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VOLUME 11/NUMBER 1 JANUARY 2008

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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.

Be More Productive with UC in 2008

Sometimes Yours Truly thinks that IP and Unified Communications (News - Alert) (UC) are not more fully adopted simply because people hear the wrong reasons (toll by-pass, making a little company look like a big one) instead of the right one. If a company is going to cajole its employees into completely changing the way they use their communications devices, it should be for a really good reason. And that reason exists – greater productivity.

Back when I was in college, a cultural anthropology professor, Bob Edwards, explained what happened when a new way of speedily planting a crop was introduced to farmers. In the U.S., the farmers planted twice as many acres of the crop as before. In many other countries, however, the farmers simply planted exactly same acreage as they had previously but in half the time – and then took a nap.

Here in America, the land of workaholics, UC can definitely increase productivity. How much so was revealed recently when Siemens Enterprise Communications (News - Alert) employed Insignia Marketing Research (www.insigniaresearch.com) of Toronto to perform a survey of 517 enterprise and contact center employees in North America and Europe (62% of which were in customer service and sales), whose workflows reveal the rather amazing true costs of "fragmented" communications: The report, entitled "Measuring the Pain: What Is Fragmented Communication Costing Your Enterprise?" actually quantifies the costs of conventional workflow disruptions and added costs to enterprises lacking unified communications. For example, enterprises of 1,000 persons could lose more than $13 million a year in lost productivity and avoidable expenses.

Other highlights of the Siemens (News - Alert)/Insight report:

- Ninety-four percent of respondents waited an average of 5.3 hours per week on information from others to complete tasks. In 1,000-employee enterprises this can translate to more than $9 million yearly in lost productivity based on a $37 weighted hourly wage. Moreover, the negative impact of 5.3-hour delays in customer-facing activities impacts on customer sales, service and revenue realization.

- Respondents suffered an average productivity loss of 7.8 hours a month at offsite locations because they lack the same communication tools they have in their main office. Nearly a full day each month is lost because they are not properly equipped with effective, remotely-accessible collaborative communications systems. Therefore, as the workers become more mobile, they become less productive – unless they have some sort of Unified Communications / Fixed-Mobile Convergence (News - Alert)/ Telepresence system keeping them in the

- expenses because of ineffective or non-existent collaboration with existing communications systems. Managers must synchronize teams through expensive internal meetings requiring travel. In a 1,000-person enterprise, these costs can top $3.4 million a year.

So Gentle Reader, if nothing else, you can now be certain that the advanced technologies we advocate in the pages of our magazines here at TMC (News - Alert) are not simply glitzy technological fixes to enliven your daily routine. Properly implemented, they have a huge positive impact on productivity, the bottom line, and all of those other increasingly life-and-death-of-a-company phenomena rooted in sheer competition. IT

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

FCC: Worry about TVoIP, not Cable

As the FCC (News - Alert) vs. Cable struggle (www.tmcnet.com/1413.1) continues, I can't help but wonder if Chairman Kevin Martin isn't spending too much time worrying about a problem which will be irrelevant at some point in the future.

Martin is trying to get cable companies to inexpensively lease their lines to independent programmers. He is also trying to reduce the cost of cable service and ensure 'a la carte delivery of channels (www.tmcnet.com/1414.1) to consumers.

But is Martin fighting the right fight at the right time?

You see, the cable lobby is very strong and they exert influence on politicians who in turn do their best to minimize the influence Martin has. In other words, by taking cable companies on – even if this is best for customers – he will find himself losing prominence and having more of his initiatives second-guessed in the future.

Moreover, it should be clear that soon, an Internet television revolution will take place allowing consumers to view programming over the Internet and subsequently rely less on cable for distribution.

Voice-over-IP was rolled out rapidly with the advent of Vonage and others paving the way. Companies like NeuLion (News - Alert) are doing for TVoIP what Vonage did for VoIP. I have had a chance to visit Neulion and see their technology which allows high-quality (but not HDTV) television to be watched over a 700 Kbps connection.

Just as a VoIP provider such as a Vonage (News - Alert) supplies you with a box which connects to a broadband line and a telephone, Neulion supplies a box which connects to your broadband connection and television.

In the future, it will be commonplace to connect a computer to a TV. Apple (News - Alert) and a number of other companies such as TiVo play in this space today.

I would argue that it will soon be infinitely easier for niche programming to be viewed over IP than via cable companies. TVoIP will only grow in importance over the upcoming years. I wouldn't be surprised if the 2008 holiday season does not see such devices as "must haves".

So while Chairman Martin is on the right track in looking to make it easier for consumers to access niche content, the true future solution to this problem is TVoIP, not cable.

In my opinion, the biggest barrier to successful TVoIP is a lack of network neutrality. We need to ensure that service providers treat all broadband content the same or at least ensure that they don't purposely slow down any broadband content.

You may think this problem is something that doesn't happen and is not worth dealing with but in reality Comcast (News - Alert) has already been found doing this exact thing (www.tmcnet.com/1415.1).

Television prices are plummeting and the same is happening with computers. As these trends continue, the amount of programming consumed will grow exponentially and with it the bandwidth needed to effectively watch this programming.

If the FCC is truly committed to spirit of open competition in the television world, then network neutrality is what needs to be fought for and secured today. All other fights are merely speed bumps on the road towards a truly competitive television landscape. IT

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Contents

Volume 11/Number 1 January 2008

What's On TMCnet 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.

The Shifting World

The tectonic plates are shifting. Wireless carriers and handset suppliers are changing their long-standing relationship with consumers as well as with each other. Now that networks are approaching functional equivalency it appears as though things may be shifting again with the handset reasserting its dominance.

www.tmcnet.com/1420.1

Microsoft's OCS 2007 Sheds Spotlight on Software-based VoIP

The more things change, the more they stay the same. Windows TAPI version 3.0 failed to live up to the promise of establishing Windows as the preferred platform for voice communications solutions. But Microsoft has taken a renewed interest in converged communications with OCS 2007.

www.tmcnet.com/1421.1

What's in Store for VoIP in 2008?

The Year of the Rat could bode well for VoIP. Versatility and the ability to overcome obstacles are qualities VoIP may indeed share with the Rat. What other rat-like qualities and behavior will VoIP be demonstrating in 2008? Here's a take on what's in the cards.

www.tmcnet.com/1422.1

Tearing Down The Wireless Walled Gardens

If you listened closely, you may have heard wireless industry suppliers breathe collective sighs of relief as Apple and Verizon Wireless made two momentous announcements. That's because wireless market suppliers made bets two years ago that enterprises would be able to install handsets and applications of their choice on networks throughout North America.

www.tmcnet.com/1423.1

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.

VoIP Doesn't Require and Phone Equipment Investment

One of the key benefits of "VoIP" phone service is the large amount of savings over traditional phone service. However, most VoIP vendors offering these long-term savings require a huge up-front investment in new phone systems and equipment before those eventual savings become a reality. What most of these businesses don't know is that there is a way to reap the long-term savings of VoIP without having to make a large equipment investment, or any equipment invest at all.

www.tmcnet.com/1425.1

Leverage Session Control for Sustainable Competitive Advantage

Market demand for VoIP services has skyrocketed in recent years, as residential subscribers seek ways to lower their communications costs and enterprises are compelled to simplify network management while controlling expenses. Recent improvements in security and reliability coupled with mass-market advertising have propelled sales of VoIP services to tremendous heights, a trend that is expected to continue unabated for several years.

www.tmcnet.com/1426.1

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

TMCnet's Managed Services Channel

A critical factor in achieving the goals of business VoIP and Unified Communications is empowering the channel to remotely manage the converged communications equipment they sell, thereby providing their customers the benefits of Unified Communications without the IT management pain. For the latest on Managed Services, including news, interviews, and feature articles, visit TMCnet's Managed Services Channel regularly. Sponsored by Communicado.

http://www.tmcnet.com/channels/managed-services/

TMCnet's Internet Fax Channel

Internet fax is the 21st century version of that technology which businesspeople have a love/hate relationship with. Now online and with new features, Internet fax provides all the conveniences of being able to transmit documents from one location to another, but without the hassles. For the latest news, trends, and information on Internet Fax, along with interviews and feature articles, visit TMCnet's Internet Fax Channel regularly. Sponsored by Packetel.

http://www.tmcnet.com/channels/internet-fax/

This Month's Featured Channels

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www.tmcnet.com/channels/managed-services/

Internet Fax Channel

www.tmcnet.com/channels/internet-fax/

Hosted-VoIP Channel

www.tmcnet.com/channels/hosted-voip/

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If you want to select a VoIP solutions partner to help you grow your business, look no further than TMC's "Selecting VoIP Solutions" Channel. Or ask about Epygi at Internet Telephony East in Miami, the ABP Tech Booth 212.

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Contents

Volume 11/Number 1 January 2008

Columns

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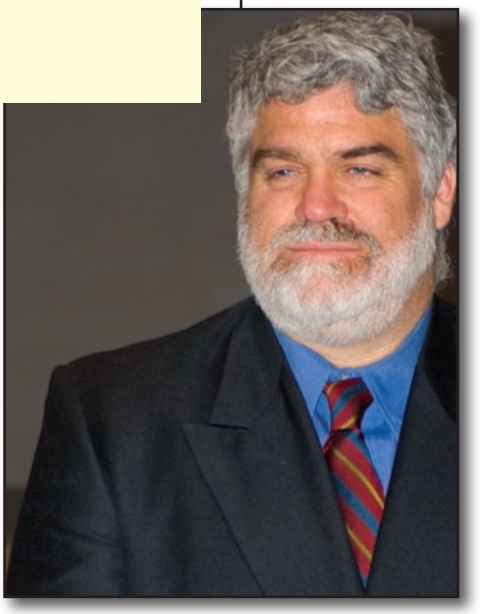
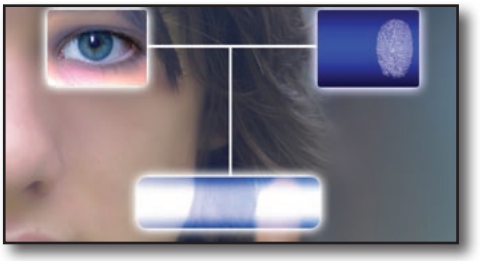


Feature Articles



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By: Brough Turner

Revolutions in Enterprise Communications

What with VoIP, IP-PBXs, managed services and fixed-mobile convergence, there is plenty of activity and even more hype in enterprise communications. But what's really important? When we look back from 2020, what will have been the key change of the late 2000s?

From our vantage today, fax was the clear advance of the 1980s. Prior to 1985, enterprise communications consisted of voice telephony, paper memoranda and snail mail. Suddenly in the late-1980s, fax spread everywhere. In the 1990s, the biggest advance in internal enterprise communications was the adoption of email, completely superseding paper memos, while the biggest external change was the adoption of websites as the primary corporate communications vehicle.

VoIP and managed services, yes but…

Today there is no doubt that VoIP, IP-PBXs and the spread of managed communications services are having a big, big impact on IT departments and on the way small business owners purchase their communications services. Affordable broadband connectivity makes managed services feasible while business owners and IT directors welcome the chance to purchase such critical but non-core functions in a reliable fashion at a known cost.

But the impact of VoIP or managed VoIP on business processes and employee behavior is negligible. The services of an IP PBX (News - Alert) are remarkably similar to the services of a traditional PBX. Video conferences may cost less over IP, but they work the same as video over ISDN.

Managed services will have major impact on the way small and medium enterprise communications are implemented, but for what those services are we need to look at what employees are doing.

Employees seek mobility

Typically it's employees who bring new, useful technology to work or who use departmental budgets to bypass corporate systems. That's the history of fax machines, PCs, mobile phones, the Blackberry, SMS and instant messaging (IM).

The biggest change in telecom today isn't VoIP or managed services, it's mobile phones. Mobility provides profound personal and business advantages and the built-in phonebook alone makes the mobile phone more convenient than any corporate handset.

But fixed-mobile convergence is in its infancy. We don't have "presence" (i.e. availability information) on our mobile phones. SMS and IM serve similar purposes but remain disjoint. So there's much work to do.

Conclusion

We're at the beginning of a decade-plus revolution in enterprise communication. Managed services will play a big role, but the real change in business behavior will come from the integration of mobile communications — voice, text, email and availability. Getting this right is the business opportunity of the decade. IT

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

By: Michael Stanford

Internet Bandwidth: Feast or Famine?

The nature of Internet traffic is changing; people are downloading and watching more video, the number of consumer broadband users is increasing and the bandwidth of each consumer access link is increasing, thanks to fiber service like Verizon's (News - Alert) FIOS.

These trends compound each other to vastly increase the amount of traffic carried on the Internet. Some fear that the Internet is in danger of clogging up under this load; a year ago a Deloitte (News - Alert) report said: "The unrelenting growth in Internet traffic during 2007 may overwhelm some of the Internet's backbones. . . Similarly, ISPs may struggle to keep pace with demand. . . The impact may be most noticeable in the form of falling quality of service."

So how can Quality of Service (QoS) be maintained on the Internet? The issues become a lot clearer if we define the terms. In its loosest sense Internet QoS simply means how good a user feels about his or her Internet experience. At the other extreme, the term "end-to-end QoS" is sometimes used to mean end-to-end resource reservation on a session-by-session basis.

Let's define QoS as a combination of metrics that affect perceived performance quality. These metrics would mainly cover bandwidth, latency, jitter, packet loss and availability. There is no question that poor performance on these metrics yields poor QoS. There are two main views on how to improve these metrics on the Internet. The "stupid network" lobby advocates leaving things pretty much alone, simply increasing network bandwidth to accommodate the increasing traffic.

A report from the Internet2 QoS working group says, "The absence of performance requirements has made it possible to run IP over any link layer, build IP routers with virtually any internal switching design, and run an IP network largely unattended and with very simple peering and settlement agreements. IP is dumb and cheap and, consequently, scalable to very high speeds and global reach."

The alternative to increasing network capacity is to ration its use, but historically network operators have found it more cost effective to deal with increasing traffic by adding bandwidth than by adding mechanisms to meter it. The Deloitte report seemed to anticipate that this would change in 2007: "Investment, either in laying new cable or lighting existing fiber, may be stifled by continuing falls in wholesale capacity prices."

The balance of benefit between adding bandwidth and rationing it is a question of economics, but also to an extent a question of philosophy, which is why the debate stirs so much passion. IT

Michael Stanford has been an entrepreneur and strategist in VoIP for over a decade. In his current consulting practice, he 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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By: Tony Rybczynski

How SMBs can get the Benefits of IP Telephony through Hosted Services

SMBs want to impact their top and bottom-lines, leaving technology to the experts. Frost and Sullivan observe that "companies that adopt hosted IP telephony typically save 20 to 40% on what they would have paid for a premise-based PBX (News - Alert)." At the same time, Infotrack predicts IP telephony is growing by 41% in the SMB space, meeting a range of SMB needs.

Hosted services deliver IP telephony and related applications over a common network infrastructure, without requiring SMB investments. Up-front capital and on-going operational costs for communications are replaced by a monthly bill. Hosted services eliminate the risk of equipment obsolescence and the need to undergo technology refresh, and avoid the need to hire or train technical staff. Through hosted solutions, SMBs win by having the communications capabilities and capacities they need, simply and affordably.

There are two styles of hosted IP telephony services. Some service providers offer a pure hosted IP telephony service, perhaps bundled with a DSL or cable modem, and rely on the SMB's owned and managed in-building LAN. Other providers offer an end-to-end converged service, complementing their hosted IP telephony system with a service provider-owned and managed in-building access gateway and LAN. In this case, the key to successful deployment is that the in-building network must not only meet SMB needs for wired and wireless connectivity, security, performance and reliability (including business continuity in case of a WAN failure), but must be effectively managed from the service provider operations center.

Not only are hosted services a win for SMBs, but they're also a win for service providers, SIs and resellers. Hosted services are not new per se, but hosted IP-based telephony and related applications offer new service opportunities. What do the experts say? Demand for IT and technical outsourcing is on the increase and shows no signs of a slowdown. InfoTech predicts that by 2009, two-thirds of SMBs expect to be using hosted IP telephony services. Securing a share of this lucrative market will depend on the service provider's ability to deliver SMB customers flexible and affordable next-gen services such as IP telephony, unified communications, contact centers, network storage, backup and more – with greater velocity and reliability than the competition.

With hosted IP telephony and end-to-end converged services, an SMB's communications system becomes an operating expense instead of a capital expense. SMBs can lower their costs, while simultaneously improving productivity and customer service and generally streamlining their operations. IT

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

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VoIP Peering

By: Hunter Newby

A Big Deal for Those Who Understand It!

It is one thing to be ignorant, but seek knowledge. It is another thing altogether to be ignorant, but spread a limited view and understanding of an important subject to others that seek the truth. Misperceptions perpetually communicated in conversations, presentations, articles, blogs and the like do nothing for those that want to learn and act only as an impediment for those that know and want to properly educate. We've dealt with this issue in the industry for many years now and there exists no easy solution. The only thing to do is to try and combat the forces of ignorance with an equal, if not larger, dose of reality.

Let's boil down VoIP Peering (News - Alert) to two things that everyone must know before they can speak about it, or try to learn anything about the particular services, or available providers:

1. IP is not the Internet and therefore VoIP does not mean Voice over the Internet.

Internet Protocol is a protocol. The Internet is a network of networks interconnected together based on "peering" agreements that involve a physical connection at some point. There are many, several hundred if not thousands of, IP networks that never touch the public Internet. Voice as IP over those private IP networks is still VoIP. It is not VoPI — Voice over the Public Internet.

2. The value or utility of VoIP Peering is not limited to the number of reachable endpoints.

When VoIP Peering was first introduced as a term it referred specifically to the wholesale exchange of voice traffic using IP as the provisioning mechanism for the circuit. For those not aware, the wholesale minutes business deals with bi-lateral exchanges primarily. VoIP traffic replaced TDM circuit-switched traffic. That's all. Not to trivialize what IP did, but there has been way too much emphasis placed on VoIP peering in conjunction with on-net endpoint routing for "free" calls. This is misguided at best. Yes, it is true that endpoint resolution through ENUM, SRV and other methods can enable "free" calls between IP networks, but this is only a small part of the broader spectrum of VoIP Peering.

Why are these two facts important? Without understanding these basic principles, those that seek knowledge can be misled and those that attempt to educate only poison those inquiring minds. By starting all conversations and learning from this basis, real progress can be made. Feel free to share. Let's not waste any more time. IT

Hunter Newby is Chief Strategy Officer for telx (www.telx.com).

Enterprise View

By: Mary Bradshaw & Max Schroeder

New Year, New Risks, New Opportunities

2008 is upon us and now we must determine how to use the next 366 days (yes, it's a LeapYear) wisely. Generally, a first step in creating a sensible business plan is to assess your risks and then develop a plan to avoid or mitigate those risks. This can sometimes be a very difficult task as the world seems to be a very risky place. Of course, risk also presents opportunities for enterprise resellers and vendors to assist their clients in dealing with these situations.

Take, for example, regulatory issues like Sarbanes-Oxley or HIPAA. As Howard Lubert of DirectorForce (www.directorforce.com) advises, "The Sarbanes-Oxley Act of 2002 [SOX] is very explicit in outlining corporate responsibilities in the new era of transparency. We are discovering that even privately held companies, under certain circumstances, are also finding themselves liable to particular issues raised under SOX. Most importantly, it has long been our opinion and it is now becoming the opinion of many legal and financial experts as well, that no company can attempt to execute all of the compliance requirements internally and still be in compliance of the act."

