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TMC

INTERNET TELEPHONY®

The IP Communications Authority Since 1998™

Volume 11/Number 6 June 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.

Google vs. Microsoft vs. Yahoo!

Once upon a time, companies developed a core competency, such as making widgets, and stuck with it for decades. In today's more competitive world, however, everybody is driven to expand and diversify. Ultimately, everybody encroaches on everybody else's space. Cable companies start offering phone service. Telcos offer video. Google, the premier Internet search company, is taking on Microsoft (News - Alert) and its Office Suite by deploying Google Apps, a roughly equivalent (read: fewer features) assemblage of functionality that is delivered as Software as a Service (SaaS (News - Alert)), although Google has announced that a version will be made available that runs as a standalone, just like Office. Both of those will compete with the new beta of OpenOffice.org 3.0, the open source office suite originated by Sun Microsystems (News - Alert) (and which now has a native Aqua user interface for Mac users).

Microsoft, in turn, imitated the imitators with Microsoft Online Services, which followed on the heels of Steve Ballmer's prognostication that Microsoft would one day release an online version of every one of its applications. Microsoft Online Services takes at least four forms: 1) Office Live Meeting 2007, the latest version of its Internet multimedia conferencing program; 2) Exchange Hosted Services, for email management; 3) Microsoft Exchange Online, a more sophisticated email management system; and 4) Office Live Small Business, a complete set of services designed for small businesses, including free web hosting, a custom domain name, email accounts, e-commerce, and the ability to store and share documents. You can also purchase additional services. Store Manager enables you to sell products directly from your website as well as through eBay. There's a new email marketing capability so you can create newsletter campaigns to connect with your customers. Microsoft also offers a free tool, adManager, that enables you to buy, manage, and optimize keyword purchases on Ask Sponsored Listings network, and MSN and Live Search. It looks like Office Live Small Business will make more inroads into the CRM area to compete with SAP and NetSuite.

Then there's Microsoft Office Live Workspace, where you can store and share Word, Excel, and PowerPoint files (just like you can in Microsoft Live Small Business). But unlike Google, Microsoft isn't giving away Office functionality – you can open from and save documents to the Office Live web server and share files there, but the edits are done using your existing Microsoft Office applications sitting on your hard drive. Unlike Google, you can't work on your documents purely in a browser, *sans* Microsoft Office. Think of it more as a remote disk drive that will survive a local disaster and can be shared with colleagues.

If Google can encroach on Microsoft's Office applications space with impunity, the same can't be said about Microsoft's attempts to unseat Google's supremacy in Internet search, namely, its failed attempt to acquire Yahoo. If Google went after Yahoo, the word "antitrust" would be bandied about. But even if Microsoft had managed to acquire Yahoo, it would still need some pretty extraordinary search intelligence to counter Google's.

Perhaps sometimes it pays to stay in your own backyard.

Correction

In the article, "IP Communications Security" in our May issue, the first sentence of the last paragraph on page 67 says that VirnetX, "works with Cullen Jennings and security working groups at the IETF." That should read, "We are aware of the work being done by Cullen Jennings and the security working groups at the IETF."

We apologize for any confusion this may have caused. **IT**

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

PAETEC: Success Under the Radar

To my knowledge I am the first analyst or reporter ever invited to PAETEC World, the largest of the annual meetings that PAETEC has with its customers. This fact coupled with my desire to learn more about this intriguing company spurred me to jump on a plane to San Francisco to meet with the company's execs, 100 employees and over 350 customers, who gathered in a hotel to learn, exchange ideas and network at evening receptions.

PAETEC wants nothing less than to change the dynamics of the industry. Certainly during the telecom bubble there were hundreds of companies with such lofty dreams. Moreover, PAETEC has never had a press briefing with me or virtually anyone else on the TMC team over the years. (I have met with some company executives in the past of course, but not the traditional phone call and/or meetings about news.)

But despite the company's combination of shyness and ambition, the more I learned about PAETEC the more I began to understand why they have tremendous potential. They've grown every year for the past 10 years. They have already purchased McLeodUSA and USLEC, and they're profitable. They seek acquisitions that fit within their corporate strategy and they only buy companies where there is a likely, solid ROI.

PAETEC wants to be a trusted advisor with unmatched service for business-class data and voice communications. And they want to be the premier alternative to the ILECs for businesses, nationally. Their stated mission is to be the most customer- and employee-oriented communications provider. To that end, they have four corporate values they follow with near-religious zeal: 1) Caring culture, 2) Open communication, 3) Unmatched service and 4) Personalized solutions. If satisfied employees lead to satisfied customers, PAETEC's bigger ambitions might just be within their grasp.

Now, picture a high-energy, entrepreneurial organization with a leader who is proud but humble, sharp as a tack and not afraid to use humor in his management style. I am referring to Arunas Chesonis the Chairman and CEO of the company. He's a fascinating guy.

