in the U.S. thus came to view Internet and WAN services as commodities and cost centers.

When the venture money eventually ran out for ISPs in the late '90s, and finally when the dotcom bubble burst in late 2000, only the players with the lowest cost of capital were left standing. Economies of scale dictated those would be the incumbent "phone companies." So now, we have a handful of integrated telecomm/datacomm vendors in the U.S. that have recovered from the bubble and are looking for innovative ways to offer value to enterprises beyond just "bit hauling."

While U.S. service providers were wearing each other down with price discounting, European carriers were building cooperative relationships with their enterprise customers. They could afford to invest more in managed services because they had more profitable and more predictable revenue streams. European service providers have earned the trust of their business customers and

Go to Table of Contents | Go to Ad Index

By Peter Schmidt

have built up expertise in managed service provision that the U.S. carriers are only now starting to develop.

A more strategic approach is to provide application acceleration and control it within the framework of achieving application performance objectives.

Of course, the flip-side of this is that U.S. enterprises have had to be more self-reliant and have built up their own expertise in managing their own WANs. Some organizations have made astonishing investments in their WAN and their staffs. One of the world's largest financial services companies, headquarterd in Boston, has a staff of six people dedicated to application performance, and three of them have Ph.Ds! Clearly, it will be hard for any outside vendor or service provider to enhance its capabilities much.

Another important difference is that IT outsourcing has had a larger impact in the U.S., leaving staffs with a much heavier per person operational and support workload than was true a decade ago. As a result, many network professionals are constantly in fire-fighting mode, with little time to work on longer-term projects.

Tactical Approach

This has led to a tactical bias among U.S. enterprises, in which pain-points are addressed with point solutions. While this has resulted in short-term benefits, tactics alone don't win in the long run. Organizations require a sound strategy to guide IT investments over time. We learned from the dot.com era that buying the latest hot network device doesn't directly correlate to improved business functions. CFOs have taken that lesson to heart and are pushing IT for more strategic investments.

Acceleration is a hot technology, and for good reasons. It can be very effective at solving tactical problems. Caching, compression, local CIFS acknowledgments and TCP window manipulation can each be very effective pain relievers. However, with time, the pain comes back in new places, and it doesn't take long before the lack of coordination in the leading acceleration products starts causing headaches of their own.

A More Strategic Approach

A more strategic approach is to provide application acceleration and control it within the framework of achieving application performance objectives. It means going beyond reporting on applications and beyond accelerating them - it means guaranteeing application performance, especially for an enterprise's most critical applications. It takes a unified perspective and product architecture to achieve that.

Acceleration that speeds up both recreational Web surfing and the critical ERP application, but which still leaves the ERP application under-performing during periods of congestion does not meet business needs. The first priority has to be to ensure that the ERP application always meets its performance objectives.

This leads to the concept of application SLAs. While European enterprises may have been slower to exploit some short-term benefits with acceleration, they have certainly been paying attention to the long term. Several European service providers already offer enterprise customers application SLAs. Moreover, some enterprises are even offering SLAs to their internal customers. Application SLAs enable a strategic approach to the IT infrastructure. They bring IT, service providers and users together around the critical issue - providing users with good quality of experience so they can get their jobs done. Ultimately, all that matters in IT is good user QoE - of course, at a reasonable cost and with high availability and reliability.

While economic realities are pushing both enterprises and service providers to deepen their relationships and invest more strategically, there are plenty of short-term pain points that need addressing now. Thus, we can take away from the respective European and American experiences that enterprises should seek to achieve good application performance both now and in the future. The best way to approach this is to deploy acceleration solutions within the planned framework of achieving application performance objectives and application SLAs. IT

Peter H. Schmidt is technical director for Ipanema Technologies (news - alert) (www.ipanematech.com), a provider of application traffic management systems for wide-area networks.

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Product Round-up: Enterprise VoIP Gateways

There is no question the worldwide migration to VoIP is well underway. But also unquestioned is the fact that the PSTN is not yet on its way out - large numbers of businesses and consumers have yet to make the switch, and still many more have yet to even seriously considered it. What that means is the market for VoIP gateways is also in no danger of becoming extinct, since those businesses already enjoying the benefits of IP telephony will most assuredly need to place and receive calls to-and-from the PSTN, which means they will need some device to enable the translation between the two technologies - the gateway, which merges PSTN and IP technologies without requiring disruptive, costly network upgrades.

Of course, the growth of the IP Communications industry has led to considerable advancements, including the multimedia, mobile, and unified communications platforms and devices, which has meant that gateway manufacturers must also continually enhance their products to enable such new and varied communications media. Likewise, because cost effectiveness and ROI are always key drivers on any communications investment, developers also have been keen to enabling interfaces with various external systems, such as softswitches, network management systems, and billing software.