Realizing the opportunity presented by SOX, Lubert launched DirectorForce, an on-demand, hosted, totally secure communication, collaboration, and file management portal designed specifically for boards of directors of public, private and not-for-profit organizations who want to take a pro-active position on managing their company's affairs. The DirectorForce suite, when fully utilized, becomes a risk management tool that reduces company and board exposure to related litigation events.

The healthcare industry certainly experiences risk via HIPAA but also has other major concerns including the safety of patients and staff. IgeaCare Systems (News - Alert), Inc, of Canada (www.igeacare.com) develops and manufactures state-of-the-art telephony-based systems focusing on the healthcare sector. The technology also provides emergency response notification solutions for public safety in healthcare, education and government sectors. The solution connects staff, attendants, maintenance and administration with each other in real time. Their recently-announced U.S. subsidiary will be headquartered in Phoenix/Scottsdale, Arizona. They will be exhibiting at ITEXPO (News - Alert) East 2008 January 23-25, 2008, as part of the DPCF Pavilion so stop by to learn more. IT

Mary Bradshaw is the Executive Director of the Bradshaw Group. Contact her at mary_bradshaw@comcast.net, Tel: (202) 342-0850.

Max Schroeder is a board member of the ECA, Media Relations Committee Chairman, and liaison to TMC. He is also the Sr. Vice President of FaxCore, Inc. (www.faxcore.com) another company that will be in the DPCF Pavilion.

By: Jeff Hudgins

Do DSP Boards Still Have a Place in Today's IP Telephony Environment?

In recent years we've seen a shift from DSP-based telephony boards to software-based Host Media Processing (HMP). The continued advance of multi-core processors allows for ever-higher port density telephony solutions. But before we abandon the DSP telephony board completely, let's look at some recent successes.

In a recent interview with Alan Pound, CEO of Aculab (News - Alert), a UK-headquartered company, the question was posed as to how far HMP can go in displacing DSPs for media processing. Pound's response: "If there's a natural 'home ground' for dedicated DSPs, it is certainly in those situations where density is at a premium, and by this I mean both ports per cubic inch, and ports per Watt. Telcos, data centers, and I suppose military applications have big issues with the physical footprint – the cost of floor space, and of heat dissipation. These are really major problems in those applications, and along with critical performance parameters such as timing and jitter, dedicated, 'designed for purpose' devices, i.e. DSPs, are simply the best fit for the task – it is what they were designed to do, and as good as HMP becomes, I cannot see it actually overtaking DSPs in terms of performance."

An excellent example of this "design for purpose" approach is evidenced by the Aculab GroomerII product (based upon the Alliance Systems I-6000R3). According to Ian Colville (News - Alert), Aculab Product Manager, "GroomerII provides connectivity for an extensive range of protocols, including CAS, H.323, ISDN, SIP, and SS7 networks and is a very cost-effective solution for large-scale call centers where high call volumes occur via the PSTN and SS7."

Aculab's GroomerII signaling and media gateway received global approval from Siemens (News - Alert) by completing interoperability testing at their labs in Munich, Germany. GroomerII was successfully tested in a number of call scenarios involving ETS300, SS7 and SIP protocols using Siemens' HiPath 8000. Aculab is now an approved Siemens Technology Partner which means that Siemens business units worldwide can confidently specify GroomerII for interconnect solutions in conjunction with their HiPath 8000 product line. GroomerII provides a dependable, compliance-tested solution for interconnecting not only TDM networks, but also for connecting to SIP networks and equipment, such as the HiPath 8000.

Final Score. The advantages of host processor-based IP Telephony solutions can be very compelling. At the same time, the ability to scale up to a very high call count in a reliable manner is still highly dependent upon DSP-based telephony boards technology, and will be for quite some time to come. IT

Jeff Hudgins is VP of Engineering at Alliance Systems (www.alliancesystems.com).

Continuity Planning 101 — A Continuing Educational Series

By: Rich Tehrani & Max Schroeder

"*Success is simple. Do what's right, the right way, at the right time.*" — Arnold H. Glasow

Buying life insurance is a contradictory endeavor: a person pays for coverage but hopes never to collect on the benefits. Fortunately, investing in business continuity, SaaS (News - Alert) (Software-as-a-Service) and managed services can be one of those projects that pays out a benefit even if a major problem doesn't surface. This is particularly true for resellers, for some very simple reasons.

First, many resellers have customers that need to establish a business continuity plan, so marketing a solution to the customer is both added revenue plus good customer relations. The customer benefit is protected plus, perhaps, the use of new technology that makes their daily operations more efficient and cost effective. For example, installing a fax server both automates a business operation and provides for redundancy if the same technology is implemented at the backup site. If a customer elects to use a fax service such as that offered by Secure Care Technologies (www.securecaretech.com), they will have services deployed from a different geographic location, adding redundancy to the system. This service also provides for a HIPAA-ready platform for customers in the healthcare industry.

A second key reason is that many SaaS and other hosted services pay referral commissions to resellers or will work out a revenue sharing plan. So even if a reseller cannot currently enter the SaaS or managed services market due to limited resources, they can still generate revenue and protect their current customer base.

The above are only two reasons why resellers should attend ITEXPO (News - Alert) East 2008 January 23-25, 2008 at the Miami Beach Convention Center, Miami Beach, Florida (www.tmcnet.com/voip/conference) and visit the DPCF Pavilion. Take some time to learn about the latest in how hosted services (VoIP, FoIP and contact centers), SaaS and other business continuity technologies can be added to your portfolio of products and services.

DPCF Pavilion exhibit space may still be available, so if you're interested in exhibiting, please contact Joe Fabiano, Global Events Account Director, Tel. (203) 852-6800, ext. 132, Email: fabiano@tmcnet.com. Additional information on DPCF activities is on the TMC website at www.tmcnet.com/channels/disaster-planning or contact Max Schroeder (News - Alert) (maxschroeder@tmcnet.com or mschroeder@faxcore.com). IT

Max Schroeder is a board member of the ECA, media relations committee chairman, and liaison to TMC. He is also the Senior Vice President of FaxCore, Inc. Rich Tehrani is the President and Group Editor-in-Chief at TMC and is Conference Chairman of Internet Telephony Conference & EXPO.

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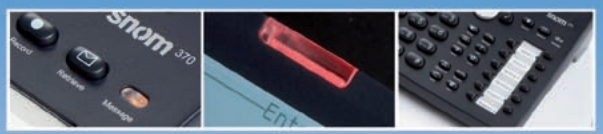

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Extreme Makeover! Data Center Edition — Part I

By: Mark Bolsoni

Many companies are looking at ways to cut IT costs while maintaining or improving service levels to their end-users. One not-so-obvious area to look is data center network technologies. Centralized data centers are en vogue again, with many of the technologies migrating back to a single environment. File servers, print servers, and mission-critical applications are all being evaluated as potential consolidation efforts. This mass migration of technologies is causing a new set of challenges for the data center manager: namely: how best to virtualize and optimize available resources.

One way to do so is to use the common thread between every data center, branch office, and remote office as a tool to gain a competitive advantage. By looking at the network proactively, organizations can gain productivity and have access to resources like never before. Adding more bandwidth, incorporating optimization technologies and creating a service-oriented network architecture can help transform the data center for better, more cost-effective performance.

Data Center Switching is no longer just basic routing and switching. Modular, top-of-rack and blade switches are available to support security, load balancing, and application acceleration via blades or line cards — all integrated into the chassis. This architecture provides scalability, resilience and operational management throughout your data center networking environment. Your switch solution should support low latency, line-rate throughput, and advanced security features.

Storage Area Networking (SAN) is a cost-effective way to store and manage the business critical information across your enterprise. Intelligent Fabric-based storage switches and directors typically have support for advanced storage services like virtualization, server-less backup, data replication, and continuous data protection to allow for enhanced business continuance and data migration. Within this architecture, one can have IP-based blades creating a unique mixture of real and virtualized storage direction. Storage services modules can also be inserted into data center-class switch chassis for space and power concerns.

Information Security in a virtualized data center is more important than ever. Data centers house the most critical and sensitive resources of any organization and consequently, the opportunities to target these critical data center networks, servers, and databases have increased exponentially. New and emerging regulatory requirements, such a HIPAA, Sarbanes-Oxley, Basel II, and PCI, place a special emphasis on protecting the access to, transmission, and storage of sensitive information, such as the personal and financial information of customers and employees.

The above are just three network-related elements of the virtualized data center to consider when looking to optimize cost. We'll consider three other elements in Part II.

As Product Director, Advanced Network Technologies at Forsythe, Mark Bolsoni focuses on creating solutions that help customers optimize their IT infrastructure and business performance by taking advantage of the latest in network technologies. Bolsoni has created, launched, and managed programs that enable customers to demo advanced networking products using a defined Forsythe trial methodology. IT

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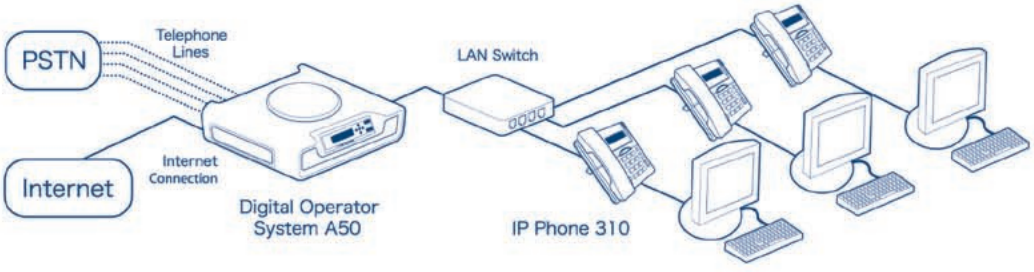
- Phone auto discovery
- Ease of Installation



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Buy online at http://www.cmptel.com/buy/

By: Richard "Zippy" Grigonis

Stateless Server Storage from Alliance Systems and Astute Networks

A "stateless" server treats each request as an independent transaction that is unrelated to any previous request. It literally has no "memory" or session variables that one finds in application software to store data for each transaction session. An example of a stateless server is a World Wide Web server, which takes in requests (URLs) which completely specify the required document and doesn't require any context or memory of previous requests. Stateless servers thus have no disk or flash drive to hold the "state" (OS, applications, data) of the server and are very simple. Upon boot up the state of the server is loaded on the server from a centralized and/or remote source. The server can be dynamically allocated without having to re-build applications, install operating systems or migrate data. Since there is no storage to be dynamically allocated to deal with conversations in progress, there is no concern about freeing any memory if a client fails in mid-transaction.

An example of a stateless server is a World Wide Web server, which receives a request (URL) that completely specifies the desired document and doesn't require any context or memory of previous requests. Stateless servers require careful design of protocols so that client software can send all necessary information along with a request.

As it happens, Alliance Systems (www.alliancesystems.com), a Network Engines (News - Alert) company, is major player in building stateless servers in the AdvancedTCA (News - Alert) (ATCA) form factor and incorporating Intel technology. They've even partnered with Astute Networks (www.astutenetworks.com) to build a stateless ATCA server solution using Astute Networks' Caspian 10 Gbps iSCSI Storage Blades with remote iSCSI boot. Remote Boot over iSCSI, also known as iBoot, is perfect for stateless servers, since it enables even a diskless computer to boot up by connecting to a hard drive over a network.

Astute Network's Caspian Storage Blade, based on Intel embedded processors, is said to be the first 10 Gbps iSCSI storage solution for AdvancedTCA, capable of providing iSCSI boot services for diskless and stateless server environments. NEPs and Telcos can now centralize their storage across all servers, since they now need store only a single set of OS boot images and applications files that can be shared over all servers in a chassis or across chassis. Such a centralization of storage reduces management overhead, capital cost, power consumption and improves recovery time, server deployment time and systems availability compared to Direct Attached Storage (DAS) on CPU blades. IT

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

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VoIP Services For SMB & Residential

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

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

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voipservices.tmcnet.com

www.tmcnet.com/1321.1

Whaleback Adds Conferencing to VoIP Service

Whaleback Systems has launched OrcaMeeting, an integrated conferencing package. OrcaMeeting also includes an optional 1-800 conferencing number that can help reduce toll calls. OrcaMeeting can be deployed in five- or ten-seat bundles as a standalone conferencing platform, or it can be integrated into Whaleback's CrystalBlue VoIP service.
www.whalebacksystems.com

www.tmcnet.com/1323.1

HP Announces New Virtualization and Power Management Technologies

Entering the next major phase of their strategy to build "modular, integrated, automated data centers," HP has announced new virtualization and power management technologies. The new offerings are based on the HP BladeSystem c-Class infrastructure, a self-contained unit of servers, storage, network, management software, and power and cooling technology.
www.hp.com

www.tmcnet.com/1324.1

Siemens Releases Two New Wireless Products

Siemens Communications released the HiPath Wireless Outdoor Access Point and version 5 of the HiPath Wireless Convergence Software. These new WLAN offerings further extend Siemen's commitment to open, wide-ranging wireless network environments for Voice over WLAN and mobility-enabled business processes.
www.siemens.com

www.tmcnet.com/1325.1

Polycom and 3Com Co-Branding Agreement for Enterprise VoIP Platforms

Polycom and 3Com have announced a strategic co-branding agreement for 3Com to OEM and jointly market Polycom's wired IP conference and desktop phones. The companies plan to include future integration in areas such as VoWLAN, mobility and integration of other popular business applications such as CRM and enterprise VoIP security.
www.polycom.com
www.3com.com

www.tmcnet.com/1326.1

Blue Coat Accelerates Delivery of SAP Applications to Branch Offices

Blue Coat Systems announced new results based on performance and security testing of its ProxySG appliances. The tests were conducted at SAP's Enterprise Services Community Networking Lab (ENL) and consisted of an enterprise SOA-based business application landscape.
www.bluecoat.com

www.tmcnet.com/1328.1

Cisco Renews SMB Obligation with Series of New Solutions

Cisco has proclaimed a series of additions and updates to the Cisco Smart Business Communications System. Cisco is upgrading the SBCS solution series by incorporating the latest Cisco Unified Communications 500 Series that adds 32 and 42 user systems. These two innovative platforms permit small businesses to maintain up to 48 phones per location.
www.cisco.com

www.tmcnet.com/1329.1

Aruba Networks Selects RMI's XLR Processor for Enterprise Networking Solutions

Aruba Networks has selected Raza Microelectronics' XLR Processor for use in enterprise WLAN products. RMI's XLR Processor offers software and pin compatibility that lowers both product design and manufacturing costs. The XLR 700 and XLR 500 series processors are software and hardware compatible and each processor is available in a variety of power options including standard, low and ultra low power.
www.arubanetworks.com
www.razamicro.com

www.tmcnet.com/1330.1

Aculab Launches ApplianX IP Gateway

Aculab recently launched the ApplianX IP Gateway, part of the ApplianX portfolio of offerings and that boasts an "easy to install, configure and manage network device."

With the enterprise class ApplianX IP Gateway, a deployment-ready SIP-to-TDM gateway that bridges between PSTN and IP networks, enterprises are offered a way to use new IP based services and endpoints while still being able to also use their TDM based equipment, all while reducing operational costs.
www.applianx.com

www.tmcnet.com/1331.1

Vocalocity Demonstrates Quick Installation of VoIP Solution

By demonstrating a 12 minute 24 second installation of a VoIP solution, Vocalocity has proven that micro enterprises or businesses with less than 20 employees can obtain an affordable full-featured voice communication solution that is as easy to set up and administer as email. Vocalocity offers a truly hassle-free and straightforward approach to the often complicated process of installing and running a phone system.
www.vocalocity.com

www.tmcnet.com/1352.1

Occam Assists Alpine Communications' FTTP Deployment

Alpine Communications is upgrading its network with Occam's Broadband Loop Carrier (BLC) 6000 system to provide advanced Triple Play FTTP services. Upon completion, Alpine will be able to manage an all IP network, one of the largest FTTP networks in Iowa.
www.occamnetworks.com

www.tmcnet.com/1353.1

VoIP Logic's Solutions Carry One-Billionth Phone Call

VoIP Logic announced that its solutions have carried more than one billion phone calls since the company's inception four years ago. This milestone was achieved mainly through the success of VoIP Logic's Cortex System Management Portal.

www.voiplogic.com

www.tmcnet.com/1354.1

Sprint Nextel and Clearwire Terminate WiMAX Letter of Intent

Sprint Nextel and Clearwire have agreed to terminate the Letter of Intent signed in July, due to both companies being unable to resolve issues associated with the letter, and failing to agree on the terms of the transaction. Sprint is still in favor of developing WiMAX.
www.clearwire.com
www.sprint.com

www.tmcnet.com/1355.1

Sunrise Telecom Handheld First to Support Up to 4 Gigabit Fiber Channel Testing

Sunrise Telecom has introduced the SunSet MTT-30Z Fiber Channel Module, the first handheld solution to support 1, 2, and 4 Gigabit fiber channel testing with full port login of switch fabric. For service providers who provision or diagnose high-performance Storage Area Networks in fiber channel, ESCON, and FICON, this new test set is an essential tool.
www.sunrisetelecom.com

www.tmcnet.com/1356.1

Global Crossing Signs Deal with Nextlink Wireless

Global Crossing has signed a deal with Nextlink Wireless that will enable it to deliver high speed broadband services over Nextlink's wireless network in the U.S., providing Global Crossing with an alternate access solution while expanding the reach of its Ethernet services.
www.globalcrossing.com
www.nextlink.com

www.tmcnet.com/1357.1

Huawei Launches New Generation WiMAX Commercial Solution

Huawei rolled out its New Generation WiMAX commercial solutions with integrated 4G mobile technologies designed to provide operators with 30 percent cost savings on base stations while doubling their system capability. The products include gateway, distributed base station, transmission, network management system and terminal.
www.huawei.com

www.tmcnet.com/1358.1

GSM Global Communications Expands With NextPoint Networks

GSM Global Communications has deployed the IntelliConnect System of NextPoint, consisting of the NextPoint Session Border Controller (SBC), NextPoint Multi-protocol Session Exchange (MSX), and NextPoint Real-time Session Manager (RSM).

www.gsmgc.com
www.nextpointnetworks.com

www.tmcnet.com/1359.1

Mu Security Rolls Out Next-Generation Security Analyzer

Network security analysis systems outfit Mu Security is beefing up its flagship appliance with a major new release of the Mu-4000 Security Analyzer. The Mu-4000 has ramped up the reliability and uptime of networked products and IP business services by proactively addressing robustness and resiliency factors before systems are deployed in production environments.
www.musecurity.com

www.tmcnet.com/1360.1

Ruckus Wireless Inks IPTV Deal with Deutsche Telekom

Ruckus Wireless has signed a landmark deal with T-Home to supply 802.11a Smart WiFi systems to enable in-home wireless distribution of T-Home's Entertain Comfort IPTV service. Deutsche Telekom is private-labeling the Ruckus system as the Speedport W 100 Bridge under its T-Home brand.

www.ruckuswireless.com
www.telekom3.de

www.tmcnet.com/1361.1

InterCall Using Ditech's Voice Quality Solution to Improve QoS

InterCall is using Ditech's Voice Quality Assurance (VQA) solution to reduce, if not eliminate, voice quality impairments, including ambient noise and echo, in addition to restoring lost packets that can result in clipped or choppy speech.
www.intercall.com
www.ditechnetworks.com

www.tmcnet.com/1362.1

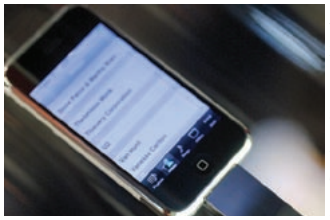
deltathree to Expand VoIP Service in North America

deltathree is now offering Canadian inbound phone numbers to its reseller, service provider, and direct-to-consumer clients. The New York-based company's was able to provide 9-1-1 services in Canada in part due to its long-standing partnership with Intrado, the core provider of North America's 9-1-1 emergency communications network.
www.deltathree.com
www.intrado.com

www.tmcnet.com/1336.1

Avaya Announces one-X Mobile to Support iPhone

Avaya announced that Avaya one-X Mobile will support Apple iPhone, as well as the availability of Avaya one-X Mobile for RIM, Palm, Java and WAP mobile devices.