PAETEC's products focus on data and voice services in addition to reselling PBXs and routers, data center solutions, fixed wireless, a telecom expense management application suite, and Allworx (News - Alert), which makes award-winning IP-PBXs and peripheral products for small to mid-sized companies.

An Amazing Customer Focus

Rarely have I seen such a customer focus at a service provider. There is a relentless pursuit of quality at PAETEC. Customers tell me they are proactively notified if there is a problem and are given refunds if PAETEC makes a mistake. This is in contrast to incumbents who can make you sign complex legal disclaimers even if the mistake is theirs.

PAETEC is rather adept at handling companies they acquire. They wisely kept brands like Allworx and PINNACLE separate so as not to lose name recognition. Nobody at PAETEC is going to kill a successful brand to satisfy a corporate ego. PINNACLE, by the way, was acquired eight years ago and they make the PINNACLE Communication Management Suite, originally known as a telecom expense management (TEM) platform but in fact does much more – it extends into the world of Enterprise Resource Planning (ERP), managing the lifecycle of equipment and services companies utilize. The latest version, V6 has a very slick user interface, a great search utility and a focus on making the design easy to use for people who more or less live in the program. It is also web-based and does not require any browser buttons to operate efficiently. PINNACLE does an superb job of managing telecom and related equipment and services and I was surprised that I hadn't heard more from the company in the past.

And therein was the interesting part of my time with the various PAETEC divisions. The company has the infrastructure and cost management controls in place to expand considerably. They've proven that a below-the-radar company with virtually no well-known brands can succeed thanks to a relentless focus on customer satisfaction that has led to very low churn levels and higher than average customer recommendation levels.

PAETEC's customers say big telcos are still trying to digest disparate provisioning and billing systems and this digestion is adding to their TCO levels. These customers really want more competition. Indeed, many Fortune 500 IT and telecom managers tell me the large carriers have people who want to provide excellent service but internal controls and politics make this impossible. This is why I think PAETEC will succeed in its goal of taking a few more percentage points of market-share from the larger players. Also, expect PAETEC to explore mobility management, business intelligence and more as they expand to other countries.

Will PAETEC actually change the dynamics of an entire industry and make others like Verizon take notice? I wouldn't be surprised. IT

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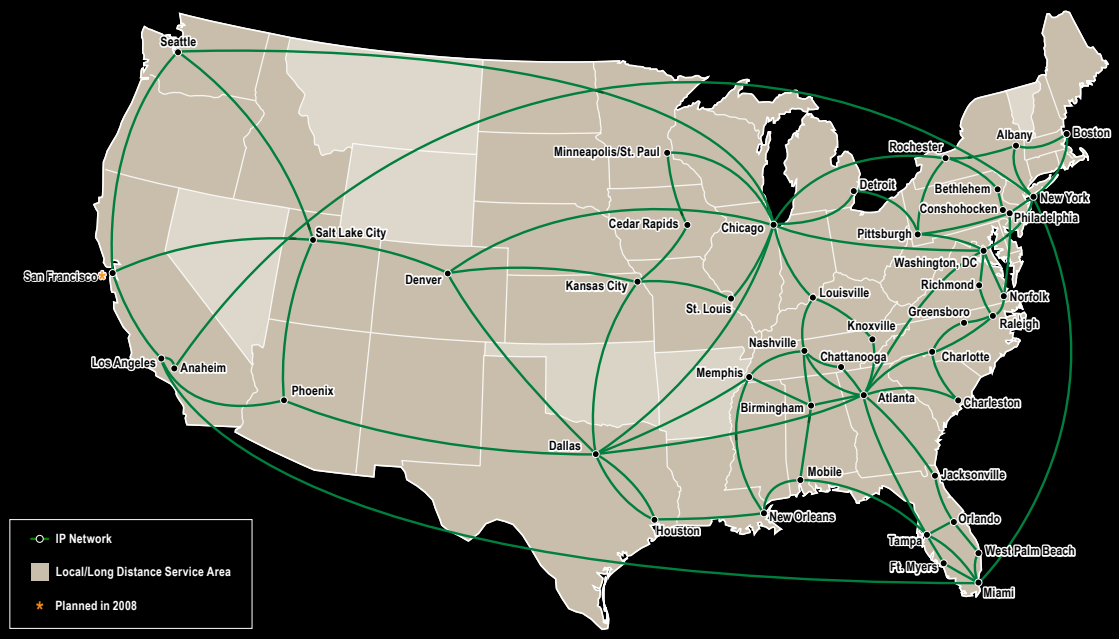

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What's On TMCnet Right Now?

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.