Because of this, the number of gateway manufacturers has not seen a marked decline of late - in fact, if anything, market consolidation aside, there are a surprising number of vendors actively marketing their VoIP and media gateway products. Some are vendor-agnostic, while others have been designed to interoperate with specific vendors. Some are analog systems, others digital; some are purely voice gateways, while others integrate multimedia capabilities; and some even incorporate wireless technology, a growing trend among enterprise VoIP deployments.

But perhaps the greatest differentiator is that which separates vendors of most any communications equipment - the size of the customer. Regardless of the size of your business and the number of employees you have, you can rest assured you will find a variety of gateway choices to meet your needs. After all, you need not suffer simply because the rest of the world has yet to catch up with the latest technology.

To help you get started in your quest for a new gateway appliance, we have compiled a substantial list of gateway vendors. Some serve the SMB space, others large enterprises, and many have products for nearly any size business. Please use this guide as a starting point for your search, and be sure to contact any of these vendors, who are all anxious to serve you. IT

Aculab
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www.aculab.com

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NetVanta 1355 Gateway
www.adtran.com

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Avaya
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Cantata Technology
IMG 1010 Media and Signaling VoIP Gateway
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Cisco Systems
AS Series Media Gateways
www.cisco.com

Dialogic
Dialogic Media Gateway Series
www.dialogic.com

DLink
xStack IP Telephony Gateway
www.dlink.com

Edgewater Networks
EdgeMarc Converged Network Appliances
www.edgewaternetworks.com

Epygi Technologies
Quadro Gateway Series
www.epygi.com

Fonality
PBXtra
www.fonality.com

Grandstream
GXW IP Gateway Series
www.grandstream.com

GoHigh Data Networks Technology Co., Ltd.
MG3000 Series Gateways
www.datangnetwork.com

Linksys
Linksys SPA Series gateways
www.linksys.com

Mediatrix
Mediatrix Analog & Digital VoIP Gateways
www.mediatrix.com

MultiTech Systems
MultiVoIP Voice/Fax Series
www.multitech.com

NET
NET VX Series Unified Communications Gateways
www.net.com

Patton Electronics
SmartNode and SmartLink Series
www.patton.com

Quintum Technologies
Tenor Series AX, BX, and DX Series
www.quintum.com

RADVISION
Scopia 100 Gateways
www.radvision.com

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Sysmaster VoIP Gateway
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Vegastream
Vega VoIP Gateways
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Xorcom
Astribank
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Zultys Technologies
MX25 Modular SIP Gateway
www.zultys.com

Zyxel Communications
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VoIP MARKETPLACE

ADVERTISING INDEX

Advertiser/ Web Address	Page Number
3CX www.3cx.com	35
Aastra Intecom www.aastraclearspan.com/IT807	23
Aculab www.aculab.com	Cover 4
Allworx www.allworx.com	2-3
AltiGen Communications www.altigen.com	17
Broadvox www.broadvox.net	Cover 2
Business VoIP Community www.businessvoip.tmcnet.com	69
Cantata Technology www.cantata.com/1010judge	21
ClearOne Communications www.clearone.com/it	48
Communigate Systems www.communigate.com	25
Dialogic www.dialogic.com	27
GlobalTouch Telecom www.globaltouchtelecom.com	7
i3 Networks www.i3net.us	53
Ideacom www.ideacom.org	Cover 3
InnTouch Telecom Systems www.inntouchtelecom.com	45
Interactive Intelligence www.inin.com	29
Interop www.interop.com	65
Inter-Tel www.inter-tel.com	57
Iwatsu www.iwatsu.com/classifieds	36
Open Source PBX Community www.opensourcepbx.tmcnet.com	81
Profitec Billing www.profitecinc.com	31
Quintum Technologies www.quintum.com	11
Samsung www.samsung.com/bcs/OS7100	5
Seawolf Technologies www.seawolftech.com	9
Snom Technology www.snom.com	56
Target Distributing www.targetd.com	33
Tech Data www.techdata.com/techsolutions/telephony	49
Teleformix www.teleformix.com	19
TMC Webinars www.tmcnet.com/webinar	76-77
U4EA Technologies www.u4eatech.com	68
Unified Communications www.uc-mag.com	80
VanAccess www.vanaccess.com	72
VoIP Services Community www.voipservices.tmcnet.com	73

Speaking with 3Com's Brian Allain

By Greg Galitzine

A while back I had the opportunity to interview Brian Allain, Vice President and General Manager of 3Com's Data and Voice Business Unit. The conversation ranged to include a wide variety of topics, and the results of that discussion appear below.