iPhone users will have iPhone optimized access to the Avaya one-X Mobile interface. As a result, the iPhone can become their personal remote control for enterprise communications.

www.avaya.com
www.apple.com

www.tmcnet.com/1337.1

Atheros Introduces New Gigabit Ethernet Solutions

Atheros Communications has expanded its ROCm family of Bluetooth wireless solutions with the launch of the Atheros AR3031. This system-on-chip (SoC) fulfills the need for Bluetooth wireless mono headsets by providing a powerful combination of power-efficiency and design flexibility.

www.atheros.com

www.tmcnet.com/1338.1

Raketu Offers SMS-Text Driven VoIP Service for Mobile Users

Raketu Communications has introduced an SMS-text driven VoIP service that offers mobile device users the ability to make phone-to-phone VoIP calls with no computer or Internet connection. With the offering, it is possible to make free or extremely low national and international calls from a mobile phone that supports sending SMS-Text messages.

www.raketu.com

www.tmcnet.com/1339.1

RIM Releases BlackBerry Professional Software for Small Businesses

Research in Motion has released BlackBerry Professional Software, especially designed for businesses with up to 30 wireless users. BlackBerry Professional Software is a wireless communications and collaboration solution, which integrates with the company's email servers, including the ability to scan a server before installation and suggest a configuration.

www.rim.com

www.tmcnet.com/1340.1

Beceem Communications SPICEs Up Its WiMAX Technology

Beceem Communications has deployed Berkeley Design Automation's Analog FastSPICE circuit simulator. With Analog FastSPICE, Beceem will be prepared to complete its WiMAX transceiver circuit verification. In addition, it can also verify complex blocks 5-10 times faster to ensure maximum chipset performance.

www.beceem.com
www.berkeley-da.com

www.tmcnet.com/1341.1

AirLive Expands Wireless-N Portfolio for Internet Connectivity Solutions

AirLive has expanded its Wireless-N (draft 2.0) series of products, which provide wireless Internet connectivity solutions. The advanced wireless router AirLive WN-5000 uses the latest 802.11n technology. It boosts file transfer speed up to 120Mbps in real throughput, and offers more range and speed compared to the standard 802.11g devices.

www.airlive.com

www.tmcnet.com/1342.1

TerreStar, Accenture Build 4G Wireless Network in North America

Accenture announced it has been chosen as a partner by TerreStar Networks to help build what the two companies say will be North America's first 4G wireless network. TerreStar plans to sell usage of its 4G network to third-party developers, wireless carriers, and portal companies looking to offer broadband services. The network will be built using both terrestrial and satellite technologies.

www.accenture.com
www.terrestar.com

www.tmcnet.com/1343.1

New Bluetooth Solution from Broadcom

Broadcom Corporation has introduced a new Bluetooth audio solution. Built on the Broadcom Bluetooth audio platform, the new single-chip ROM-based device entails highly sophisticated audio augmentation expertise in a small, low price package to assist in propelling affordable, elegant headset designs anchored in Bluetooth know-how.

www.broadcom.com

www.tmcnet.com/1344.1

Motorola Begins 3G Femtocell Trial in EMEA

Motorola has completed end-to-end testing of its 3G femtocell solution and has begun trialing it with a major European operator. With femtocells, operators get higher-quality and higher-performance wireless voice and real-time data services, which in turn they can provide to their customers.

www.motorola.com

www.tmcnet.com/1345.1

Wireless VoIP and Video a Reality with Xirrus

In developing it 802.11n arrays, Xirrus has transferred all the functionality of its arrays to its newest models. A testament to the performance of the Xirrus line, the company says it is seeing a growing backlog in preorders for its 802.11n upgrades. It is has also signed a dozen customers to its beta test program, which will entail comprehensive performance and 802.11n draft 2.0 standard interoperability testing of the new arrays. Through its beta program, Xirrus expects to validate its solution for those customers looking to deploy the latest wireless technology now, not next year.

www.xirrus.com

DEVELOPER

www.tmcnet.com/1392.1

IPcelerate Unveils Ipfusion

IPcelerate has unveiled IPfusion, an Integrated Development Environment (IDE) for users of IPcelerate VoIP technologies. Leveraging the IDE, users will be able to easily design, develop, test and personalize business-critical IP phone applications.
www.ipcelerate.com

www.tmcnet.com/1393.1

Ensim Launches Unify SaaS for Independent Software Vendors

Ensim has announced the launch of its Unify SaaS program, designed to "provide expert tools and processes that enable Independent Software Vendors and providers to create and deliver new service offerings."
www.ensim.com

www.tmcnet.com/1394.1

Cadence Eases Design of Wireless Chips

Cadence Design Systems launched Cadence Virtuoso Passive Component Designer, a complete flow for the design, analysis, and modeling of inductors, transformers and transmission lines. Putting passive component design into the hands of analog and RF designers, the new technology develops fast and complex wireless SoCs and RFICs.
www.cadence.com

SIP

www.tmcnet.com/1395.1

Excel and Allworx Team on VoIP Phone System for SMBs

Excel Telecommunications and Allworx announced an alliance to provide resellers with an all-inclusive VoIP solution designed to meet the needs of SMBs. The new solution combines Excel's native VoIP network with Allworx' family of IP PBXs.

www.excel.com
www.allworx.com

www.tmcnet.com/1396.1

Grandstream Interoperates with 3Com

Grandstream Networks has completed interoperability testing between its own SIP voice and video phones and the 3Com VCX platform. Leveraging Grandstream's SIP-based products, IP platform vendors will be able to create a comprehensive IP solution for all their target markets.
www.grandstream.com
www.3com.com

www.tmcnet.com/1397.1

Pactolus Delivers Scalable Event Call Solution for Global Crossing

Pactolus announced a deal with Global Crossing, which is now using Pactolus' RapidFLEX Service Creation and Delivery Platform and SIPware Event Audio Conferencing application to deliver event call services.
www.pactolus.com
www.globalcrossing.com

CHANNEL

www.tmcnet.com/1398.1

AltiGen Enters Agreement with Jenne Distributors

AltiGen Communications has signed a distribution agreement with Jenne Distributors. AltiGen's complete line of business phone system products will be offered to Jenne Distributors, including the MAX1000 and OFFICE series of VoIP phone systems.

www.altigen.com
www.jenne.com

www.tmcnet.com/1399.1

Digium Launches Partner Program

Digium has re-launched its partner program — a revised program that includes four distinct partner programs under one umbrella. Led by a dedicated team offering specialized services and product certification, the program's purpose is to give small businesses, enterprises, and developers direct access to leading technology vendors and service providers so they can quickly and easily deploy an end-to-end open source VoIP solutions.
www.digium.com

www.tmcnet.com/1400.1

Allot Communications Announces New Channel Partner Program

Allot Communications has announced a new Channel Partner Program that will allow VARs and SIs to win business in the deep-packet inspection (DPI) market. The program combines DPI products with expanded sales and marketing support, as well as other incentives.
www.allot.com

IP CONTACT CENTER

www.tmcnet.com/1401.1

ShoreTel and Syntellect Sign Agreement to Benefit Contact Centers

ShoreTel and Syntellect have announced they have signed a strategic distribution agreement, whereby ShoreTel will offer Syntellect's contact center solution in conjunction with its Pure IP Unified Communications system to ShoreTel resellers globally.
www.shoretel.com
www.syntellect.com

www.tmcnet.com/1402.1

Hosted Call Center Solutions Provider TouchStar Acquires Data-Tel Info Solutions

Continuing with its strategy of consolidating the market through the acquisition of direct competitors, Denver-based call center software and solutions company TouchStar announced it has acquired Phoenix-based Data-Tel Info Solutions.
www.touchstar.com
www.datatel-info.com

www.tmcnet.com/1404.1

AMI Strategies to support Siemens Communications Cost Management

AMI Strategies selected as a qualified partner and subcontractor to nationally support Siemens Communications Cost Management (CCM), a new multi-year managed services package. CCM streamlines and simplifies management of complex multi-vendor environments through a combination of services that includes telecom expense management, physical circuit auditing, and voice and data circuit benchmarking.

www.amistrategies.com
www.siemens.com

www.tmcnet.com/1405.1

Optelcon Opens Back-office BPO Center in Pune, India

Optelcon announced the opening of its new support center in Pune, India. This center is dedicated to supporting cost-effective telecom cost management and business process outsourcing (BPO) services offered by Optelcon. The company said it opened this new center in response to demand from partners for assistance with time-consuming business processes, like telecom cost management, that are more efficiently outsourced than performed-in house. The center houses a team of more than 50 analysts, invoice processing experts and support personnel.

www.optelcon.com

www.tmcnet.com/1406.1

TeleFirma Consulting Creates Global TEM Listing, Lauches TEM Blog

TeleFirma Consulting announced it has successfully launched a substantially improved web resource for enterprises seeking a variety of Telecom Expense Management solutions and services. The comprehensive TEM listing is composed of over 425 firms covering Telecom Invoice Auditing, Invoice Processing Service Management, Contract Negotiation and Call Accounting.

www.telefirma.biz

www.tmcnet.com/1407.1

TnT Expense Management Meets Growing Demand from Financial Services and International

TnT Expense Management recently opened a new office on Wall Street to better serve its financial services clients and meet the growing demand generated by recent strategic partnerships. It also recently partnered with one of the largest global electronics and engineering companies which will extend TnTs global reach and enhance their existing International TEM service offerings.

www.tntem.com/

www.tmcnet.com/1408.1

AOTMP: Promoting Successful Engagements with TEM Suppliers

AOTMP announced the release of their latest research publication — Best Practices in Selecting a TEM Supplier: Setting the Framework for a Successful Engagement is an in-depth report focused on understanding how to overcome the top challenges enterprise telecom and IT professionals face when selecting a Telecom Expense Management (TEM) Supplier. In a recent survey, 74% of enterprises reported their top challenge in selecting a TEM Supplier was comparing offerings.

www.aotmp.com

www.tmcnet.com/1409.1

Asentinel Announces Partnership with ProfitLink

Asentinel announced that ProfitLink Telecom Expense Management has selected Asentinel 5.0 as the technology platform for their telecom expense management services. ProfitLink Telecom is a Dallas, Texas-based TEM services provider. With this partnership, both the companies can extend their reach in the TEM marketplace. They can still focus on their respective core competencies while doing this.

www.asentinel.com

www.tmcnet.com/1410.1

HTC Selects NetCracker's Inventory and Provisioning Solution

NetCracker Technology announced today that Horry Telephone Cooperative (HTC) has selected NetCracker's Inventory and Provisioning solution to enable end-to-end fulfillment and management of all voice and data communications services. NetCracker's solution will decrease time-to-market for all business and residential services and increase provisioning efficiency.

www.netcracker.com

www.tmcnet.com/1411.1

BBR Wireless Management Merges with Rivermine

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

www.bbrwm.com
www.rivermine.com

www.tmcnet.com/1412.1

Telesoft Set to Release 9.1 Version of TEM Software

Telesoft Corporation has announced the release of the 9.1 version of its Total Cost Management Solution. The 9.1 release is the second scheduled upgrade of this year for the application. "This upgrade is one of our most robust ever," says Jim Jones, Manager of R&D/Programming for Telesoft Corp. "The main addition to the application is the ability to use dashboard reporting with drag and drop features allowing users to access their most frequently used metrics upon startup."

www.telesoft.com

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CEO Spotlight With Seawolf Technology

Danny Lu
CEO of Seawolf Teechnology

Established in 1999 and headquartered in Syosset, New York, Seawolf Technology (www.seawolftech.com) is an innovative telecom and Internet service provider offering complete voice and data solutions for next-gen networks. Seawolf focuses on the world's largest two communication markets — the U.S. and China — offering a wide range of telecom solutions and services, such as softswitches, IP PBXs, online billing and prepaid calling card platforms, global termination, nation-wide 800/888/toll free service, international call forwarding and call back, and enterprise VoIP solutions. One recent and interesting development by Seawolf is the Xrainbow Softswitch, a SIP-based softswitch platform designed and built so that next-generation telecom carriers and service providers can offer VoIP service through Internet. It supports a wide range of client endpoints from phone adapters and IP phones, to PC2-phones and Web2Phones (softphones). Xrainbow Softswitch runs on the very stable Linux platform along with feature-rich supporting modules: XOperation, XAgent, XCafe, XCustomerCare, XCallback, and XPC2Phone. With this functionality at one's disposal, any telecom or nework operator, virtual carrier, system integrator, ISP, Enterprise, and website can now gain entry to the huge VoIP market with just a minimum investment. *Internet Telephony* (News - Alert) magazine recently caught up with Seawolf's CEO, Danny Lu, who gave us personal insight into how Seawolf continues to keep customers on the cutting edge of communications technology.

ITMag: What is Seawolf's mission?

Lu: At Seawolf (www.seawolftech.com), our mission statement is, "We bring new technologies into your business." We are committed to keeping our customers on the cutting edge of technology and helping them to effectively compete with their competitors in the VoIP world.

ITMag: What is your vision for Seawolf and how is the company positioned in the next-generation telecom market?

Lu: Seeing Tier 1 companies like AT&T and Verizon (News - Alert) announcing VoIP services, there is no doubt that the VoIP technology has matured. However, for some Tier 2/3 carriers, CLECs and ISPs, with limited CAPEX and in-house tech expertise, it is still a dilemma for decision makers on when and how to integrate their legacy TDM or data system with the latest VoIP technology so that they can quickly get into the VoIP market to compete in the next-generation telecom market. As a VoIP pioneer - starting with VoIP in 1999 – Seawolf positions itself well as a technology service provider in this Tier 2~3 market sector and has developed 'Xrainbow', a turnkey SIP-based NGN softswitch platform which can help our customers to migrate to VoIP cost effectively. Xrainbow has won Product of the Year Awards for 2005, 2006, and 2007 and Excellence Awards for 2006 and 2207 from IT magazine.

Built on top of Linux and Open Source platform, Xrainbow includes a SIP proxy server, billing server, media-relay server, and voicemail server along with a suite of business applications: IP-PBX (News - Alert) module, call back module, PIN-less module, web SDK interface, e-commerce portal, and a customer self-care module that has everything needed to start a VoIP business. It can be easily integrated into a customer's operation and will allow quick, easy entry into the VoIP market. No more year round system integrations among different vendors. No more lengthy in-house custom software development before "go-live day". No more 'breeding technology' syndrome — taking a big 'loss' (some people call it investment) before you even start your operation. I mean six-figure payments for Hardware, Software, and tech geeks, respectively.

Xrainbow runs on a few Intel-based (News - Alert) Linux boxes and works with virtually all the gateways supporting Radius protocol. Normally our customer's current tech force will be sufficient to support the system after training. For market newcomers, such as virtual carriers, phone card operators or ISPs which are not telecom facility-based, we also offer DID origination, global termination, collocation, and everything to help get our customers through the VoIP learning curve quickly.

With "you-grow-I-grow" in mind, my vision for Seawolf is for it to be more a service company than a technology company. We are working hard not only to invent cutting edge technology, but more important to provide excellent service so that our customers can build a profitable business. This has not only helped our customers become leaders in the VoIP space, but it has created loyal customers. About 80% of our customers come back to us for customization, upgrades and larger systems.

It is our goal to continue to keep our customers on the cutting edge of technology and help them at the every stage of becoming an NGN carrier.

ITMag: Now that it appears that growth and opportunity are the trends in the VoIP industry, what possible hurdles do you see that might upset this momentum?

Lu: Compared with traditional telecom, the VoIP carrier has a relatively lower entry point into voice business. That is why we see many new VoIP/NGN players in the market. However, if the NGN carriers can't provide comparable reliability and voice quality, and customer service to their customer base, these factors will be the possible hurdles to upset this VoIP momentum.

Due to the "best try" nature of the Internet and the fact that different companies own different portions of the Internet, when a voice packet leaves its ending device, we can only wish it good luck on its way to the destination IP. This could be become a serious problem if your customer's IP is located in "hostile" IP

territory, where artificial jitter, delay, and packet loss are common tactics to drag a competitor down. Never-ending debate and lobbying about whether a VoIP company needs to pay an underlying network company will also add some uncertainty concerning industry regulation and trends.

ITMag: What are some of the technology areas where Seawolf Technologies (News - Alert) is increasingly focusing, and why are these areas important to the future of your company?

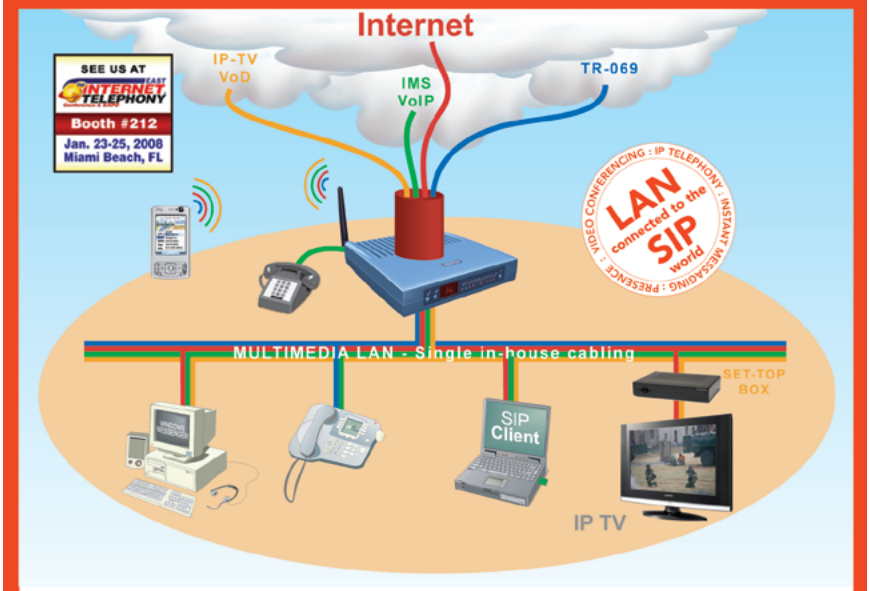
Lu: While basic voice is becoming a commodity, Seawolf has been increasingly focused on the technologies of value-added services so that our customers can offer more services to their customers. With our flagship Xrainbow's capability to deliver products such as IP-PBX, callback, PIN-less, Internet café, SMS, softphone, content and ads delivery [music and distance learning], and click-to-call, Seawolf's customers enjoy a competitive advantage in turning their VoIP business to profit quickly. We also put a lot of effort into integrating value-added voice service with Internet space to make it more search engine friendly. One good example is www.phonecardonsale.com where we integrate phone card and pinless service into the site, and it has reached the first position in Google (News - Alert) and Yahoo searches for the common keyword "phonecard". Our expertise in combining Internet and VoIP technology has attracted customers with the "buying" mindset right to our doorway. We are also working on a project to integrate English distance learning with our voice technology, www.en400.com, where 400 is China's nationwide toll-free number, like 800 in the States. Recently, we integrated our core softswitch technology with content applications to deliver entertainment content along with voice service for one of our customers in China, www.kubao.com which is aiming to become Skype (News - Alert) in China, and to help them to attract $5 million venture capital.

The focus on technology to provide value-added service is important to Seawolf, as our customers need and require us to provide more arrays of value-added services to their customers, so they can stay ahead of the game with their competitors and be profitable.

ITMag: Describe your view of the future of the IP telephony industry.