Demand for Hosted Applications Fuels SalesForce.com Growth

Hosted applications continue to get more press as time goes on. Similar to the e-commerce space, this market saw a slew of new entrants during the bubble times and many of these companies subsequently crashed and burned. Obviously, having application service providers (ASPs, remember that term?) drop like flies was not conducive to customer uptake. During hard times, the industry evolved from a time when the term "ASP" was ubiquitous to a situation where venture capitalists actually told companies to not use those banished initials.

www.tmcnet.com/2066.1

100,000 Femtocells in 2008, But the Real Ramp Up Starts in 2010

Although the femtocell holds much promise for carriers of all kinds, 2008 is forecast to remain a fairly low-key year for femtocell vendors, according to new data from ABI Research. Only about 100,000 units are expected to ship in 2008. While 2009 will show the fruits of the more than 20 trials currently underway, but 2010 will be the year when the market moves to double-digit millions in volume.

www.tmcnet.com/2067.1

Sprint, Clearwire Take on Telcos with WiMAX

…the new company will develop a nationwide WiMAX network using Sprint and Clearwire's spectrum assets at 2.5 GHz. Combined, the two companies' spectrum holdings cover most metropolitan and suburban areas of the United States. The new Clearwire could prove to be a significant competitor to the wireless broadband networks planned by incumbent telcos, which, until this announcement, had been the only planned nationwide mobile Internet service offerings.

www.tmcnet.com/2068.1

Is VoIP Recession-proof?

The open source community has been experiencing significant growth, partially due to the lower cost of open source solutions, and partly because of their flexibility. In fact, Sangoma Technologies, which specializes in open source telephony, has enjoyed considerable success as the open source market continues to evolve. Interestingly, despite open source having its roots in the U.S. market, open source is experiencing faster growth in other parts of the world, a trend Sangoma says is slow, yet defined.

www.tmcnet.com/2069.1

AT&T Plans to Boost 3G with 20 Mbps Wireless Access

AT&T says it plans to boost the speed of its 3G wireless network to 20 megabits per second in 2009, as part of its HSPA Release 7. Nobody should be surprised. The upgrade is "mostly" a software update to the network, AT&T Mobility CEO Ralph de la Vega said, and doesn't require drastic radio technology upgrades. "Few, if any, modifications will be needed," de la Vega said. LTE technology early on will provide peak speeds of 100 Mbps, and the roadmap includes potential speeds as high as 1 Gbps.

www.tmcnet.com/2070.1

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.

Selecting a Gateway for your Microsoft Office Communications Server 2007 Deployment

Microsoft Office Communications Server 2007 allows companies to integrate VoIP technology into existing telephony infrastructure, eliminating the need for expensive network overhauls and also extending the useful life of existing investments. The purpose of this white paper is to propose the criteria on which to select a SIP-based gateway appliance to connect Microsoft Office Communications Server 2007 with legacy TDM-based equipment. Topics addressed include: deployment scenarios; lowering the total cost of ownership; ease of use; protocol support; and the benefits of a hybrid gateway.

www.tmcnet.com/2072.1

Managing Application Performance by Understanding Applications

IT organizations are considering application delivery from new perspectives due to the automation of key business processes, and the fact that acceptable application performance is continually becoming more difficult. Three IT managers were interviewed to help identify key issues that make ensuring acceptable application performance difficult and describe how they use WAN emulation tools to improve application performance.

www.tmcnet.com/2073.1

Fixed Service Strategies for Mobile Network Operators

The telecommunications market is in the midst of a significant paradigm shift, with two major trends reinforcing each other: first, the maturity of new technology such as IP communications and Fixed Mobile Convergence (FMC) and second, deregulation, which leads to unbundling of fixed networks, decreases prices on broadband Internet access and stimulates growth of IP telephony services. For Mobile Network Operators (MNOs), this new environment creates some threats but also represents a historic opportunity to expand into fixed services.

www.tmcnet.com/2074.1

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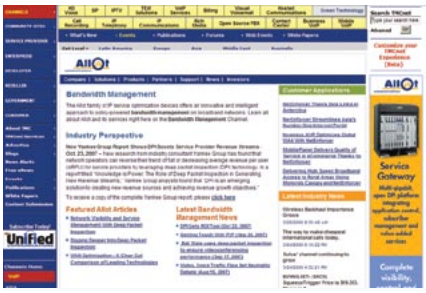

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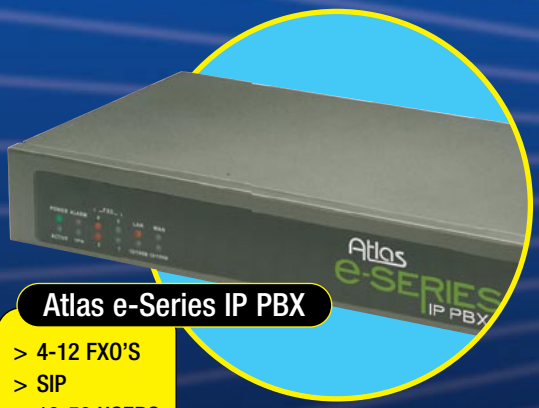