GG: In your view, besides cost savings what are some of the drivers fueling the growth of IP-based enterprise communications solutions?

BA: In addition to cost, there are two other major drivers behind IP telephony. First, even the traditional circuit-switched PBX vendors are putting all their investment into VoIP systems. So if a customer purchases non-VoIP (define - news - alert) systems it is buying equipment that is soon to be obsolete. Second, customers realize that IP Communications technology can more easily and effectively integrate with their business applications to provide productivity improvements.

GG: What is the importance of doing a network audit, to determine if an enterprise LAN is capable of supporting real-time applications such as VoIP?

BA: Performing an audit is essential because often times an older LAN does not have the QoS, security, or power capabilities required to support an enterprise grade telephony system. For instance, 3Com's switches can automatically detect if a phone has been plugged into one of their ports and set up the appropriate VLAN and QoS attributes for that traffic.

GG: What is 3Com doing in this space these days? What products do you currently offer, and what markets do you address with your product line?

BA: 3Com has a wide range of Voice and Voice-Ready Networking products. Our voice products center on our VCX IP PBX system for enterprises and our NBX IP PBX system for small and medium businesses. Both of these award-winning systems come with a complete set of applications, phones, gateways, and other products, and offer their own unique set of differentiated features.

The biggest benefit of buying 3Com is we have full Voice-Ready Solutions. This means we not only provide the voice components but we also provide voice-ready, Power-over-Ethernet switches and routers, VoIP security products, voice-ready WLAN switches and access points, and network management systems to support the entire solution - all pre-tested and pre-integrated by 3Com. So both the end customer and the channel partner can have confidence that the entire system works together as needed.

GG: Are current data security solutions enough to secure VoIP? I mean, voice is just another application on the LAN, isn't it?

BA: It is always difficult to say that one has "enough" security. With VoIP, security has often been largely neglected by many customers - and it is a constantly-evolving landscape. This is why 3Com's TippingPoint division founded the VoIP Security Alliance (VoIPSA) and holds a leadership position in the identification and prevention of VoIP-specific attacks. Our Digital Vaccine service offers best-in-class responsiveness and protection for newly identified vulnerabilities.

GG: How can organizations power IP phones and other devices on their networks, and will this create complex additional wiring and electrical issues?

BA: IP phones can be powered "in-line" using a network switch and twisted pair cabling that supports the 802.3af standard - commonly known as Power-over-Ethernet or PoE. Organizations should first ensure they have the cable infrastructure necessary to implement. Although the specification calls for Cat 3 and above, typically higher-end Cat 5, Cat 5e or Cat 6 is recommended.

A second issue is power management. The list of devices that utilize the PoE standard is long and growing (including IP phones, wireless access points and wireless cameras), and many network switches have a maximum draw that precludes using a PoE device on every port. Customers should ensure they use a network switch which delivers a full 15.4 watts of power on every port to support whatever device is plugged into that port.

To cope with situations where the maximum power is not available for all ports for example, in a 48-port PoE switch, 3Com's unique "PoE Profile" technology ensures the available power can be carefully managed. PoE devices can have exactly the power they need reserved on the switch and relative priorities can be set to ensure overpower conflicts are resolved gracefully. This is known as power management and has typically been resigned to higher-end network switches. But it is now available even to the SMB on, for example, the 3Com Unified Gigabit Wireless Switch. Also of note, for the organization not yet ready to move to a PoE infrastructure, 3Com IP phones can be powered locally through a power brick, giving the customer maximum flexibility.

GG: What else can you tell our readers about the future of the enterprise IP Communications market?

BA: We believe the rate of innovation and change in the enterprise communications market is accelerating once again. Just as the initial introduction of VoIP systems caused a major transition, we are now seeing the introduction of Unified Communications causing another major transition. With the integration of telephony - really communications more generally - into business applications, we are seeing new vendors play a major role - as with 3Com's strategic partnership with IBM that offers an IP telephony solution the on System i platform. We are also seeing purchasing influence grow from the telecom manager to also include the network manager and the applications manager. We will also see "Convergence" take on a deeper meaning, with voice, data, and security products melding into one. IT

Go to Table of Contents | Go to Ad Index

Employee healthcare costs out of control?

- **Group Telecom Equipment Purchasing Plans**
- **Employee Healthcare Insurance Plans**
- **Solution Reseller Owner Training**

Most telecommunications solution providers have three things in common:

- Spiraling employee healthcare costs
- Lack of purchasing power
- Owner/principal training

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