Lu: With telecom carriers, underline network operators, cable companies, and web portals all launching VoIP service to their customers and more CPE devices coming to the market, we will see more combined service offering along with voice service, from double/triple play, advertisements, to various content delivery. The marketplace will be getting crowded and strong competition will commoditize pure voice minutes. More revenue will come out of value-added services or combined services on top of basic voice service. For the next 2-3 years, while the residential VoIP market continues to be very hot, the small-to-medium enterprise [SME] IP PBX market will pass its infancy stage and really take off. This provides another golden opportunity for service providers who serve for SME or plan to serve them. IT

The New SurfinBird IX78



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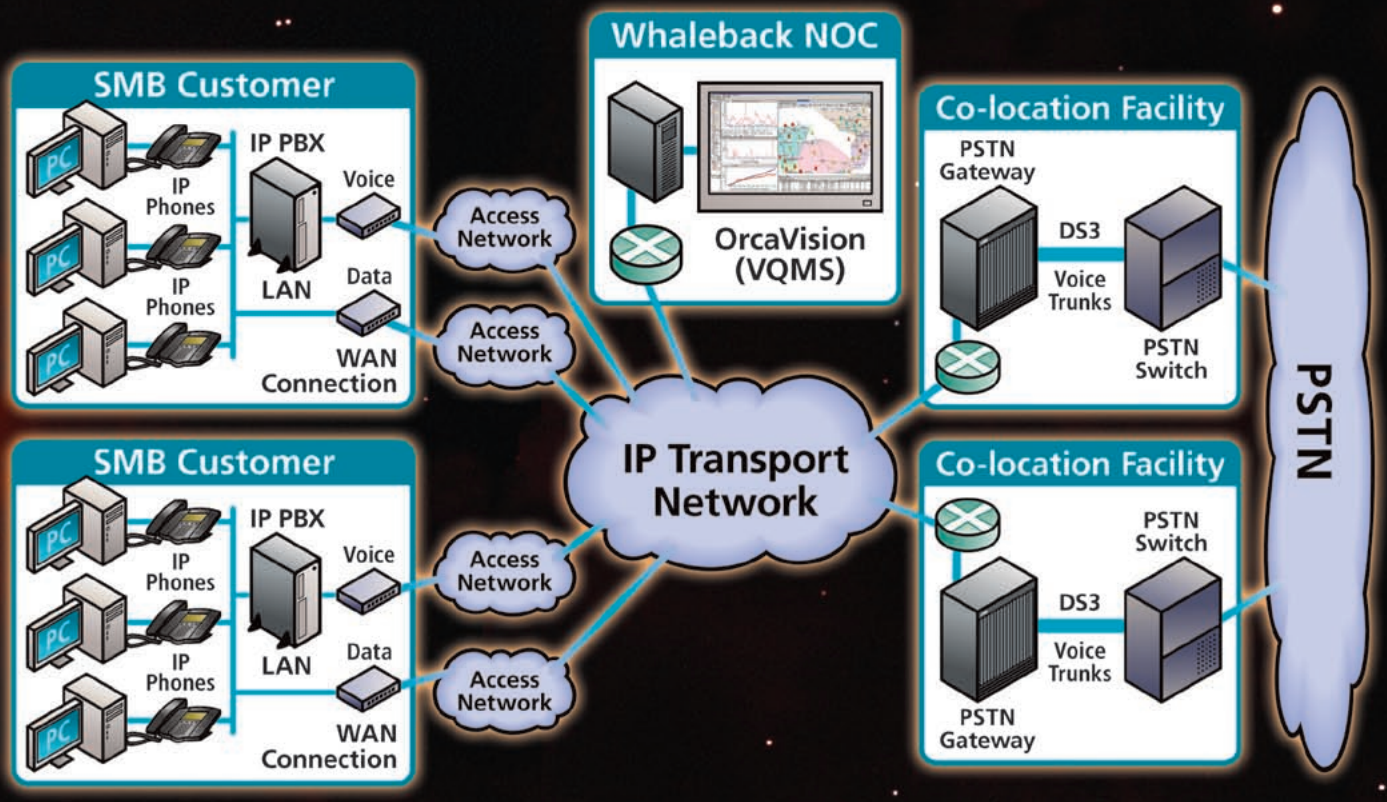
What our CEO wants you to know...

Whaleback Systems has the best VoIP solution in the galaxy!

Photo Credit: NASA, NOAO, ESA, the Hubble Helix Nebula Team, M. Meixner (STScI), and T.A. Rector (NRAO).

What our Sr. Engineer wants you to know...



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IP-based Patient Care Solutions In Good Health

By: Erik Linask

In the United States, some 78 million baby boomers now approaching retirement have received a great deal of attention from various media outlets, largely because when the last boomer becomes eligible to receive a Social Security check, there will be an estimated 70 million people over the age of 65, double the current count (see chart). Government statistics show that many of tomorrow's baby boomer retirees will not be as well off financially as their parents, which will ultimately create a need for additional housing to care for these individuals, according to the American Society on Aging.

The trend of increasing life expectancy means more retirees living with chronic conditions, placing increasing demand on healthcare services, including acute care, assisted living, hospitals, and medical/dental offices that have not traditionally deployed infrastructure to help keep pace with this growing influx of patients. Information Technology (IT) has revolutionized most industries, but the healthcare sector is among last to embrace the full benefits of IT. Gartner (News - Alert) estimates that, while the financial services industry spends more than seven percent of its total budget on IT, healthcare only allocates three percent.

IgeaCare Systems (News - Alert) is a Canadian provider, specializing in communications solutions for the healthcare and public safety verticals. It offers nurse call systems, emergency response mass notification, personal emergency solutions, telemedicine, and real-time healthcare locator solutions from a single source that integrates seamlessly with existing VoIP technology and multi-vendor communications systems, which are becoming the norm.

Recently, IgeaCare expanded its U.S. operations, including increased capital investment and commitment of resources in order to better address the growing demands of healthcare providers and its own channel partners.

"IgeaCare has a robust distribution channel for its technology, and has completed compliance testing and certification with Avaya, Mitel, Inter-Tel, Alcatel-Lucent, Nortel, Toshiba, Panasonic, Samsung, 3Com (News - Alert), and NEC," said Craig Steen, newly appointed president of IgeaCare, USA, Inc. "Its products are also sold by Bell Canada and Verizon."

Given the statistics, long-term care and assisted living facilities are likely to see an increased presence, particularly those that foster environments where residents have the opportunity to interact with others and partake in various activities.

"But, it goes without saying, patient safety, emergency response, and patient interaction and response solutions are the foremost requirements," said Robert Abrams, a New York-based healthcare industry consultant and legal expert.

Indeed, the next generation of elderly Americans will have significantly different behavioral patterns than today's, and most will prefer to have their lifestyles remain intact as much as possible. That will place increased demand on healthcare providers in order to support those needs, and will likely drive an increasing trend of hotels converting into assisted living communities, and the continued growth of high-end luxury retirement projects.

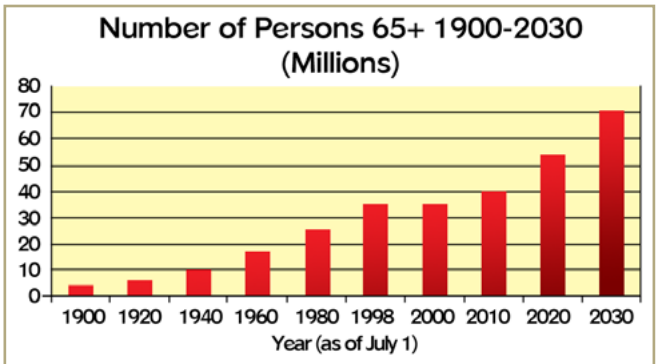

Figure 1. Source: www.aoa.dhhs.gov

When Daniel Lemay of the Lemay Group decided to build another retirement home project, he chose to emphasize just those types of demands, focusing on emergency response and high quality patient care.

Upon considering several alternatives, Lemay Group chose IgeaCare's Nurse Call/Emergency Response solution, because it addressed the

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Business VoIP | Community

The new Allworx sponsored Business VoIP Global Online Community is where you'll find everything you need to know about the trends driving VoIP for the small and medium business market. The site features the latest business VoIP news as well as feature articles delivering insight from TMCnet's editorial team as well as many of the leading voices in the industry.

Case studies, research, product showcase, white paper library, live event links… it's all here.

Allworx is a leading provider of VoIP solutions for the SMB market. To learn more about their offerings or to stay up to date on the latest in Business VoIP, visit http://businessvoip.tmcnet.com.

businessvoip.tmcnet.com

simplicity needed for patient satisfaction and interaction with the emergency response. Importantly, it also provided all the elements in a single-vendor solution.

"Other traditional nurse call solutions were not future-friendly nor scalable, and required independent proprietary solutions to meet all of our needs," said Lemay. "From a total cost of ownership perspective the IgeaCare solution required little or no additional cabling, which reduced costs, but provided five nines reliability and future-friendliness, in addition to seamless integration to leverage our Avaya (News - Alert) communication platform."

In Canada, the owners of condo complex, Notre Dame Retirement Home, decided to develop a new high-end senior residence on the property adjacent to the existing complex in Laval, Quebec. Phase I of the newly opened project consists of 193 units in a 16-story tower, with Phase II in construction, and three additional buildings planned. Once complete, the facility will create a new standard for luxury senior dwellings and services.

Based on previous experiences, consultant Ghislain Boulay, who specializes in senior living planning, recommended an integrated solution from Mondial Lifeguard Technologies, a division of IgeaCare Systems, to provide the resident emergency call system in each apartment and within the numerous common areas of the facility.

Novavision, a local dealer, was selected to manage all the telecommunications and maintain a high level of security and generate added revenue services, in addition to implementing the Lifeguard emergency response system to a Samsung (News - Alert) OS7400 IP switch.

Lifeguard installed the wireless equipment, activated two-way voice EMUs (Emergency Monitoring Units), plus remote transmitters, which residents wear either as a pendant or bracelet, to call for assistance, in each apartment. Apartments also included either a wireless pull cord or wireless wall mounted activator in each bathroom. Each EMU has its own backup battery power, and was uniquely programmed for each apartment so, when activated, it uses voice chip technology to provide its location to staff responders. They also include full duplex, two-way voice communication between the staff and residents.

But, because these facilities are specifically designed for active residents, EMUs have also been deployed in common areas to provide emergency response capabilities throughout the facility.

In addition to providing complete coverage, the mobility staff are afforded with the wireless technology and SpectraLink Link 3000 handsets add even greater efficiency and customization capabilities to their system.

With the implementation of IgeaCare's Nurse Call/Emergency Response solution, "we drastically cut down the time required by staff to fulfill resident requests, reducing the need to answer call bells by 50 percent due to residents' ability to see the integrated menu and activity features. Overhead paging was eliminated, creating a calmer living environment and workplace, while increasing our patient and staff satisfaction, which is critical," explained Elizabeth Domoulin, administrator for Cobblestone Gardens Retirement Residence in Ontario, another facility that opted for the IgeaCare solution.

Another key sector looking to leverage new technology to enhance patient care is acute care hospitals, which are also feeling pressure to meet new demands from growing populations.

For instance, University Physician's Hospital (UPH) in Tucson, Arizona has expanded its campus and wanted to deploy technology to enhance patient satisfaction and patient safety. Importantly, UPH needed a solution that would easily integrate with its exitsing Avaya Communications Manager and 6400 series phones.

IgeaCare's Nurse Call/Emergency Response solution allowed UPH to connect to an allocated port on the Avaya solution to add health specific communications, such as emergency pull cords in bathrooms. The solution also integrated a plug-in for mobility for SpectraLink's Link 3000 wireless devices, so that caregivers are able to act and react more efficiently and without jeopardizing patient care or personalization.

Although the Avaya switch functions as the core communications element, the IgeaCare Total Nurse Call solution also provides for an event notification system (apoloENS) that resides on its own server, while providing additional visual notification and several staff assignment interfaces. The real-time event notification messages can be viewed from any visual display, and includes intuitive features that substantially increase response effectiveness.

UPH staff members say, "We like the on-demand reporting capability and how easy the drag-and-drop assignments are to make. We also like the two-way voice capability and the ability to text messages on the phones when we need to reach various nurses."

Lemay Group chose IgeaCare's Nurse Call/Emergency Response solution, because it addressed the simplicity needed for patient satisfaction and interaction with the emergency response.

Indeed, it is not uncommon for nurses to be contacted when they are already on the phone, making it difficult to respond. With the text-capable handsets and communications solution, they are now able to receive text messages, and can then connect easily to the calling party when they are available.

As with any new solution, customers are keen on deploying those that will meet their functional requirements, but will help reduce costs as well.

With its IgeaCare solution, UPH was able to cut its cost per adjusted census bed significantly over its former supplier, while adding functional enhancements. Furthermore, the addition of the IgeaCare platform makes is easier for UPH to expand to new buildings as it looks to double its patient capacity in the upcoming year.

"We have been able to integrate security and asset management systems onto our IgeaCare management tool. This single monitoring point has allowed us to reduce staff by two FTEs, while improving our response time to alarms and tracking requirements," says a UPH administrator.

Given the expected growth rates among various kinds of healthcare facilities, solutions like IgeaCare's are certain to experience a marked increase in demand in the coming years. They provide communications enhancements, and enable providers to provide exceptional patient care, increasing patient and family satisfaction, while reducing costs and meeting market demands for services. IT

For more information about IgeaCare, Systems/IgeaCare USA go to www.igeacare.com. For more information regarding healthcare benchmarks go to www.himss.com or for retirement benchmarks go to www.myziva.com.

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Rich Tehrani Speaks With

Newport Networks' Dave Gladwin

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

The mobility movement of recent years, driven by the development of condensed technology, allowing increased functionality on handheld devices and laptops, has been a significant force in driving convergence of wireless and wireline communications. In fact, users are demanding like access to network resources, regardless of the access network, device, or media type, which is, in turn, driving the adoption of IMS infrastructures.

Not long ago, there was concern that the Session Border Controller market was fading. That theory, however, seems to have been unfounded, and SBC vendors are finding themselves enhancing their products for today's new multimedia networks — in both service provider and enterprise environments. SBCs, in fact, are a key component in today's IMS networks, forming a barrier between core and access networks, effectively protecting both.

Recently, Rich had the opportunity to speak with Newport Networks' (News - Alert) Vice President of Product Marketing, Dave Gladwin, who explained how the IMS space is growing and, specifically, how the SBC fits into IMS networks.

RT: How will SBCs impact the IMS space?

DG: There is a past, a present, and a future to this question. In the past, the IMS space has already been influenced by SBCs because, in essence, the SBC predates IMS specifications. Before SBCs were called SBCs, they were referred to as media relays by the likes of BT (News - Alert). There's a whole history about how they've evolved.

The important thing is there's been a lot of cross-functionality that has developed from the SBC into IMS, and *vice versa* — some of the functions that are in IMS are functions of the SBC. For example, one of the obvious things is the fact that IMS is a complete separation of the signaling and media planes. If you actually look at the elements of the SBC, then you've got a very loose mapping of the IBCF and the IBGF on the interconnect side, onto the signaling and media functions within the SBC.

As the products have developed and the specs have developed, they've been shaped by the same environment and, as a result, they very much have a lot of objectives in common.

Having said that, there are some things SBCs provide that IMS doesn't require, but in a modern, secure, functioning network, are actually needed, like NAT traversal, signaling and media security, and other functions.

That's part of the future, because, from my experience with people that are implementing these networks, these things will become part of a standard IMS suite in the future, simply because they are there.

RT: There's no SBC element in the IMS specifications; does that mean IMS needs them?

DG: I would say, yes, for some of the reasons I just mentioned. In particular, signaling and media security is one of the primary requirements. Even though there are no elements within the IMS labeled SBC, that functionality is still there. If you look that the IBCF/IBGF part of IMS, it is effectively providing a distributed SBC-type function on the interconnect points.

At the same time, it's actually offering additional functions that are not required from the specs, but equally, you need in a practical situation.

The same thing really applies on the access side. If you look at fundamental things that SBCs do, for example, NAT Traversal, validation of signaling, and more, they are required in the network, but are not necessarily defined in the IMS specs.

RT: Does IMS cover all the functions required to deliver reliable multimedia services?

DG: IMS is a very good template. It achieves the very important step of separation of services and delivery mechanisms. In terms of actually putting out common services over multiple networks, the architecture is there, and that is the key thing to take away from IMS.

There are things like the intrinsic security for the core elements that are not specified, which perhaps are weaknesses within the IMS specs. But, they are being addressed by the practical implementations we're seeing out there, in order to not just create a working core, but also to create what I call a survivable core.

An example is a data center. You wouldn't put a data center online without putting things like firewall and intrusion detection systems and so forth around the outside. The same rules effectively apply to deployment of IMS. The core elements need additional protection to ensure they actually survive and continue to deliver service and to ensure IMS can do what it's supposed to do, and actually set up events and deal with the services.

RT: How are you seeing your customers' networks developing?

DG: Most of our customers have a very pragmatic view of where they are today, where they need to go, and what services they need to deploy. They're trying to get from A to B, and we're not seeing people take this massive leap and actually going directly to B. Rather, we're seeing people evaluating what they've got, looking at the services and service architectures they need to put in place in order to get to that estimation, and then picking and choosing the pieces they actually need to achieve the next step on their way — in a way so that they will still be able to generate revenue.

Most people seem to have a very practical view of what IMS is going to offer them in terms of the service area of the network. One way of looking at it is that it allows them to fail quickly and inexpensively, so they

don't have to commit large amounts of resources to a service that is not necessarily going to work.

In terms of what goes into their networks and how they develop, we see them ensuring that what we actually put in place is aligned with IMS specifications. For example, for us as a vendor, this means that, every time we sell any elements into a network like this, we have to ensure it is, at minimum, IMS-ready, IMS-compliant.

RT: Is IMS relevant to all service providers?

DG: Perhaps not all service providers. Certainly, there is a certain scale element that needs to be present before it becomes a practical proposition. Having said that, the whole overall concept of the architecture of IMS is really the important thing here. It's the ability to be able to do that separation of the service creation environment and the delivery network, and keeping them separate, to be able to achieve that objective of actually delivering truly universal services.

That, I think, is the most valuable concept that any developing network can take away from this. Even anyone that is putting together even a relatively small network, if they've got large expansion ambitions, would be foolish not to adopt an IMS-like architecture.

RT: Who is leading the charge?

DG: Today, the most activity would be from the operators that have both fixed and mobile assets already in their networks. What's actually driving that is the ultimate end goal of being able to deliver truly network-independent services, so you really have that user experience of being able to set up a call at home, for example, going over a wireless connection into your broadband, and being able to walk out the door and seamlessly roam onto the 3G network, without any apparent disruption in the call.

In order to actually achieve that level of handoff of services from one network to another, the first step is to get a truly converged network infrastructure in place. That is why we're seeing more activity from those operators than from those that just have fixed assets or just mobile assets.

RT: Is the market changing?

DG: It's maturing. We've seen a lot of early trials that have actually moved the whole specifications validation process forward. We're seeing a phase now, particularly in the last 6-9 months, of a big increase in the number of RFIs and RFQs that are distinct moves away from pilot systems and into production systems, and what we're seeing is a much greater demand for performance, and a much greater demand for resilience.

The performance is coming from a range of different areas. It comes from the increasing complexity of the types of functions that SBCs and IMS border elements have to carry out. For example, over and above what is actually happening on the border of the Network, as required from the specs, there's a realization that Network A may not quite happily interface to Network B in order to handoff traffic, because the core switching elements have slightly different syntaxes in their SIP messaging. Thus, a certain level of intelligence is required as the calls are routed through the networks and across the borders in order to actually match the SIP signaling, for instance, from network to network.