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By: Brough Turner

SIP Trunking — QoS at Its Simplest

Quality of Service (QoS) has been a contentious subject for ages. Even now, next generation network architects are devising sophisticated QoS frameworks in hopes that operators will be able to offer a range of service quality levels at a range of prices and use QoS to support VoIP versions of their bread and butter application — mobile voice telephony. Yet, despite decades of hype, the best-efforts Internet beat all previous approaches and remains a best-efforts network today — no QoS!

Why? The QoS frameworks are too complex. Real requirements for QoS are either non-existent or very simple. Most applications can work around delays and lost packets. For example, streaming video can be encoded to fit within available bandwidth and buffered at the receiving end. The exceptions are telephony and interactive gaming where latency of more than a few hundred milliseconds noticeably degrades the service. So it's worth looking at how IP-PBXs are being connected over the Internet today; i.e., how VoIP QoS is handled in the real world.

The first thing to notice: the only problem is on access links. Once you get beyond the access network, every link in the Internet — local, regional, national or international — is carrying multiplexed traffic from many users. Multiplexing many, many, bursty flows results in relatively predictable volume. Traffic volumes vary by time of day, but these links don't saturate, except as a result of poor engineering or forecasting on the part of an ISP, or failures in other parts of the network causing rerouted traffic. Either case generates a rapid response from any ISP that expects to remain in business. So "best efforts" in the Internet core means sub-millisecond delay variations and near zero lost packets.

LAN administrators know it's easier to throw bandwidth at a problem than establish and manage a sophisticated QoS environment. But with access links, extra bandwidth is typically expensive or unavailable.

Increasingly IP-PBXs are being connected via SIP trunking so it's instructive to see how SIP trunking handles QoS. The first and perhaps still the most common approach is to split VoIP and data traffic on two separate Internet connections, with the VoIP connection sized to preclude any potential congestion.

When access links are shared, the typical solution employs a QoS router at the customer's end. This gives absolute priority to outbound VoIP packets and protects inbound VoIP packets by active traffic shaping; i.e., by signaling remote TCP hosts to throttle inbound TCP data flows so there's enough capacity for inbound VoIP packets.

There are interesting lessons here. Real world QoS requirements are for just two classes, with VoIP bits getting absolute priority over best efforts bits. Very simple! Next generation network architects should take notice. IT

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

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By: Michael Stanford

FMC and Femtocells

We can clarify the femtocell *versus* WiFi Fixed-Mobile Convergence (News - Alert) (FMC) issue by recognizing that carrier/consumer FMC is very different from enterprise FMC.

The primary goal of carrier/consumer FMC is to offload the cellular network and to improve coverage. The primary goal of enterprise FMC is to treat the mobile phone as a combination of enterprise network client like a laptop computer, and PBX (News - Alert) extension phone, allowing the enterprise to maintain control of the phone number and least cost routing.

Femtocell technology doesn't work at all for the enterprise flavor of FMC, which depends on WiFi (News - Alert), but it is well suited to carrier/consumer FMC.

The main carrier technology for FMC is UMA (Unlicensed Mobile Access, also known as GAN for Generic Access Network). UMA uses the Internet as a backhaul and WiFi access points (APs) as miniature cell towers. Substituting femtocells for WiFi APs is a good idea in this context as far as the carrier is concerned. Femtocells help to retain customers not only by improving residential coverage, but because the femtocell is normally tied to a particular carrier. Femtocells benefit customers because they work with any mobile phone, not just dual-mode (WiFi plus cellular) phones, and their spectrum is licensed, so there is less potential for interference. However, Femtocells cost more than WiFi APs and they may require careful installation so they don't interfere with local cell towers.

Carriers have traditionally seen WiFi access by phones as a challenge to their control over services on the phone. This may be changing with the success of the iPhone (News - Alert), the recent commitment by Verizon to allow third party devices on their network and the Google-instigated open access requirement for the recently auctioned 700MHz spectrum. But up to now, the WiFi in UMA phones has been locked for UMA use only, and not usable for LAN data access. So with femtocells you get exactly the same benefits as with a UMA dual-mode phone, but without the additional cost of a WiFi radio in the handset.

So UMA and femtocells make sense in the residential market. But thanks to the iPhone, a strong market force exists for all smart phones to include WiFi radios, and because they are warming to the idea of opening up their networks, the carriers no longer resist this force.

This leads to the interesting appearance of residential gateways from vendors like Netgear that have both femtocells and WiFi built in. Using the femtocell, consumers can benefit from improved coverage on their cellular calls on any phone, but if they happen to have a smart phone with WiFi they can use the WiFi connection for open network access outside their mobile carrier's billing domain. IT

Michael Stanford has been an entrepreneur and strategist in Voice-over-IP for over a decade.

By: Mark Hewitt

What is "Mobile VoIP"?

Mobile VoIP is defined as an extension of mobility to a VoIP network (as described in Wikipedia). Thus, it is a method of expanding the utility of VoIP in our everyday lives and not just a technology.

At the CTIA (Cellular Telephony Industry Association) show in Las Vegas recently, I saw several innovative approaches designed to tackle the power problem with WiFi and WiMAX devices — Broadcom (News - Alert), for example, introduced a system-on-a-chip that reduced the power requirements by 50 percent. This is the single most critical obstacle to the deployment of direct mobile handsets with "Always On" connections required to support a direct SIP client.

It is this "Always On" nature of a future Mobile VoIP product that we are beginning to see in hybrid Cellular phones, and for any of you playing with them it becomes quite clear that battery life cannot keep up with a pure SIP client mobile solution.

We have yet another major issue in North America with the capacity of Internet Bandwidth falling behind the world quickly, while our costs are not declining as rapidly as in many foreign markets. I note in Jim Baller's April 10, 2008 broadband newsletter that Japan's price per Mbps for its highest bandwidth offerings ($0.13/Mbps) is considerably lower than the U.S. ($2.83/Mbps), and that the average download speed in Japan is now 93.7 Mbps, while the U.S. is more than 10 times slower at 8.9 Mbps.

It is for this reason that current practical implementation of a Mobile VoIP solution must remain a "bridge" to broadband networks and operate over existing Cellular infrastructure and in a cooperative fashion with the incumbent providers.

Look out for the WiMAX (News - Alert) 802.16m standard (see http://wirelessman.org/tgm/) to settle the score between networks and devices. I predict the convergence of 3G technology and WiFi to mature into a 4G standard offering 100 Mbps (mobile) and 1 Gbps (fixed) coverage by 2010. I can only hope that this timetable helps explain the "gap" we face until both technology and business models adapt to a very rapidly changing environment. Mobile VoIP is just the beginning — soon expect the "V" in VoIP to also mean Video. IT

Mark Hewitt is Chief Strategic Officer of i2Telecom (News - Alert) International, Inc. For more information, visit them online at www.i2telecom.com.

By: Tony Rybczynski

Identity Management and the Real-Time Virtual Enterprise

We've all heard about identity theft in the consumer environment, but identity management is also a key concern for enterprises.

Traditionally, every application requiring access restrictions implemented its own user authentication scheme. Password format and change rules varied by application, and loose policies defined who could be added to or removed from access lists. IT help desks were inundated by password reset requests.

The role of identity management is to provide a secure and reliable way to establish trust between communicating parties, wherever they may be and however they are connected. Identity, a central concept within identity management, can be defined as a set of claims made by a person or logical entity about itself. Logical entities can be devices, such as servers, PCs and smart phones — virtually any device connected to the network. A claim is an assertion of the truth of something, such as employee ID or username, personally identifying information, knowledge of a password, membership in a group, or a role-based capability.

Identity management integrates Authentication, Authorization, Accounting, Auditing and Administration (the 5 A's of identity management) across user, device, network, service, application and content domains. Authentication securely defines that a user is who he/she claims to be. Authorization grants authenticated users a specific set of network capabilities, and access to specified information and applications. Accounting allows IT to allocate costs across business units. Auditability provides reporting in order to demonstrate regulatory compliance. Finally, Administration provides the ability to manage user profiles.

There are many stakeholders in identity management, which is why the deployment of enterprise-wide identity management is considered a strategic investment by many enterprises. The CEO would see the creation of flexible business networks, communities and federations, with role-based access to services and applications (e.g. for employees, partners or contractors), as a way to achieve improved business effectiveness. The CIO would target increased IT operational effectiveness to serve users better and support business transformation. The CSO would be able to deliver better and finer-grained security across a broader user and application population. The CFO would be able to more easily audit usage and demonstrate compliance with regulations such as Sarbanes Oxley. Application owners could use self-serve capabilities to control who has access to applications and when, even moving away from cumbersome employee lists to role-based access controls.