So, there's that level of complexity. And at the same time, these operators are actually moving away from hundreds and thousands of subscribers, to the pilot levels of hundreds of thousands of subscribers and the associated demands they're actually placing on the networks.

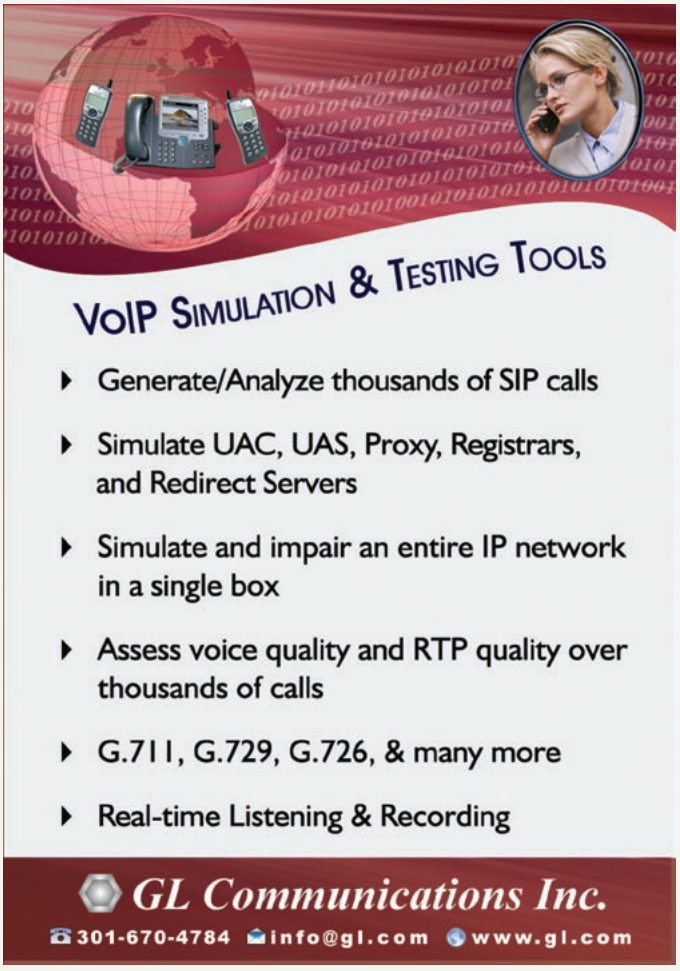
These are not only pilots, though; they're now production networks that are generating revenue, so they really have to stay up and keep running. They're looking for all services to be delivered with consistent performance under all conditions.

Where we see this going is ultimate service reliability, and at the level that matches TDM-based networks.

RT: Is there anything you would like to add?

DG: The biggest thing I've seen in the last 12 months is the maturing of the market. That really is the key thing… the way this is actually developing and transitioning from the pilot level to the production level. We're seeing constant encouraging signs from the RFI and RFQ activity that's out there. It's basically indicating that these types of architectures and these types of systems are actually taking hold and taking off, and are being deployed in an extremely robust and professional way.

For the whole VoIP industry, and for IMS itself, I think we're only seeing good signs at the moment. **IT**



Whaleback Systems Dives Deep into Managed IP Telephony Services

Whaleback Systems (News - Alert) is a fast-growing IP telephony managed service provider based in Portsmouth, NH serving major metropolitan areas across the country. The company's "CrystalBlue Voice" Service is based on technology developed by Whaleback and includes an on-premise IP-PBX system combined with a centralized voice quality management system for providing end-to-end service level management. *Internet Telephony* (News - Alert) magazine caught up with Whaleback's CEO and co-founder Mark Galvin to get a deeper understanding of Whaleback's unique approach for delivering managed IP telephony services and how it stacks up against the conventional solutions available for small to mid-sized businesses.

ITMag: You have often stated that Whaleback Systems has developed a managed IP telephony service specifically to meet the needs of small to mid-sized businesses. What exactly does an SMB want from their phone systems these days?

Galvin: Well, that's a moving target. In fact, it's multiple moving targets. Take the small business owner for example. Most of them are accustomed to an aging key system and are very familiar with, if not dependent upon, features that have become part of their work-flow. When a call comes in, they simply press the button that's illuminated on a multi-line phone to answer the call. If the call is meant for someone else, they can page that person to respond to a customer request promptly. So any new IP-based phone service designed for the small business owner needs to emulate those familiar key system functions while, at same time, introducing them to a wide assortment of new capabilities that will take their business to the next level.

Then there are larger mid-sized companies, usually with a small IT staff, looking to replace an old and clunky PBX (News - Alert) system that would cost more to upgrade than to replace. This type of customer brings a very different perspective to the market place than a small business owner because they are accustomed to traditional PBX features which are required for supporting a higher call volume. They are using features like an automated attendant to answer incoming calls, music-on-hold, dedicated numbers for employees with voicemail, call screening, call forwarding and speed dialing. As they step up to the next-generation features like unified messaging, multimedia conferencing, and contact centers, many of them are looking for expert help to design, deliver and operate these more sophisticated business services.

Even though small and mid-sized companies have different needs and perspectives, they both desire the same basic business benefits from their next telephone system or service. They want their companies to look larger and more professional than their competitors, their workers to be more productive, their costs to be well under control and their phone system to be simple to use and easy to manage. Whaleback Systems was formed to meet these customer requirements head-on and in ways that conventional solutions do not.

ITMag: Explain to our readers how the technology behind IP telephony enables those benefits.

Galvin: The most important difference is the use of IP-based communications in place of the traditional TDM model with a circuit-based communications approach. By using voice-over-IP (VoIP) technology, phone calls can be carried over any packet network that provides the necessary bandwidth and quality of service. As a result, the business telephone system can be transformed from a centralized PBX with hardwired phones into a geographically dispersed community of stationary and mobile users with wired or wireless handsets and PC-based softphones to access any of their voice-related services. This allows companies to extend the reach of their phone system affordably and helps their users to stay in touch with customers, suppliers and other employees — an obvious productivity improvement for the business.

Second, the use of broadband access networks to connect central and remote sites to an IP backbone is a big technology change from the *status quo*. Broadband is faster and more affordable than PRI connections or analog POTS lines — and is becoming truly ubiquitous. Broadband unlocks more and more savings for the customer as their voice network grows in size and scope. With an IP network, users can make unlimited calls for a fixed monthly fee to other IP-based phones, and their service provider can offer low-cost rates for any voice traffic handed off to the PSTN. Whaleback, for example, provides customers with unlimited long-distance calls to anywhere in the U.S. and Canada for a low fixed monthly fee. As their usage goes up, their cost per call actually goes down.

Third, the use of IP telephony technology lends itself perfectly to a centrally managed, software-based approach. Once the ancient PBX hardware is replaced by a remotely managed software-based appliance, there is tremendous flexibility to enhance and customize service options to fit the unique needs of each customer. A remotely managed appliance can also provide critically important end-to-end visibility into the network infrastructure accessed by any and every user of the service.

This is where Whaleback parts company with other providers of business telephone systems and services. We believe the era of stand-alone PBX hardware connected to an expensive TDM network is over and the era of the centrally managed IP telephony service has arrived. We also believe there must be a customer premise component in the service delivery architecture in order to guarantee call quality and to provide the feature set small to mid-sized companies require. Without the premise-based ingredient, you are left with the same old fatally flawed approach used by every hosted VoIP provider in the industry today.

ITMag: Let's talk more about the "conventional solutions". On one hand, customers have the option of buying an IP-PBX system from a local interconnect reseller and having control over their own system. On the other hand, there are a number of hosted VoIP providers that seem to offer tremendous savings combined with the simplicity of an outsourcing model. Where do you see these solutions falling short of the mark?

Galvin: It's just like Republicans and Democrats — totally opposing points of view with neither one truly representing the mainstream voter, or in our case, the needs of the customer. Because neither

conventional solution has it totally figured out, customers, like voters, are left with a choice between the lesser of two evils. Let's take the in-house IP-PBX for example. They are costly to own and complex to administer and upgrade. Sure, you can put the up-front capital equipment expense on a long-term lease to conserve cash, but you are still committing to the care and feeding of a system that is destined to become obsolete as technology changes. The positive side of buying an IP-PBX system is that it's an on-premise solution, so it will provide configuration flexibility and its TDM network will deliver very good call quality, albeit at a very high price.

Now compare that option with a hosted VoIP service. Hosted VoIP solutions have a very low up-front cost, usually just the price of the IP phones, and a low monthly usage fee that is sometimes available as a flat-rate for unlimited use. The hosted VoIP alternative greatly simplifies the life of a small to mid-sized business owner, or their IT staff, because it's an outsourced approach. However, this alternative imposes an unacceptable trade-off for the customer — improvements in savings and simplicity come at the expense of call quality, features and flexibility.

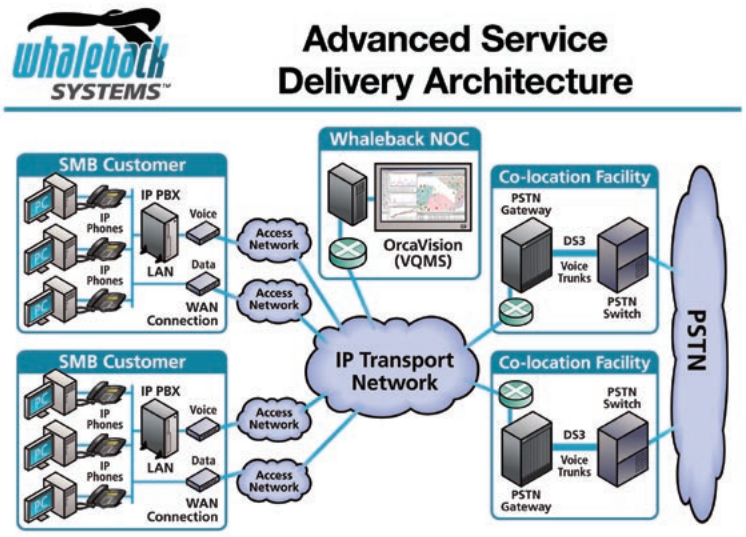
ITMag: That's an interesting analogy. I suppose that makes Whaleback Systems the 'independent party' challenging a two-party system. Can you share the vision of your 'campaign' for CrystalBlue Voice?

Galvin: Sure, we call it "premise-based managed services". It's a very simple concept and we think it represents the best of both worlds. Whaleback has combined the benefits of an in-house IP-PBX with the benefits of a hosted service while removing the negatives. Like an in-house system, Whaleback installs an appliance at the customer premise to deliver advanced functionality that is customized for each unique business environment. However, with our solution, the appliance is owned and managed by Whaleback Systems. So we have removed the up-front capital equipment cost and the complexity of ongoing maintenance, support and technology upgrades. Like a hosted VoIP service, Whaleback uses VoIP technology to unlock deep cost savings for the customer combined with the expanded reach and mobility afforded by IP-based broadband networks. However, unlike hosted VoIP solutions, Whaleback manages service quality and availability around-the-clock with unmatched precision. We have eliminated the negative impact of unpredictable call quality and periodic service interruptions that many seem to believe is a necessary evil with VoIP technology. Poor call quality is not a necessary evil — it's just evil. When designed and deployed the right way, VoIP is a powerful and cost-effective technology platform for business communications.

ITMag: To summarize, your service involves a premise-based IP-PBX combined with outsourced system management services and flat-rate pricing for unlimited use. It's definitely a new approach, but one of the more interesting parts of your description of CrystalBlue Voice is this notion of managing end-to-end service quality — how does that work?

Galvin: It's something we call "the science behind the service." Unlike other hosted providers that integrate commodity hardware and software to operate an Internet-based VoIP service, Whaleback Systems is also a software development company. We have invested a significant amount of engineering resource into the network monitoring and diagnostic tools used by our Network Operations Center (NOC (News - Alert)) personnel. It's evolved over recent years into a comprehensive Voice Quality Management System (VQMS) that we call OrcaVision. When combined with the on-premise IP-PBX, OrcaVision allows us to manage every aspect of call quality and service availability as experienced by our customers.

Here's how it works. Every call made by every customer is automatically tracked by OrcaVision. The software knows how to trace the call through any IP network in the world and how to gauge the quality of the call based on key performance metrics such as packet delay, loss or jitter. If any of these metrics exceed their maximum threshold values, an alert notifies our support team and an auto-response, such as re-routing calls around congestion points, will be initiated by the system. Because a chain is only as strong as its weakest link, Whaleback has designed redundancy into each link in the network path from the customer premise to PSTN gateways. I am quite comfortable in saying there is not a more robust system or service delivery architecture on the planet.



ITMag: How do you see the IP telephony market as it continues to evolve during the next five years? Who are the winners and losers?

Galvin: The race is on to build up features, drive down cost and win new customers with a winning value proposition. This year alone we have added solutions for group conferencing, contact centers, unified messaging, WiFi (News - Alert) phones, access link redundancy and disaster recovery. All of our services are priced to deliver high customer value and are always based on a fixed monthly fee for unlimited use. For example, our OrcaMeeting conferencing service is less than $5 per user per month for an unlimited supply of minutes. There is simply no other provider with a service offering like that…anywhere. Think of how many businesses suffer enormous fluctuations in their monthly conferencing bill. We are better positioned to unlock major savings and productivity improvements for customers than anyone else in the business.

So for me, this industry is *déjà vu* all over again. The transition from TDM to IP telephony is another inevitable paradigm shift like we have all seen so many times before - Dial-up Internet access became broadband Internet access, pay phones became cell phones, and analog cell phones became digital cell phones. All of these changes were as inevitable as the incoming tide. Companies who resisted the change and attempted to prolong the past became technology dinosaurs while those who embraced the future, assuming they had the right technology and a solid business model, became very successful companies. Whaleback is embracing the migration to IP telephony with solid technology, happy customers and a business that is growing by 50 percent every quarter. We are extremely optimistic about the future. IT

The Evolving World of BSS and OSS

By: Richard "Zippy" Grigonis

Both BSS (Billing Support Systems) and OSS (Operation Support Systems) are undergoing drastic transformations in the face of new service infrastructures such as IMS (IP-based Multimedia Subsystem) and market conditions of extreme competition and customer churn. Provisioning becomes customer self-provisioning. More and more automated tools emerge to help keep the complex back-end infrastructures working correctly. Testing, monitoring and management blur together so as to facilitate end-to-end service fulfillment and seamless service assurance. Obtaining accurate data becomes more problematic in an evolving, complicated next-gen environment inhabited with hackers and crackers, so billing ultimately becomes 'revenue assurance' and fraud management. And providers are finally getting a handle on inventory management.

We can see the evolution of the BSS/OSS field by looking at one of the oldest names in the business, Amdocs (News - Alert) (www.amdocs.com), which offers customer care, billing and order management systems for telecom carriers and Internet services providers. As the next-gen world has encroached, Amdocs began to acquire technologies as needed. For example, in August 2006, they bought Cramer Systems, a U.K.-based company that provides telecom operator OSS solutions, to complement Amdocs' BSS capabilities and thus giving it a complete BSS/OSS product suite. In November of 2006, Amdocs purchased a Canadian software company called Moria, known for its innovative account billing services. And in January 2007, Amdocs purchased SigValue, an Israeli-based vendor of prepaid billing systems for mobile operators based in low-cost markets.

Another august name, Telcordia (News - Alert) (www.telcordia.com) offers their core OSS software systems that remain an integral part of many network operations. Telcordia continues to evolve these systems, imbuing them with features that add business value to existing customer installations. Telcordia says that two-thirds of a service provider's customers will give up trying a new service after two failed attempts, so Telcordia has also focused on such things as service management products that unite disparate network resources, react quickly to potentially customer-infuriating issues with real-time and near-real-time service management monitoring and corrective actions, and proactively improve customer experience by identifying potential service management issues as they develop in today's increasingly complex, multi-layered networks.

Axiom Systems (www.axiomsystems.com) is known for its AXIOSS service fulfillment platform, enabling services to be quickly designed, assembled for customers and delivered, thanks to reusable service components. It also offers end-to-end service fulfillment capability, converting customer orders into live services. Also, Axiom's upcoming Active Catalog is a service design, assembly and process orchestration platform which will be fully integrated with the rest of the AXIOSS Service Fulfillment Suite and interoperable with other third party OSS products and platforms.

Tony O'Brien, Head of Research at Axiom Systems, says, "Axiom Systems is primarily in the service fulfillment field. We touch mainly on the OSS area and we've got a lot of experience in that field. We don't work so much in the BSS area."

"In terms of the approach of IMS," says O'Brien, "we see that the smaller service providers are able to take on IMS and redo their OSS much more quickly than big ones, since they have a smaller subscriber base to move to a new systems environment. The larger telecom companies, on the other hand, are finding it a lot more difficult to migrate to it. It appears that they're taking the path of picking a new service or new line of business, and then moving aggressively that new product into a more IMS-type stack, and even create a new OSS stack for that to work. And what we're finding is that it's becoming a sort of federated OSS world, where you have a multi-system, multi-vendor architecture, and you've got a lot of interesting systems at the bottom layers that handle presence, VoIP, IPTV (News - Alert) and all of these other brand new services that are emerging."

"But what we really need," says O'Brien, "is something in the middle, between the BSS and OSS, to bridge the gap so as to reduce the time-to-market for new services. That's the key driver – our customers ask for it all the time. If a competing operator comes out with a new service product, no one can afford to spend nine months or even six months trying to change their business as they build and debug a similar or better service or application of their own. They want to be able to develop interesting new offerings, and they want to be able to do that quickly."

A Better Way: The PSA Initiative

"That's why we've become involved in the PSA [Product and Service Assembly] Initiative [www.psainitiative.co.uk]," says O'Brien, "which, among other things, is figuring out ways to speed up the time-to-market when a provider does things such as re-bundle and reuse services. Customers normally take about nine months from an initial concept to actually being able to deploy a service in the marketplace, and the PSA Initiative is really trying to shorten that considerably. Basically, the PSA Initiative is developing an industry-wide service model which delivers a practical understanding of how telecom services and products can be designed, created, assembled and launched."

But what about IMS?

Highdeal (News - Alert) (www.highdeal.com) is a global provider of pricing and rating solutions (180 implementations in 50+ countries). They've successfully tackled the billing problem in a multiservice world by delivering unconstrained pricing and packaging flexibility coupled with real-time transaction management. The Yankee Group has named Highdeal the fastest growing billing and rating vendor defined in terms of announced service provider customers.

David McNierney (News - Alert), Highdeal's Vice President of Market Development, says, "IMS is very exciting for service providers in terms of BSS and OSS. But it's a pretty daunting task to change your back office infrastructure to address a new set of priorities. IMS involves a change in the network allowing any service to be delivered to any device anywhere at any point in time. The real challenges that IMS introduces concern marketing and how a provider can make money from it. This is something that traditional BSS and OSS systems have not been engineered to support. Part of the problem is that many products in the BSS and OSS area, particularly third-party products, were built around the considerations of the legacy services of the PSTN, cable TV and so forth. These had proven traffic volumes and revenue streams. It was more of an operational challenge in the old days, which is to say, you were concerned with things such as getting invoices out the door, responding to customer complaints and inquiries, doing the truck roll and turning up services."

"But now IMS changes the game quite a bit," says McNierney. "It forces service providers to think about how the back office infrastructure should be changed to support the new types of services enabled by IMS. How do they get from 'here' to 'there'? Virtually all service providers looking at IMS are incumbents with extensive existing infrastructure built with millions of dollars of investment over the years. Do you just start with a clean slate and create a parallel BSS and OSS environment for next-gen and IMS services? Or do you try to create a sort of hybrid, delineating a migration path from the legacy infrastructure, and focusing your dollars on the high priority pain points that the new networks cause?"