Enterprises need to address the needs of identity management. This can be done by rolling out end point security mechanisms, authenticating users, ensuring device compliance against the security policy, and providing controls to ensure access only to authorized applications. IT

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

By: Jeff Hudgins

IP Telephony Appliances

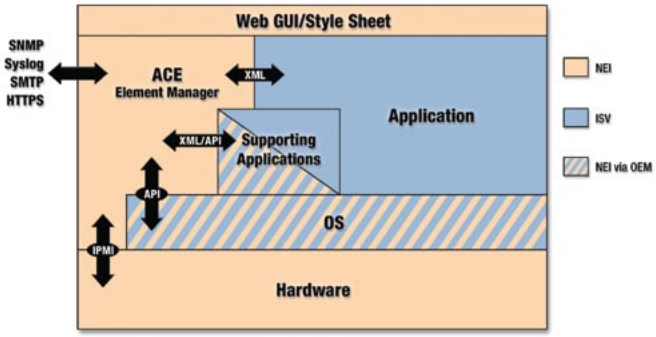
Appliance servers have long been seen as ideal for the security solutions market. Independent Software Vendors (ISVs) competing in the IP telephony space can use the same appliance strategy to reduce the solutions complexity and cost. Appliance servers are typically defined as a network enabled device that is exclusively designed to provide a predefined set of services. For the IP telephony vendor it's an ideal deployment method to increase the number of enterprise customers they can reach.

According to the Gartner (News - Alert) Group, integrated appliances have been around for the past 10 years and provide the benefit of a locked environment. The appliance server is hardened through a tight integration of the application image and the operating system and hardware interfaces (see figure).

The NEI approach to the appliance server is a continuous life cycle of the appliance including deployment, support and maintenance, and upgrades/patch management. The NEI (www.nei.com) ACE element manager can help the telephony ISV by providing three key features.

1. OS hardening that reduces vulnerability
2. Image restore that reduces support incidents and trouble-shooting expense.
3. Alarm notification to proactively notify the ISV or end user of an alarm to maximize uptime.

Final Score. The IP Telephony ISV can significantly expand their markets through the use of appliance servers. By creating a solution that reduces the up front implementation costs and maintenance burden, they create a very compelling deployment strategy. Even vendors who are using a Software as a Service (SaaS) model can still benefit from an on-premise appliance server to reduce latency and increase the level of back-office integration that is required. IT



Source: Gartner

Jeff Hudgins is VP of Engineering at NEI, Inc. For more information, visit the company online at www.NEI.com.

By: Hunter Newby

VoIPeering – The Utility of a Grid: Part IV

Grid computing has been around and debated for long enough for it to have earned the right to be a real and viable function, but what's the benefit of a Grid of people? It's probably safe to assume that people employed to act as processors of information in call centers are engineered to be working and productive 100 percent of the time, but it's unlikely that it happens that way. The main reason why they would be engineered to do so is that they are an expense to the company, but also a key component in the revenue stream, especially if there is a sales element to their daily functions. Therefore, productivity is directly related to keeping costs down, but also driving revenue.

Given that fact, all previous efforts to maximize productivity of call center agents in a physical site have been limited to that site and its direct employees. The methods of improvement have been based largely on the voice and data system in the local site. The focus is on how it handles call flow and time spent on each interaction with reporting tools and tight integration between the voice and data systems that feed the information that drives the session. This approach does not take into consideration other call center sites and agents that may be sitting idle and could potentially take on overflow traffic. That functionality would require some additional steps and expanded focus, but it would drive productivity, cost savings and revenue in a completely new and different way.

The first step in harnessing the power of people as processors is to connect a single company's own centers. A common IP platform based on an Open Source program with a layer 2 network (preferably Ethernet, but clear-channel TDM will work) connecting the different locations is the cleanest and easiest architecture. Imagine Asterisk (News - Alert) for the call center. Behind the server and the standard operating system and application interface would be IP terminals consisting of phones and screens that could seamlessly tie the voice and data systems together. With this model nothing needs to be riding over the Internet which adds inherent security to the network for those organizations that need that level of quality and predictability for their clients.

This way builds better, more scalable systems for a single call center company, but also builds a path to the future interoperability and sharing of resources with other call centers. It is this method that will open up the potential for a grid of call center agents that could manage over flow and specialty services that are targeted for the perfect customer-agent pairings. Creating that capability would increase productivity and revenues in ways never before possible. IT

Hunter Newby (News - Alert) is the Chief Strategy Officer and a Director of a Special Purpose Acquisition Corporation focused on the communications industry. Reach him at hunter@hunternewby.com or visit www.hunternewby.com.

By: Max Schroeder

A Reseller Educational Series
Leveraging Partnerships — The Reseller Key to Hosted Services

Featured Wholesaler: Telovations (News - Alert) (www.telovations.com)

Software-as-a-Service (SaaS) is growing at a tremendous rate. Hosted phone systems, contact centers, email and fax are in great demand. Certainly ease of use and advanced features are prominent reasons for the trend but as Rich Schonbrun of Telovations reminded me during a recent interview, "most clients discover that they save up to 25 percent of their total communications charges when they switch to Telovations."

Many resellers would like to enter this market but the cost of launching a hosted service can be substantial considering that most customers want a regulatory-compliant service with 24x7 access and 99.999 percent reliability.

Fortunately there are alternatives for resellers and Telovations is an excellent example.

Telovations' Real-Time Network™ uses Cisco News - Alert) hardware to power a dedicated managed network that delivers superior voice, video and data services. Telovations product line offers customers turn-key solutions with "one-stop" support for all of their communications needs and has redundant network operations centers in Tampa, Orlando and Colorado. The service is designed for voice communications with unified messaging as a core feature plus includes the last mile connection plus HIPPA and GLBA compliancy.

The service is offered in several packages including Innovate for Business structured for smaller organizations with a need for 5, 10, or 20 lines. All three selections incorporate a very robust feature selection including unlimited local calling, fax to e-mail, auto conferencing, branch office networking, disaster redirect, find me/follow me services plus enhanced call forwarding and call transfer.

For larger organizations, Innovate for Enterprise delivers enhanced phone service to an Enterprise's premise-based phone system (key telephone system or PBX) — while leveraging the inherent advantages of newer IP PBXs and a proven path to move enterprise customers to a SIP trunking solution.

Innovate for Call Centers is an on-demand, hosted service for a small or medium business and includes unified front-end provisioning for administration of agent workforces. The solution can act as a virtual call center if you need to support distributed multi-site operations.

The great news for resellers is that on February 14, 2008, Telovations and Tech Data announced a strategic partnership to extend Telovations' Managed Voice Services to resellers in 16 U.S. markets through a select group of Tech Data business partners. This means that even smaller resellers with limited investment capital can enter the hosted market and offer their customers a selection of robust solutions. IT

Max Schroeder is the Senior Vice President of FaxCore (News - Alert), Inc. (www.faxcore.com).

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Bicsi CORPORATE MEMBER

By: Rich Tehrani & Max Schroeder

Continuity Planning 101 — The "Protection Money" Business Model A Continuing Educational Series

Some "connected guys" are making a pretty good living off of "Protection Money", but we're not referring to organized crime figures. Resellers and service providers are offering business continuity, regulatory compliance and disaster protection to organizations of all types via a combination of hosted IP and customer premise solutions.

Telesphere headquartered in Scottsdale, Arizona (www.telesphere.com) is a provider of Hosted VoIP PBX services and offers a broad set of choices. Their "everything you need — one simple price" options definitely make the selection simple. Telesphere also emphasizes that you're still in business even if you lose power or connectivity at your office. Inbound calls continue to reach the phone and voicemail system and can be redirected to alternate sites or numbers. Although the service offers the convenience and robust features of a central softswitch, their CEO, Clark Peterson, says that "Redundancy is the feature that closes the deal". Telesphere also offers a variety of agent programs featuring Master, Sub-Agent and Referral Agent programs.

Vocal IP Networx, Ltd. (www.vocalipx.com) based in New York, offers a selection of Internet telephony solutions including hosted IP PBX, SIP and IP trunking, MPLS and other WAN services to small and medium business across the United States. Utilizing the latest networking hardware from Polycom, Cisco®/Linksys, GrandStream and Astra combined with the latest release of BroadSoft (News - Alert), the service offers enterprise-level capabilities. Mobile workers will receive office caliber communications including high-quality voice calls, hassle-free fax, laptop-based softphones plus conferencing, voice to email and other high-end features.

Their wide-ranging selection of services includes Vocal IP Hosted, Vocal IP PBX, and Vocal Business IP trunking. Vocal IP Networx is a sister organization to Advanced Technology Group (ATG) and the company leverages that association to provide custom solutions and on-site service support in every state except Alaska and most of the 72 major U.S. markets. The company also has a Business Partner Channel Program so resellers can participate in this market.

For more information on the Disaster Preparedness Communications Forum please go to: www.tmcnet.com/disaster-planning/Default.aspx or contact Max Schroeder at maxschroeder@tmcnet.com. You can also visit the Disaster Planning Pavilion at ITEXPO West 2008 the LA Convention Center (www.tmcnet.com/voip/conference). For exhibitor pavilion information please contact Joe Fabiano at 203-852-6000 jfabiano@tmcnet.com. IT

Max Schroeder (News - Alert) is the Senior Vice President of FaxCore, Inc. (www.faxcore.com) and Managing Director of the DPCF.

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

By: Richard "Zippy" Grigonis

Elma's Ruggedized MicroTCA Chassis Passes MIL Tests

Elma Electronic Inc. (www.elma.com), a global manufacturer of electronic packaging products, has jumped whole-heartedly into the world of the MicroTCA (News - Alert) form factor, the "little brother" of AdvancedTCA (ATCA).

Recently, for example, they've announced a ruggedized MicroTCA chassis designed as an ARINC 404A Full-Size ATR Long Enclosure. Although the MicroTCA.1 and MicroTCA.2 specifications for Rugged MicroTCA™ are still in draft, Elma has gone ahead and is offering the ruggedized MicroTCA ATR for early development/testing until these specifications are finalized.