"Very often the core capabilities of the BSS and OSS systems are just as applicable in IMS as they were in the old world," says McNierney, "things such as generating an invoice and responding to customer inquiries. A real challenge, however, are some of the new business functions that must be supported in, for example, the IMS architecture. These are things such as marketing, implementing new business models, figuring out how to monetize content-based services, handling mash-ups, and dealing with the whole Telco 2.0 discussion, and finally settling with various third parties, be they application providers, content providers, or other wholesale applications and services."

The Promise of NGOSS and OSS through Java

"What's happening is that we're seeing parallel next-gen networks evolving," says McNierney, "but we also see the technology that enables BSS and OSS changing as well. That includes things such as service-oriented architectures, Web Services, even things that may not be so new but are enjoying increasing adoption, from middleware components to open environments such as Linux and mySQL. So as the business requirements change, IT owners such as the CIO and VPs that own the back office, are asking themselves how they can migrate from those old mainframe-like systems that supported the old PSTN business model and continue to leverage them while simultaneously moving to more of an open architecture. Certainly vendors find this idea attractive and are supporting it, and initiatives such as the Telemanagement Forum's [www.tmforum.org] NGOSS are hugely beneficial." (NGOSS, or New Generation OSS, is a comprehensive, integrated framework for developing, procuring and deploying operational and business support systems and software, available as a toolkit of industry-agreed specifications and guidelines that cover key business and technical areas. NGOSS enables OSS/BSS systems to achieve unprecedented levels of interoperability.)

"Also helpful is the TM Forum's OSS through Java Initiative [OSS/J] to define open interfaces so that BSS and OSS systems can easily communicate amongst one another," says McNierney, "and also communicate down to the network level, thus integrating with IMS architectures, SDPs [Service Delivery Platforms] and other things that link into the legacy environment such as prepaid INs."

IMS, What IMS?

TierOne (News - Alert) OSS Technologies (www.tieroneoss.com) specializes in providing OSS-related solutions, integration and consulting services and offerings to communications service providers (CSPs) around the globe. They have extensive expertise in back office systems that interact with wireline or wireless networks; systems that include inventory management, network surveillance, and service provisioning and activation.

Neil Hansen, TierOne's Co-Founder and VP of Business Development, says, "We're very much focused on the OSS space and have very good knowledge on the industry in general. As a company we're not overly focused on IMS. IMS means a lot of different things to a lot of different people. It depends on what product demo a vendor happens to be touting with respect to product capability. I'm referring here to things like someone calling you at home and the Caller ID pops up on your TV screen. If you own the network you can do those kinds of things easily, but if you're a wireless carrier that doesn't have a wireline practice, some of those functions will be more difficult to roll out."

Very often the core capabilities of the BSS and OSS systems are just as applicable in IMS as they were in the old world...

"IMS is not really where our target audience is," says Hansen. "We're really more focused on things relating to what I would call a 'traditional' type of OSS, such as inventory solutions, activation, network discovery, fault management and trouble-ticketing."

"We're unique in that we have partnerships with companies such as Oracle (News - Alert) and Telcordia," says Hansen. "We've done cursory work around various implementations, and we've pretty much seen everything that's out there. There's been a consolidation in the industry. You're seeing the overall software or COTS products maturing. By that I mean companies are bringing things together so you really end up with many larger players. We realize that there's not a whole lot of uniqueness in what the different vendors are offering. And whether you look at suites from Telcordia, Amdocs or Oracle, I think you'll see that there's much commonality among each of those offerings. Where you do see some differences are in the approaches. For example, look at companies such as Amdocs or Oracle. Whereas Oracle is very much a product company, I think Amdocs is more of a services company. That's where you see the difference these days, rather than in the specific products themselves."

"There's also been an effort toward semi-automating certain OSS functions," says Hansen. "For example, many equipment manufacturers are talking about things such as GMPLS [Generalized Multiprotocol Label Switching], also known as Multiprotocol Lambda Switching, which is a technology that enhances MPLS [Multiprotocol Label Switching]. They're looking to create scenarios where they can manage the core, so you don't have to provision in that, and then they manage connectivity, so all you have to worry about are the endpoints and provisioning those. That's not here yet, of course, and things will take a while before such technology matures. Then there's some

question as to whether telcos will adopt such things, because they would have both less network visibility and they'd have less overall control. Telcos, as you know, are very slow at adopting new technologies because, at the end of the day, they must deliver a certain level of service to the end customer. They must feel that they have control over things."

Do-It-Yourself

JacobsRimell (News - Alert) (www.jacobsrimell.com) enables various types of communications service providers (wireline, wireless and cable) to handle residential services fulfillment, business IP fulfillment, and subscriber information management relating to VoIP, digital TV/video (DTV) and high speed Internet (HSI).

Joe Frost, VP of Marketing, says, "Operators have been talking about convergence for a long time, but they haven't really been doing much about it. And if you think about where convergence sits, it exists internally at the operational level, and there's also external convergence at the customer-facing level, be they business or residential customers. And there's even convergence going on in the 'silos' themselves. Now, whatever industry conference you go to these days, all of the operators show up and say, yes, we're attempting to achieve convergence. But I don't think there's been that much convergence in practice. Still, we see that convergence actually has started. We've seen a lot more interest from our customers and the prospects who we're talking to are really now focusing on this becoming a reality in 2008. Primarily it's coming from a customer-facing perspective, because the focus is switching to the management or control of the customer experience. The typical situation is that you pick up a phone and you dial one number for your voice service customer service, another number for TV and another number for your Internet service. Or you dial the operator's central number and you press 1 for voice and 2 for the Internet access people, and so forth. People have had enough of those IVR front ends. We can change that."

"So a lot of prospects are looking at how they can improve the customer experience," says Frost. "They ask themselves, 'How can we deliver a converged capability?' There appear to be two ways: First is converging the operational and the customer support front-ends, if you like, so the call center operator you may be talking to at least knows what products you have and can do something about any of your problems, rather than transferring your call around to the wrong people. That's all about converging the operational layer."

"Second is placing much greater emphasis on subscriber self-care," says Frost. "But this is products-and-features self-care, not billing self-care. So what you're actually doing is moving the burden of subscriber Moves, Adds & Changes [MACs], features changes, and so forth, to the users/subscribers themselves, via the web or TV interface self-care. It doesn't really matter how you do it, but it's all about the user being able to make the changes, their feature requests, and so forth, by themselves, using an intuitive portal."

"Again, if you compare how Verizon and Comcast (News - Alert) does it, they are quite different," says Frost, "From what we've seen of the Verizon system, it seems to be more of an information portal than a true self-care portal. You can't really change many of the features or any of your packages. However, the Comcast portal, which we obviously know very well, having worked with them, you can, with the VoIP service, change pretty much any of your call features. You can change the rules of how you take the service. It is much more intuitive. In our experience, end users like that. They like to be able to go online and 'do their own thing' rather than hang around on the phone with a customer service representative or go through a multi-level IVR-type menu system."

"The benefits of all this are of course improved customer satisfaction," says Frost, "but also the operation itself doesn't have to continually increase the staffing and training of their call centers. This becomes even more critical when you start to look at the range of products and services that people are using, the access technologies that they're using to get to those products and services, and of course the customer premise equipment such as SIP and next-gen set-top boxes with DVRs and photo replay, and so forth. This is all complex stuff and it takes a considerable set-up. So, what you want to do is automate that and make it as easy as possible for customers to use but also make it as easy as possible for the customers to fix, upgrade, or otherwise modify their settings and features. If you can enable them to do that using an online portal, then you as a service provider have saved yourself a ton of money and have generally improved the customer's quality of experience."

Keeping a Handle on the Handles

Finally, as operators consolidate and modify complex systems, the issue of inventory management suddenly looms large.

That's why Oracle Communications (www.oracle.com) recently introduced the Oracle Communications Unified Inventory Management (UIM), a new standards-based inventory management application that provides communications service providers, carriers and network operators with a real-time, unified view of customer, service and resource inventory.

David Sharpley, Vice President, Product Marketing and Channels, Oracle, recently told Yours Truly that, "Our new Unified Inventory Management [UIM] product has been on our development drawing board for well over two years, and I'd say closer to three years. This inventory system and how we're approaching the market is different on a couple of fronts. First, it was architected from the ground up using an open standards-based architecture. So it is the first inventory product to be architected using what's called the Shared Information/Data [SID] model from the Telemanagement Forum [www.tmforum.com]. That Shared Information/Data model is a common representation of key objects and their attributes, so things such as customers, service and so forth can then be leveraged across the organization as well as be integrated. SID is standards-based."

So, life has become interesting once again for service providers. The challenge of delivering effective, economical BSS/OSS subsystems in the face of ongoing convergence and technical innovation will continue for years to come. IT

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

The following companies were mentioned in this article:

Amdocs
www.amdocs.com

Axiom Systems
www.axiomsystems.com

Highdeal
www.highdeal.com

JacobsRimell
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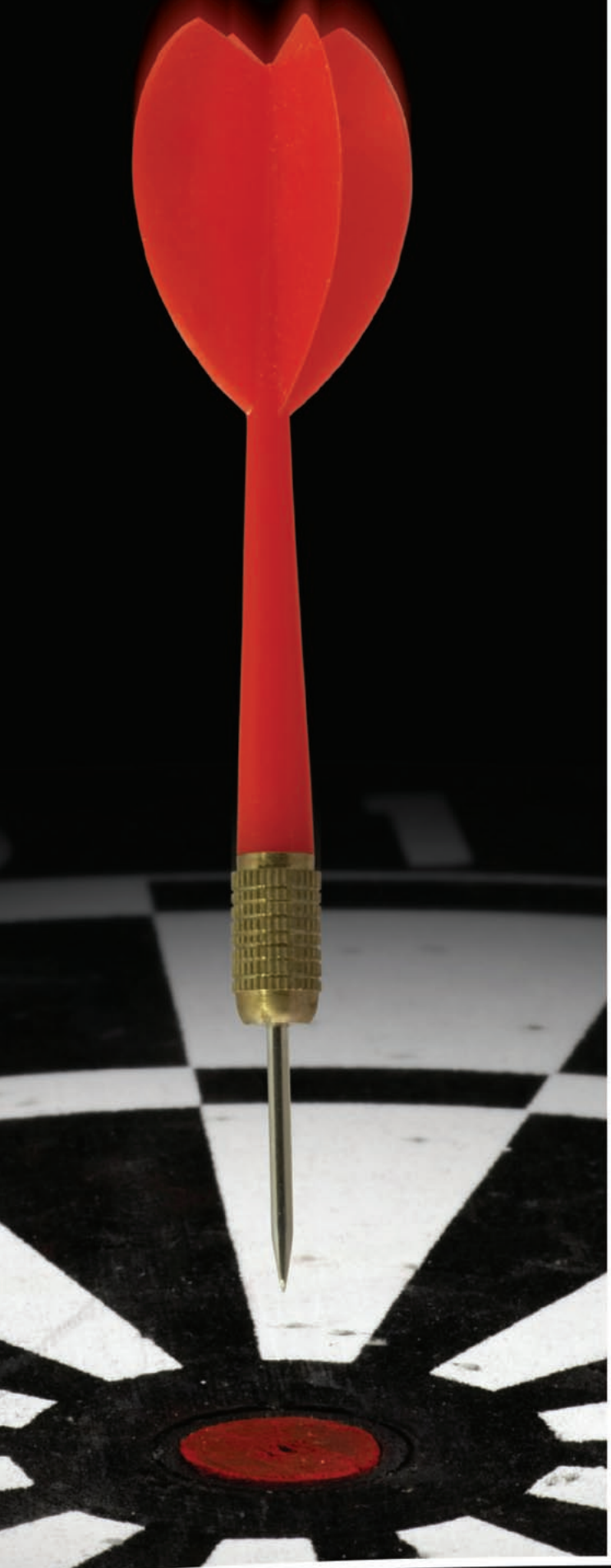

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VoIP BUSINESS NEWS

Securing Enterprise VoIP — A Suggestion

By: Patrick Young

The most urgent problem with securing enterprise VoIP is the lack of interoperable security standards, especially for encryption and authentication. This problem could be easily solved by using a SIP Authenticator, Protocol, and Encryption Transcoder equipped with an encryption accelerator, DSP media processor, and cryptographic storage.

The SIP Transcoder would sit in series with the SIP streams and translate from one vendor's SIP protocol to another's. Each SIP channel input and output could be configured to be compatible with any vendor that supports the SIP Transcoder. The SIP Transcoder would be an open platform and any vendor could write their own transcoding configuration or routine. The transcoder could be configured with T1/E1 channels and multiple GigE ports. It could then translate between IP and T1/E1 or T1/E1 in-and-out or IP in-and-out.

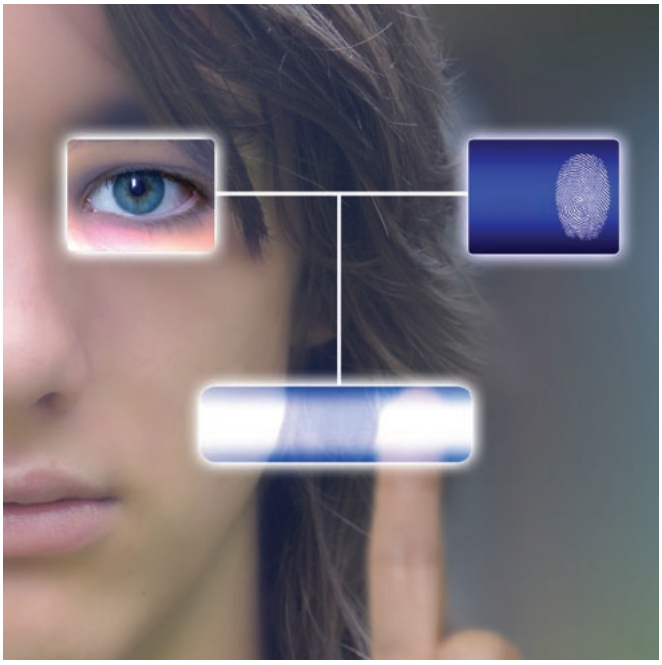
Most forecasts predict that VoIP sales will not exceed those of TDM until 2010. There is still much market resistance to adopting VoIP. The leading factors inhibiting the adoption of VoIP are the low availability of reliable and cost effective high speed broadband, the growing concerns of security vulnerabilities, and the lack of interoperable standards.

VoIP voice quality requires broadband with guaranteed network availability, low packet loss, and low latency. Broadband cost, quality, and availability continues to improve and will have less and less of a negative impact on the VoIP market.

VoIP security has not caused much resistance thus far for VoIP, but it is a growing concern. As the VoIP market grows, so will attacks on the VoIP infrastructure similar to the way malware has increasingly infiltrated the web and email. As attacks on VoIP grow so will the recognition of VoIP security as a serious problem. Authentication and encryption remedies for VoIP security are currently available and they can greatly decrease security risks in a properly deployed VoIP installation. Proper deployment will remain problematic, however, until VoIP achieves greater interoperability across all segments of the VoIP infrastructure.

There are fewer purchasing decisions for a TDM phone system than for a VoIP installation. Because TDM is a very mature industry and standards have been in place for a long time, interoperability usually does not enter the decision making process. A major source of uncertainty for a VoIP installation is the question of interoperability between all the necessary components.

SIP is the predominate protocol for the transport of voice and video over an IP network. SIP is an adaptable universal protocol that is very versatile and supports the transport of many types of communications and media. Ironically, it is SIP's flexibility that is at the root of VoIP's current interoperability issues. Most VoIP vendors have chosen SIP as their transport protocol even though SIP is not an industry standard. The IETF SIP Working Group is working on a specification RFC (Request For Comments) 3261 which is on their "Standards



Track". SIP is not yet a standard – at best, it's a reference specification. The problem with RFC 3261 is its ambiguous nature, the words *may*, *should* and *recommend* appear 766 times in the 269-age document. There are more than 80 additional SIP-elated RFCs that attempt to clarify or fix RFC 3261.

SIP RFC 3261, being ambiguous,. allows many different protocols for media and signal transmission. Although TLS (Transmission Layer Security) is emerging as the preferred encryption protocol for SIP signaling transmission. TLS can use over a dozen different ciphering schemes. SIP requests can be sent using TCP, UDP (News - Alert), or SCTP. Media transmission can be sent using RTP, SRTP, or IPsec among others. Then add the multitude of authentication schemes, passwords, various Public Key Exchange methods, and Certificate Authorities. There are literally thousands of possible SIP implementations. For this reason most SIP signaling and media are sent in the clear with no encryption and weak authentication.

There is still some probability that SIP will not become a standard. A likely scenario is that the SIP specification will evolve into an industry-wide *de facto* standard. Current SIP implementations have so much variation in their interpretation and implementation of the SIP specification, they are incompatible with one another. When a SIP standard does evolve, the majority of existing installations will not be compliant and most have been implemented on a platform that will not have the flexibility or processing ability to adapt to the future standards. The SIP transcoder could be used to salvage these existing installations.

If the VoIP industry is going to gain the predicted market share over TDM, it must address the "fear uncertainty and doubt" associated with the adoption of VoIP. While VoIP may be the best choice when purchasing a phone system, TDM is currently the easier and

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safest choice. The VoIP industry must turn this around. VoIP's lack of interoperable standards will make this a formidable task. A SIP transcoder can convert any SIP deployment so as to be compatible with any other SIP implementation. It can also provide strong authentication, encryption, and media processing services that will provide major improvements over TDM.

SIP RFC 3261 is very weak when addressing authentication, suggesting that a SIP proxy server or UA *may* (or may not) challenge the source identity of a SIP request. RFC 3261 does not recommend an authentication scheme. VoIP needs mechanisms superior to TDM to challenge its market domination. Authentication is an excellent area where VoIP could easily prove to be superior over TDM. A SIP implementation can and should use a strong authentication scheme with private encryption keys and authentication certificates stored in a cryptographic storage module. TDM does not have the capability for using strong authentication.

Authentication is an area where SIP can prove to be better than TDM. TDM has Caller ID to authenticate the caller which can easily be spoofed. If SIP were deployed with strong authentication performed with the use of Identity Certificates, all end points of a conversation could be positively identified.

A VoIP implementation of SIP requires two data paths, one for connection information, referred to as signaling, and one for the voice, referred to as the media stream. SIP signaling is similar to HTTP text based protocols and uses established TCP/IP protocols for transport of both signaling and media. SIP signaling, being a clear text protocol, will require encryption when traversing a public network. Without encryption the signaling is vulnerable to many security risks. Within the enterprise, eavesdropping of SIP conversation is too easy. An employee with limited technical knowledge can learn and deploy eavesdropping within minutes thanks to the availability of free software on the Internet. Within the enterprise network the media should also be encrypted to prevent eavesdropping.

There are many authentication and encryption schemes and it is too much to ask SIP vendors to support such a wide variety of ciphering schemes. It would add prohibitive development, production, and provisioning costs. Some markets will require exceptionally strong authentication and encryption where other markets are well served by a simpler scheme. The transcoder will maintain compatibility regardless of the protocols used.

A SIP transcoder would ease the deployment of low bit rate and wideband codecs. The predominant codec used with SIP is G.711, which is nearly equivalent to TDM in bandwidth and voice quality. VoIP must move beyond the G.711 codec. Use of the G.729 low bit rate codec will reduce bandwidth costs by up to a factor of eight, and the G.722 wideband codec will improve voice quality to better than twice the frequency response. Both codecs offer a competitive advantage over TDM.

One common difference in SIP implementations is whether the DTMF and Caller ID are transported in the signaling or the media stream. From a SIP design perspective it is much easier to implement the transmission of DTMF and Caller ID in the signaling, as text is very easy to encode and decode. When these signals are transported in the media it becomes a very compute-intensive task to encode and decode. The eventual SIP standard will most likely require DTMF and Caller ID to be transported within the media. This would eliminate many security vulnerabilities and require less effort transcoding SIP signaling to media in a SIP-to-PSTN gateway. It would be a very difficult if not impossible task for a manufacturer to retrofit a change to move the DTMF and Caller ID from the signaling to the media stream. These computationally intensive tasks can be offloaded to a SIP transcoder equipped with a DSP media processor.

A SIP transcoder would very useful to a SIP trunking Telephony Service Provider (TSP) where the IP-PBX (News - Alert) is located on the customer premise. SIP TSPs currently have a rigorous site survey procedure to ensure interoperability with the customer premise equipment (CPE). This is a labor-intensive task and excludes many potential customers due to incompatibility of CPE with the TSP's SIP service.

The SIP transcoder can also maintain compatibility between phones and an IP-PBX. SIP phones can be the majority cost in a VoIP installation. If the IP-PBX is upgraded or replaced, there is the possibility of introducing new SIP phone incompatibilities. The SIP transcoder can sit between the phones and IP-PBX and restore compatibility.

A SIP transcoder can ease the deployment of VoIP security measures by solving the SIP interoperability issues. It can simplify development and deployment of SIP by implementing the complex algorithms and computationally intensive tasks in a single appliance. In addition it can accelerate the SIP advantage over TDM and remove most impediments related to VoIP deployment. IT

Patrick Young is CEO of Arlinx, Inc., a manufacturer of open telephony platforms. For more information, visit the company online at www.arlinx.com.

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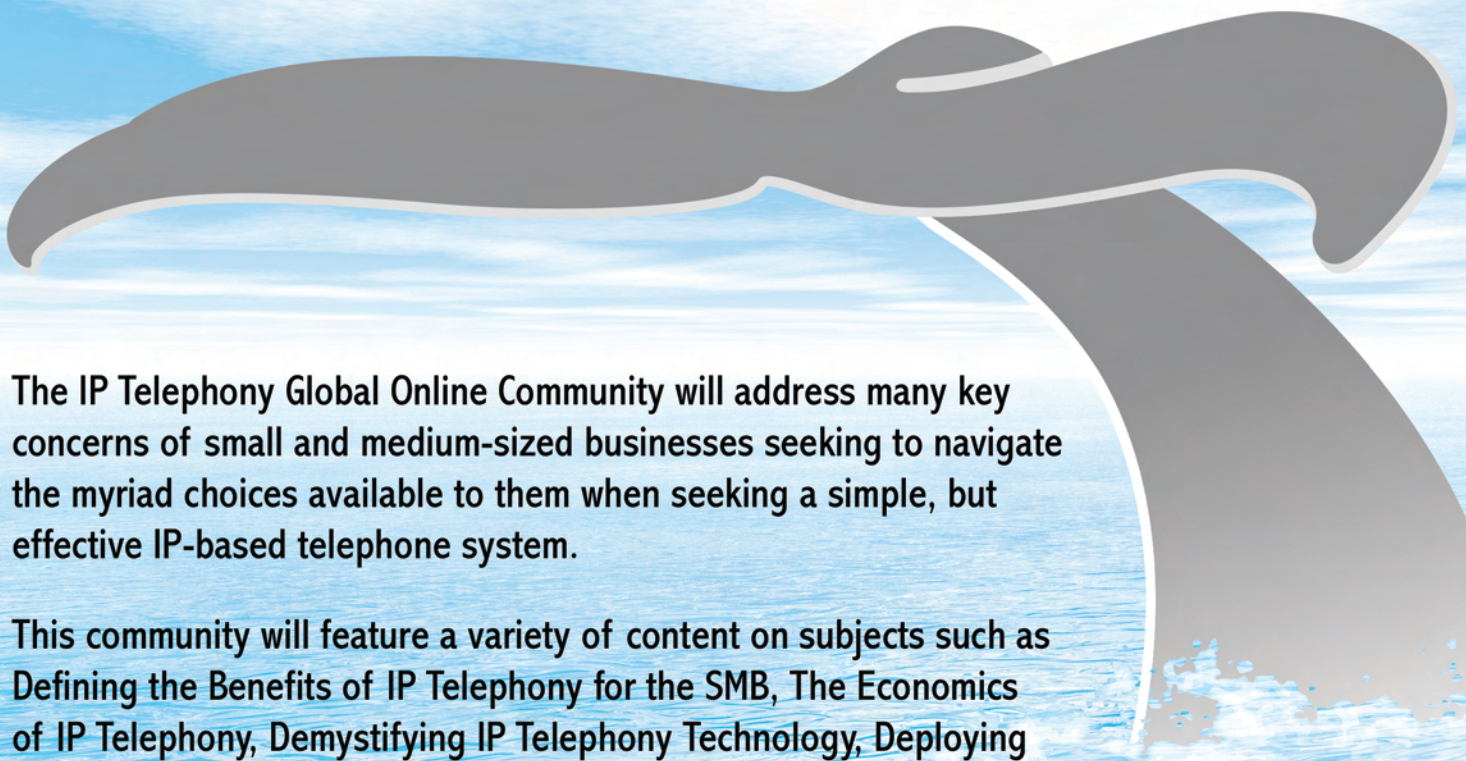

The IP Telephony Global Online Community will address many key concerns of small and medium-sized businesses seeking to navigate the myriad choices available to them when seeking a simple, but effective IP-based telephone system.

This community will feature a variety of content on subjects such as Defining the Benefits of IP Telephony for the SMB, The Economics of IP Telephony, Demystifying IP Telephony Technology, Deploying Broadband Phone Solutions Designed for Small and Medium Businesses, Overcoming the Limitations of IP Centrex, What to Expect from a Managed Service Provider, and a thorough analysis of feature-related benefits.

The community will also feature a wealth of information in the form of case studies and articles that are critical to the SMB decision maker seeking to deploy various applications such as multimedia conferencing; IP-based contact centers; electronic faxing; unified messaging; multi-site deployments; road warrior mobility; and much more...

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Wireless Backhaul is Booming

By: Richard "Zippy" Grigonis

As the world's populace becomes more mobile, wireless backhaul – the link between a carrier's cell site (base station at the cell tower) and its mobile switching facility and thence to the PSTN – suddenly becomes a big issue. In times past, telecom service providers (TEMs) in the wireless world could get by with some T-1s connecting base stations to a core network. Today, however, wireless operators spend about half of the operational costs – more than $3 billion – for leasing T1/E1 lines from Local Exchange Carriers. Moreover, with the rise of mobile video, multimedia and data over such 3G and 4G technologies as W-CDMA (Wideband CDMA), HSDPA (High-Speed Downlink Packet Access), and HSUPA (High Speed Uplink Packet Access), bandwidth considerations are focusing carriers to come up with more scalable, or just outright high bandwidth backhaul schemes, involving both wireline and wireless technologies (Optical fiber, improved ways of sending IP over copper, microwave and Ethernet over copper or fiber), or else just leasing bandwidth from wholesale providers and opportunistic alternative carriers who target this increasingly lucrative market.

A recent ABI Research (News - Alert) study predicts that North America will adopt Ethernet as the primary wireless backhaul transport, while Asia Pacific will use more microwave, and South America will continue to use the increasingly primitive-looking (not to mention expensive and low bandwidth) T-1 spans.

On August 17, 1951 the first telephone call traveled over AT&T's then-new microwave backbone route, at the time the longest microwave system in the world, a chain of 107 microwave towers spaced about 30 miles apart

The first cost-effective reaction to deal with the increasing bandwidth needs of wireless backhaul is to get copper to carry more information, just like the way DSL revolutionized the delivery of high bandwidth Internet access to the home over ordinary copper "last mile" phone lines. In the case of Pseudowire technology, telecom services are transported over IP-based networks

Pseudowire Teaches Old Copper New Tricks

As its name implies, pseudowire is the emulation of a native service over a PSN (Packet Switched Network). The native service may be anything from ATM, Frame Relay, Ethernet, TDM, or SONET/SDH, while the PSN may be MPLS, IP (either IPv4 or IPv6), or L2TPv3. Thus, conventional voice and TDM traffic can be carried over packet networks without having to buy new equipment.

Axerra Networks (News - Alert) (www.axerra.com) bills itself as "The Pseudo-Wire Company" and is in fact a leading provider of circuit emulation solutions. Their Axerra AXN Pseudo-Wire solution is a full-service alternative to TDM access for mobile wireless operators' growing backhaul bandwidth needs for both voice and data services in packet-based Radio Access Networks (RANs), including those operators providing CDMA and EV-DO as well as GSM and UMTS services. Less expensive packet access networks can now replace TDM backhaul for voice and wireless services for mobile wireless operators, cable MSOs, competitive access providers, and incumbent carriers. Indeed, any packet access network (carrier Ethernet, cable HFC, xDSL, EPON/GPON, broadband wireless such as WiMAX) can become a full-service alternative to TDM access.

RAD Data Communications (News - Alert) (www.rad.com) is also a major provider of packet network backhaul solutions. Their ACE-3x00 series of multiservice aggregation units simultaneously support TDM and ATM over packet-switched networks (Ethernet, IP or MPLS), and are Psudowire-enabled. For example, RAD's ACE-3400 RAN backhaul multiservice aggregation unit and ACE-3402 RAN backhaul multiservice aggregation unit multiplex multiple E1/T1/J1 lines to ensure the most economical allocation of backhauling resources and the delivery of 2G and 3G services. Several ATM/TDM services can be aggregated onto a single network interface (IMA, STM-1/OC-3 or Gigabit Ethernet).

Pseudowire capabilities can also be founding RAD's Airmux-200, a carrier-class, point-to-point and multi point-to-point wireless broadband multiplexer that connects E1/T1 and Ethernet networks over a wireless link. Compliant with FCC, CAN/CSA and ETSI (News - Alert) regulations for license-exempt transmission, the Airmux-200 wireless multiplexer combines legacy TDM and Ethernet services for transmission over 2.3 GHz to 2.7 GHz and 4.9 GHz to 5.95 GHz bands. The unit has a total air data rate of 48 Mbps, with a theoretical

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

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

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Finally, RAD's LA-130 DSL cell-site gateway is a small 1U high unit, that takes a novel approach in aggregating four E1 lines, delivering 2G and 3G cellular backhaul traffic over the existing DSL infrastructure. It uses pseudowire emulation so that carriers can provision ATM and TDM services over IP DSLAMs and packet-switched networks. The LA-130 even allows "grooming" of several fractional E1 UNI, several IMA links, or E1 TDM (CES (News - Alert)) into a single IMA network interface, over four SHDSL pairs, thus reducing cellular backhaul expenses.

Fiber to the Rescue?

In the U.S., Verizon (www.verizon.com) has a wholesale division, Verizon Partner Solutions (News - Alert) (www.verizon.com/wholesale), that is now heavily involved with selling bandwidth for wireless backhaul. Like the companies mentioned previously, one of their approaches to serve this market is a TDM-based pseudowire solution they call the Verizon Packet Access Service. However, their initial method to stake a claim in this market is their fiber-based ETAG (Ethernet Transport and Aggregation) backhaul service, which should be available by the time you read this. What's so interesting about Verizon's ETAG is that, just as the RAD system mentioned earlier uses (or "re-uses") existing DSL lines, Verizon's ETAG is going use an Ethernet-based pseudowire system running over the existing (and growing) FiOS (News - Alert) FTTP (Fiber-to-the-Premise) BPON and GPON infrastructure that by 2011 will be passing more than 18 million home and business premises – not to mention cell towers and base stations. Thus wireless backhaul services can be added to the fiber network deployed for fiOS.

A Piece of the Pie

Cable operators have also noticed the skyrocketing wireless broadband market, and, noting that many of their HFC plats are near wireless base stations, have been attempting to enter the market. In such cases backhaul is generally implemented using something on the order of a SONET/SDH in the access network with ring termination centralized at the headend. Ciena Corporation (www.ciena.com) champions such a system, since they say it minimizes cost by reducing the number of T1/E1 cross-connect points and ring nodes while providing integrated transport for 2G/2.5G and 3G services. Ciena's SONET/SDH micro-MSPP supports T1/E1, DS3, 10/100baseT and GbE client interfaces with OC-3/12/48 or STM-1/4/16 network ports. Several nodes can be connected in a ring or point-to-point architecture to an aggegration node, either at the closest d-hub or centralized at the headend or primary hub. In either scenario, the SONET/SDH line signals can be transparently multiplexed using G.709 digital wrapper technology onto a common wavelength with VOD and CMTS traffic back to a headend MSPP node. There, the MSPP can groom the DS1/E1 traffic to channelized OC-n/STM-n ports and Ethernet traffic from all the cell sites to FE/GbE ports for handoff to the appropriate wireless operator.

Wireless Transport for Wireless Backhaul

The idea of using point-to-point wireless broadband to serve as a backhaul scheme for wireless services goes back to the early days when people were talking about deploying WiMAX (News - Alert) as a backhaul solution for WiFi hotspots and meshes. This has actually been done by the Waltham, Massachusetts-based company TowerStream (www.towerstream.com) which back in 2003 extended its WiMAX-like wireless T1-level service to the five boroughs of New York City and Northern New Jersey, in the process providing wireless backhaul to 802.11 hotspots.

TowerStream's network uses 802.16-class base stations from Aperto (News - Alert) Networks (www.aperto.com), laid out in a self-healing wireless ring wherein towers connect to point-to-point unlicensed and licensed links. Each point on the ring can act as an Internet point of presence (POP). Customers connect directly to the ring via an eight-inch dish installed outside their buildings. To connect the Aperto equipment to the 802.11 WiFi hotspots, TowerStream uses 10/100 Ethernet.

TowerStream has also used the AirPair 50 and AirPair 100 transceivers from DragonWave (News - Alert) (www.dragonwave.com) as a backhaul solution to provide high capacity connectivity from multi-point sites. The AirPair 100 supports traditional TDM services through DragonWave's APX-104/108E modules. AirPair solutions can provide native Ethernet backhaul with less than a 0.5ms delay, making them suitable for supporting such services as Voice and Video-over-IP. TowerStream can increase AirPair throughput to 200 Mbps via remote software commands, making the whole system quite scalable.

Of course, microwave point-to-point communications goes back a long way, to 1947 in fact, when the first microwave line was deployed between the headquarters of AT&T's Long Lines Department at 32 Avenue of the Americas and the New England Telephone and Telegraph's Bowdoin Square building via seven relay stations. On August 17, 1951 the first telephone call traveled over AT&T's then-new microwave backbone route, at the time the longest microwave system in the world, a chain of 107 microwave towers spaced about 30 miles apart and stretching coast-to-coast across America. It was built over a period of three years at a cost of $40 million. Just like today's microwave backbones, the system could carry TV signals too.

Today, FiberTower Corporation (www.fibertower.com), founded in 2000, has targeted the wireless carrier backhaul and access transport market with an interesting hybrid microwave (24 GHz and 39 GHz bands)/SONET network solution. FiberTower has a presence in 12 major markets, works with six of the leading cellular carriers, and has partnerships with the biggest U.S. tower operators.

Wireless backhaul will continue to be a booming opportunity for many years to come. Expect a continuous stream of ingenious solutions for backhauling ever-increasing bandwidths from the world's wireless services players. IT

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

The following companies were mentioned in this article:

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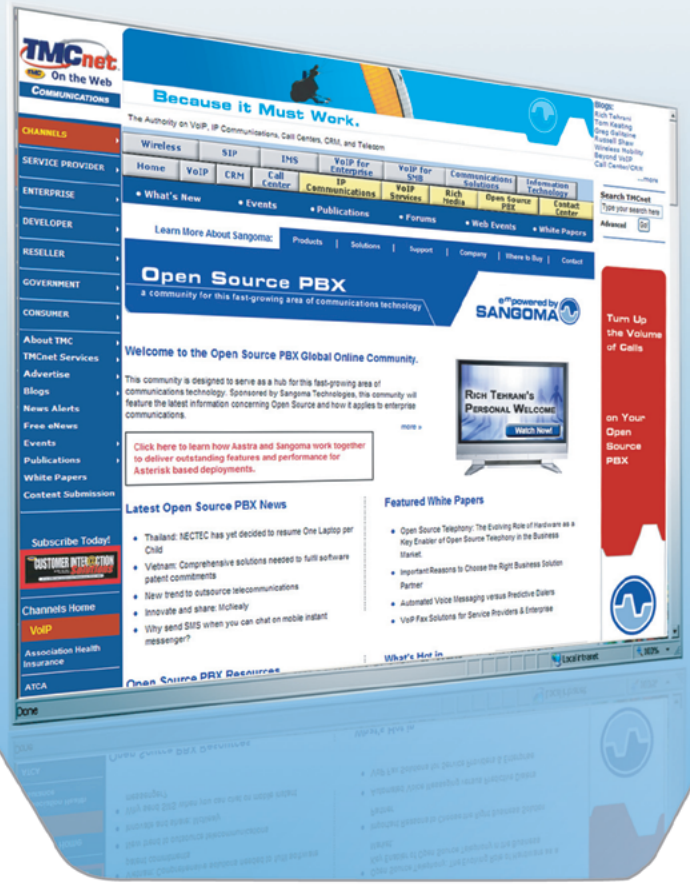

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Putting SIP in a Developer's Toolkit

By: Richard "Zippy" Grigonis

The Session Initiation Protocol (News - Alert) (SIP) is quite possibly the single most influential communications protocol since IP itself, having replaced the idea of a "call" with that of a multimedia "session" among endpoints. Whether you're developing a presence manager, instant messaging application, videoconferencing system or a simple VoIP softphone, working with SIP's signaling/call control methods is inescapable.

SIP is a high-level, application-layer protocol that runs over TCP, UDP (News - Alert) and SCTP transport protocols and often calls upon services provided by its brethren application-layer protocols such as DNS, LDAP and RTP. After some extensions, SIP can now control multimedia sessions between users even if they and their media terminals are roaming about among various locations.

A high-level application layer protocol, SIP has been touted as a simple text-based protocol, unlike its more bloated, binary predecessor, H.323. Over time, of course, any protocol picks up some "baggage" and although adherence to the basic IETF SIP specification (RFC 3261 to 3265) has engendered interoperability, our new age of mobility and unified communications forces developers of SIP-based applications to keep in mind some novel, vendor-inspired extensions. As Sales Engineer Roland Auckenthaler of NMS Communications (www.nmscommunications.com) has written, "SIP application developers may still experience interoperability issues on enhanced SIP features due to the fact that various vendors may implement different versions of draft documents or have a different understanding of the described features."

...our new age of mobility and unified communications forces developers of SIP-based applications to keep in mind some novel, vendor-inspired extensions...

Auckenthaler recommends that developers start by examining the following documents:

• SIPPING (Session Initiation Protocol Investigation) Service Examples — provides a detailed description of PSTN calling features and how their call flows must be implemented in SIP.

• RFC 3665 SIP Basic Call Flow Examples — describes registration and proxying call flows to locate and connect two end devices via a central server.

• RFC 3666 SIP PSTN Call Flows — describes successful and unsuccessful use cases for PSTN-to-SIP and SIP-to-PSTN calls.

Auckenthaler of course puts in a good word for his company's own tool, SIP for Natural Call Control (NCC), which enables SIP signaling for media processing elements within an IP network.

The rise (albeit a bit slowly) of IMS (IP-based Multimedia Subsystem) as the world's common wireless and wireline infrastructure also needs to be taken into account, since the 3GPP (Third Generation Partnership Project) selected SIP is the IMS core signaling protocol. IMS SIP is even more complex (has more extensions) than the basic protocol, and so implementing applications for IMS deployment that sport advanced features can be something of a challenge.

The differences between IMS SIP and non IMS SIP include extensions on the access level, starting with SigComp (RFC 3320), P-headers (RFC 3455/3325), AKA-MD5 (RFC 3310),Security agreements (RFC 3329), IPsec, Media authorization (RFC 3313), Service-route mechanisms (RFC 3608), Registration-event package (RFC 3680), IPv6. Then there are various security extensions and miscellaneous extensions such as IMS resource reservation (RFC 3312), path headers (RFC 3327), SDP extensions (more attributes, grouping of media lines, more codec support, etc.), XML schemas usage including those in SIP message bodies (registration event package, XCAP, PIDF etc.). Finally, there are extensions by the IETF SIMPLE group with their work on presence and IM optimization (partial notifications/publications, notifications filtering, resource lists [RLS]/SIP exploders, and MSRP).

SIP Development Tools Galore

There is no shortage of SIP-related development tools and packages for those wanting to build next-gen applications. Vendors have opened up their APIs for third-party developers. For example, the Avaya (News - Alert) SIP Application Server from Avaya (www.avaya.com) is both a carrier-class deployment platform and a programmable, standards-based Application Creation Environment (ACE). It has an open, standards-based SIP Servlet API along with a set of pre-built Application Building Blocks (ABBs) and non-SIP based connectors (ABB-C's), which enables programmers to quickly develop real-time communications apps without any detailed knowledge of SIP or the underlying telecom network infrastructure.

Many programmers, however, would like to access a product's capability using their own favored development platform. Inova IT (www.inova.si) a software development company that specializes in computer telephony application development and system integration, offers Microsoft .NET (News - Alert) software that works with the Avaya SIP Application Server and allows .NET developers access to the same SIP service creation capabilities that are already available to Java developers. The combined SIP A/S and Inova IT product lines were probably the first major SIP-based telecom application creation environment for the .NET community.

Other tools include the following:

• A full SIP Stack from Aricent (News - Alert) (formerly Hughes Software Systems).

• ASTA Technology Group's SIP with Video Toolkit for .NET, VB6 (COM) and Delphi builds Download Evaluation; ASTA SIP VoIP Toolkit for Delphi and .NET including Winforms and PocketPC and Visual Basic 6 via COM; and the ASTA SIP Conferencing package for Delphi and .NET.

• The SIP-H.323 Converter by CoSystems.

• DC-SIP, a complete package of portable source code, sample applications, full reference designs, test applications, and customization tools, by Data Connection.

• The SIP Toolkit from ELUON

• eyeP Foundation from eyeP Media is a SIP-based SDK, bundled as an ActiveX control and available for in both Windows or Windows Mobile editions, enabling developers to develop complete software apps such as softphones, conferencing clients, and click-to-talk web pages, incorporating functionality such as telephony, video, instant messaging, presence and business functions such as hold, transfer or park/pickup.

• GL Communications' (News - Alert) many products that provide extensive SIP-based call emulation, analysis, SIP call trace, and call monitoring.

• The SIP Stack from HCL Technologies that smoothes the progress of SIP-based VoIP product and solution development. It comprises SIP User Agent and SIP Server reusable components that have been tested and ported to multiple platforms.

• An API to develop SIP-based applications from HelloSoft. (News - Alert)

• The High-Performance SIP Stack from Jugphoon.

• A SIP stack from Mediatrix.

• Netbricks offers SIP-BRICKS, a high-performance SIP implementation. They also supply protocol conversion software packages like ISDN-to-SIP or SS7-to-SIP signaling converters needed by soft-switches and gateway controllers.

• Nine-9s (www.nine-9s.com) their TeleSoft product includes their CompactSIP SIP stack, 3GPP / WiMAX (News - Alert)/ IMS SIP stack, SIP-ISDN and SIP-PSTN interworking software.

• PJSIP, an Open Source SIP Stack, supporting many SIP extensions/features.

• MjSip is a complete Java-based implementation of a SIP stack available as open source under the GPL license.

• The VBVoice service creation environment from Pronexus. (News - Alert)

• A powerful set of SIP tools from RADVISION . Their SIP stack provides all necessary SIP and SDP functionality, such as encoding, sending, parsing and receiving SIP messages over UDP, TCP, TLS, SCTP and IPsec, managing SIP calls and transactions, and ensuring reliability.

• The SIP control interface and a management agent from SandCherry.

• The HiPath Software Development Kit from Siemens.

• VQmon (News - Alert) from Telchemy is integrated into IP Phones, VoIP Gateways, Residential Gateways, SLA monitoring systems, routers, OSS, Probes and Analyzers, and provides reporting metrics using SIP, RTCP, XR QoS Reports and other key protocols.

• The CompactSIP stack from TeleSoft International (News - Alert) with versions for embedded systems and specific support for 3GPP mobile and cellular phone applications.

• The Fusion SIP Software Suite from Unicoi Systems, designed for use in embedded devices, has a small footprint and is completely ROMable and re-entrant.

• The SIP Protocol stack from Wind River (News - Alert).

Thus, developer's have a plethora of tools from which to choose. Happy programming! IT

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

The following companies were mentioned in this article:

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Wind River
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Fixed-Mobile Convergence Meets IMS and UC

By: Richard "Zippy" Grigonis

The concept of Fixed-Mobile Convergence (FMC) made its debut at the 2005 GSM World Congress in Barcelona. Enterprise FMC – also called Mobile Unified Communications (News - Alert) by IP PBX vendors, to distinguish this type of FMC from the carrier-based variety (e.g. T-Mobile and Embarq) favored by consumers – extends IP PBX services to mobile users, be they in the office or outside the office. Ideally, a system can move a call from a desktop phone to a dual-mode mobile phone, which can in turn move seamlessly from WiFi (News - Alert) coverage in the office to cellular service in the great outdoors. (A dual-mode phone isn't necessary if you can tolerate calls being transferred between devices.) Since various network elements are needed, such as Session Border Controllers (SBCs), Gateway (News - Alert) GPRS Support Nodes (GGSNs) and Tunnel Termination Gateways (TTGs), FMC needs to generate some revenue right off the bat, which is why FMC systems are to be infused with all sorts of tantalizing multimedia features and services, particularly anything to do with video.

IMS (IP-based Multimedia Subsystem) is a common service infrastructure for wireless and wireline providers that will help providers hatch lots of new "de-siloed" or "non-stovepipe" services and deploy them inexpensively. Although IMS isn't exactly the same as FMC, FMC is based on the 3GPP/3GPP2 IMS network architecture standards and FMC certainly contributes to the things that can happen in IMS, particularly VCC (Voice Call Continuity) which takes care of the handover of a call from WiFi (or any VoIP-capable wireless network access scheme) to cellular (GSM, UMTS, CDMA).

The original underlying assumption was that IMS would be all-IP, but of course we still have circuit-switched 2G wireless and TDM-based landlines. "Handover" or "handoff" between domains must therefore take into account session continuity and QoS (Quality of Service) as a user and a live call traverses today's hybrid network. Ironing out the details in this area are companies such as Stoke (www.stoke.com) and its Intelligent Multi-Access Session Management solution that can support subscriber calls within and across fixed, cellular, WiFi and WiMAX (News - Alert) access networks.

Classic VCC will handle transitions between existing circuit-based core and IMS-based voice core until native, real-time VoIP services are established over macro networks.

Many network operators, carriers and service providers worldwide are building IMS-VCC networks. Vendors such as Nortel (News - Alert) are running their equipment through interoperability testing. (In the case of Nortel, their portfolio in this area encompasses their Application Server 5200, Wireless Mobility Gateway 6000, Media Gateway Control Function, Packet Gateway Mobile Switching Center, Home Subscriber Server 1000 and Call Session Control Function 1000.)

Competing with IMS is UMA (Unlicensed Mobile Access), which provides GSM services over WLAN radio with built-in roaming and handover between wireless LANs and GSM wireless networks. Some consider this more of a stepping stone to IMS, since it provides connectivity to legacy services and doesn't leverage SIP-compliant terminals, of which there now are many. Kineto Wireless (News - Alert) (www.kineto.com) is a leading supplier of UMA technology and has partnered with various companies in this area.

Orange France also continues to make major inroads in FMC, having seen sales of dual-mode WiFi/GSM handsets increase by more than 50% in 3Q07.

As we went to press, XO Communications (www.xo.com) and Sotto Wireless (www.sottowireless.com) announced a trial for Seattle, Washington, of an FMC solution, Unwired Office, which combines XO's nationwide IP network with Sotto's integrated wireless and office phone communications service. Unwired Office is said to be the first, true single device (smartphone) FMC solution for businesses. The Unwired Office can be used in the office or on-the-go for voice, email and Internet access as well as by optional IP desk phones. It merges the office PBX (News - Alert), broadband network access and mobile phone service into a single, unified platform, yielding a similar communications experience for employees whether they're either inside or outside the office.

Orange France also continues to make major inroads in FMC, having seen sales of dual-mode WiFi/GSM handsets increase by more than 50% in 3Q07. Indeed, by October Orange had sold 468,000 dual-mode WiFi/GSM handsets for its UMA-based services in France, the U.K., and Poland.

Ramping Up for FMC

As if feeling that there's safety in numbers, vendors delving into FMC have been engaging in many partnerships and acquisitions. Avaya (News - Alert) acquired Traverse Networks. Cisco bought Orative and announced a Nokia partnership. Research In Motion (RIM) bought Ascendent Systems.

Avaya is now certainly doing quite bit in the FMC market, having sold numerous IP PBXs over the years; it also has a home-grown FMC technology and strategy. Ironically, although U.K.-based BT (News - Alert) announced its Fusion FMC service, it was Avaya that recently won the contract to provide the BAR Honda (News - Alert) Formula 1 racing team with an FMC solution at its campus in Brackley, in central England, which will be capable of communicating with 18 other race circuits where they compete. The system uses Avaya's Communication Manager Release 2.2 with cellular modifications that works with the BAR Honda IP PBX and application software in Nokia Series 60 phones that can route outbound mobile calls via the IP PBX.

And speaking of Nokia (www.nokia.com), it appears to have made its way into quite a number of FMC partnerships, trials and deployments. For example, Nokia is working with Siemens (News - Alert) Communications (www.siemens.com) to enable Nokia's dual-mode E series phones to work with Siemens' Hi-Path Mobile Connect Solution so that calls can be handed off between WiFi and cellular environments.

In the case of FirstHand Technologies (www.firsthandtech.com), their extensive FMC expertise regarding smart cellular and dual-mode WiFi/cellular phones can be found working behind the scenes, in products OEMed by IP PBX companies such as 3COM (News - Alert), Nortel and 3Com. FirstHand's new Enterprise Mobility Solution UC (Unified Communications) product release enables these IP PBX makers – as well as hosted VoIP providers and VARs supporting SIP interfaces – to quickly deploy an FMC supporting an extensive unified mobility and UC feature set that will work with many popular cellular and WiFi/Cellular dual-mode devices, including RIM Blackberry, Win Mobile 5 & 6 and the Nokia (News - Alert) E-series. Available features include single number reach, visual voicemail, enterprise dialing, session mobility, corporate directory access, IM, presence, rapid conferencing, and seamless roaming between WiFi and cellular networks with automated WiFi-to-cellular handover and much more. The solution provides end-to-end security and policy-based mobility and feature access controls. Its standards-based interfaces include SIP/SIMPLE for IP PBX and presence systems, LDAP for directories and IMAP for Microsoft (News - Alert) Exchange and voicemail systems. Thus, the Enterprise Mobility Solution UC should readily integrate into existing enterprise infrastructures.

Although FMC brings to mind new software-based applications, there are underlying hardware stories, too. Equipment vendors need to build products that not only meet today's current needs, but also will provide some scalability and longevity so that service providers can cost-effectively furnish services for fixed-mobile, wireless and video applications. For example, Octasic (News - Alert) (www.octasic.com) recently announced its 15-core, 1.5 GHz, ultra low power DSP-based media gateway solution – named Vocallo – for voice, video and data over IP in enterprise and converged fixed-mobile carrier networks.

A Vocallo system is basically a complete G.729 gateway including full IP/RTP routing, carrier-grade echo cancellation, tones, message playback, conferencing, etc., with more than 240 channels per Watt and more than 40 channels per square centimeter of semiconductor space.

Vocallo's media gateway software package includes packet-based wideband voice and video processing. Users can also add software in the Vocallo framework to differentiate their product with unique features. Developers and designers can also select the specific features, capacity and I/Os to meet their specifications. Thus, both features and capacity can be scaled (via licensing) to create a range of cost-effective products from a single design. Additionally, feature and capacity licensing can be extended to products in the field allowing for a Pay as You Grow scenario.

Carriers versus IP PBX Makers

IP PBX makers have a leg up on what carriers can do for the enterprise in terms of FMC, since IP PBXs are in many cases already on the premises, and their feature set can more easily be extended with their own expertise, using carriers as simply a form of transport, rather than carriers attempting to fiddle with existing IP PBX technology. This is why carriers have not been making a big splash in the market with their voice-oriented, mostly network-based FMC offerings. It's a situation reminiscent of the traditional gulf between Centrex-like service providers and CPE-based solutions providers.

AT&T's (www.att.com) OfficeReach, for example, is a classic network service, having no special PBX hardware, installation, or license fees. It extends your common dialing plan to your employees' mobile phones (not the desktop phone, interestingly enough). Therefore, it uses the employee cell phone number as the single, primary contact number when integrating your fixed and wireless voice communications (One Number Service). OfficeReach offers Zone billing - special rates when both parties are in a specific geographical area. Also, the service supports call screening to restrict certain calls for users or user groups, thus reducing distractions in and out of the office. A web-based tool can be used to control call restrictions and set up user groups.

Verizon (News - Alert) (www.verizon.com) also offers a roughly equivalent service, Wireless Office. It also uses the mobile phone number as the single extension in or out of the office. The service targets highly mobile teams that need to stay in frequent contact with each other and with their home office, or teams that roam around the corporate campus environment and are nearly always away from their desk phone. It also allows for the creation of closed user groups, call/no call lists and web-based management and maintenance.

FMC is obviously something that will bolster both IMS and unified communications, whether it's delivered by service providers, enterprise equipment installations, or a combination of both. IT

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

The following companies were mentioned in this article:

AT&T www.att.com	Octasic www.octasic.com
Avaya www.avaya.com	Siemens www.siemens.com
FirstHand Technologies www.firsthandtech.com	Sotto Wireless www.sottowireless.com
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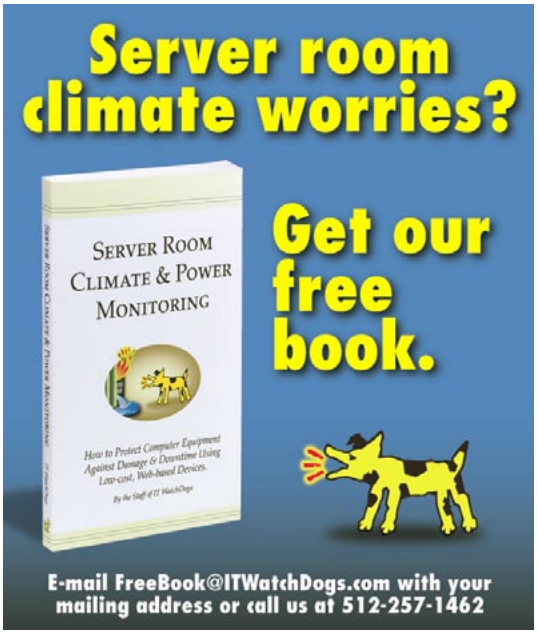

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SMB Open Source in 2008: A Virus of Goodness

By Greg Galitzine

A recent report from the 451 Group has found that "while many vendors consider small and medium-sized businesses (SMBs) to be a 'hot market' for adopting open source software, the SMB market opportunity for open source software vendors is actually limited."

The report's authors must not have posed their questions to the leading open source communications companies, Digium (News - Alert) and Fonality, because in separate conversations with these two solutions providers, I found them to be positively bullish on the potential for open source in the SMB market as we plunge into 2008.

In several exchanges with Digium's Bill Miller, VP of Product Management and Marketing at the company that started it all by offering the Asterisk (News - Alert) software IP PBX, it became apparent the Miller and the Digium team are excited by the prospect of the coming year.

"Asterisk open source-based products and solutions continue to penetrate the SMB markets," Miller told me. "SMB buying drivers and habits are different than larger enterprises for their phone system as they look at the phone system as a basic business tool. SMBs are attracted to open source solutions such as Asterisk and Asterisk-based solutions because of affordability, flexibility, and the emerging ease of use/installation/administration/control thanks to solutions such as Digium's Switchvox (News - Alert) SOHO and SMB advanced unified communications-based systems."

Leveraging their recent acquisition of Switchvox, Digium is offering a Free Edition of Switchvox.

In an earlier interview, Miller told me how this latest offering includes the familiar telephony features of Switchvox SOHO edition and further cements Digium's commitment to delivering full-featured telephony systems to enterprises and SMBs at low price points.

Miller spoke of the inherent flexibility and benefits of open source solutions for the SMB. "Today's open source-based solutions are more advanced in features and the user interfaces have become easier and more powerful than traditional solutions. Mix in web-based services and web-based mashups and open source has become the most logical and effective choice for small businesses."

Fonality's CEO Chris Lyman (News - Alert) is also looking forward to 2008. "My outlook is strong," he told me. "The SMB shops with their wallet — meaning that 'price' is the critical component to their purchasing decision. Also, open source naturally lowers the cost of any product in two ways: first, it lowers the cost of software development – the community pitches in; second, it lowers the cost of the hardware because open source is designed to run on low-cost commodity PC hardware. These two elements, in conjunction, create compounded savings, which are passed along to the SMB."

I asked Miller to share Digium's plans to serve the SMB market in 2008. He replied, "Several elements of Digium's business are focused on the heart of the SMB marketplace. Digium's recent acquisition of Switchvox will be a primary focus of our initiatives for turnkey IP PBX (News - Alert) solutions. With an advanced unified communications-based user interface powered by the world's leading Asterisk open source software, Digium is growing its worldwide channels to deliver unmatched value to customers."

"Digium's partnership with 3Com (News - Alert) for Asterisk and the 3Com Asterisk Appliance will also bring open source based solutions to the masses at a very affordable price for a powerful set of features through 3Com's voice and data channels. A host of Digium's Asterisk ecosystem partners also serve this market successfully with vertical market solutions and with advanced telephony applications. Many inroads have been achieved into new markets because of Digium's growing ecosystem built around Asterisk. Digium will announce more details on SMB initiatives early in 2008," he concluded.

Lyman's response to the same question pointed out that Fonality (News - Alert) too is not resting on its laurels, but will be active in the SMB market next year. "Open source is allowing a company like Fonality to compete with much larger companies like Oracle and Microsoft (News - Alert). We can use open source to join together seemingly disparate projects to create a Unified Communications platform for the SMB."

"An example is that last month we bought an open source CRM company in Australia," says Lyman. "We are in the process of combining that CRM product with our telephony product to offer the market a 'Unified Agent' telephony+CRM product next quarter. This product will have more features than the established players at a fraction of the cost. Plus, because it uses Open Standards, the SMB buyer can naturally weave it into their existing business process. Open Source makes Unified Communications (News - Alert) an affordable reality for the SMB."

Miller says open source will play a significant role in the SMB market in 2008. Reasons for this, says, Miller, include "Cost, features, powerful VoIP and converged applications and easy migration. For a small business owner, it's simplicity to install, support, administer, and operate, all at affordable costs."

Lyman agrees with the concept. "Yes, the role of open source will continue to be significant. Firstly, it will have heavy adoption because of its natural price advantage, as described above. Secondly, open source is based on open standards, which induces natural IT federation in the SMB back-office. So, open source organically germinates more open source. It's like a virus of goodness."

Greg Galitzine is TMC's Editorial Director.

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