The unit's modified front panels can be secured to the chassis itself, thus providing protection against shock and vibration. Shock absorbers/dampers can also be added to the enclosure for extra protection. The chassis meets the MIL-STD-810E shock/vibration requirements and MIL-STD-461 for electromagnetic interference. The vibration and shock tests were performed according to the IEC (News - Alert) 61587 1 and VITA 47 standards in six axes (three spatial axes, with the system rotated by 180 degrees for each axis). Elma will send you a 30-page test report upon request.

The backplane holds six AMCs (AdvancedTCA (News - Alert) Mezzanine Cards), one MCH (MicroTCA Carrier Hub), and one power module. Single modules slots in the full size are standard, but other configurations are possible, thanks to the enclosure's modular design. The compression-mount version of the signal connectors are used

Thermal management in this system is done either via convection or conduction-cooling. IT

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

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

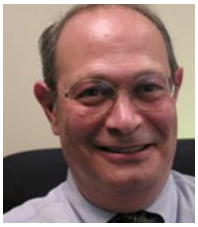
But, one size does NOT fit all! As such, TMCnet has joined together with one of the industry's leading IP communications service providers, 8x8, Inc., originator of Packet8 Internet Phone Service, to educate the business and residential communities on the advantages and efficiencies of VoIP-hosted phone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

VoIP Services For SMB & Residential

voipservices.tmcnet.com

By: David Yedwab

Why Isn't FMC Ubiquitous?



FMC, or Fixed Mobile Convergence, appears like a no-brainer that should have had enormous success immediately — even before it was launched — both for the consumer and business markets. While the concept is simple and the market/user-pull (demand) should be great, implementations across the complex communications network infrastructures and, more importantly, who "owns" the customer and can bill for this convenience, is not so simple.

We certainly are not lacking for candidate solutions. And each candidate solution category generally supports one of the competing categories of providers who want to "own" the FMC customer. Some support the mobile/cellular operator by extending the cellular network into the home or business environment and keeping "calls" on the mobile network, even if the traffic partially travels on a wired broadband pipe. Some support the wireline carrier by attempting to drive all traffic (especially expensive international mobile calls) onto the enterprise wireline network. Some support the enterprise communications environment by extending the "PBX" features to the mobile device (cellular or WiFi or dual-mode) allowing the user to determine how and where to extend his or her work space.

So, why isn't FMC ubiquitous? Available everywhere and at an affordable price to both consumer and business users — and as we change roles during the day — many potential-FMC users act in both consumer and business user roles.

Let's start with the consumer space, which should be simple, but certainly is not. Mobile operators continue to capture more consumers — by displacing wireline phones. And, now, with some FMC variants, wireless operators can extend cellular service into the home, perhaps further displacing the wireline phone. However, this often requires a wireline broadband connection to the home to "backhaul" the femto/nano-cell traffic to the cellular network. So the mobile operator benefits in two ways — keeping the minutes on the mobile network and getting the backhaul traffic off the mobile network, thereby lowering the mobile operator's need to build further expensive wireless infrastructure. But the consumer still has to maintain a broadband connection — either from a telephone or cable company. Few telcos offer "Naked DSL" — a broadband connection without an associated telephone service. If from a cable company, customers likely require a minimum cable-TV service to receive cable-modem broadband. So, how does the user benefit? Note how we haven't even included WiFi/Cellular dual-mode phones into this discussion, yet. And the enterprise confusion is even more complicated.

My conclusion is, as with many of these questions, that technology is not the issue — the critical issues needing to be solved are business model issues — who benefits and who needs to invest to support the solution. If there isn't a match, the take-up is likely to be much slower than if there is a match. IT

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By: William B. Wilhelm, Jr.

Cities to VoIP Customers — Can you Spare a Buck or Two?

It seems that everyone is strapped for cash these days. Cities are apparently no different. Turning a blind eye to the benefits VoIP, the United States District Court for the District of Maryland ordered a VoIP provider to pay the City of Baltimore's "Telecommunications Tax" for those customers with fixed billing addresses in the City. Ignoring the nomadic nature of VoIP, the court rejected arguments that the court lacked jurisdiction, and that the City's excise tax was an impermissible tax on intangible personal property.

Under the City's Telecommunications tax: "A tax is levied and imposed on each person who leases, licenses, or sells a telecommunications line to any customer: (1) for wired service, whose billing address or fixed service address is in the City; or (2) for wireless service, whose place of primary use is in the City."

The City argued that VoIP is subject to the tax because it "resells" telecom lines at "retail" that were purchased "wholesale" from third-party carriers, and that the City's tax code makes no distinction between companies that physically construct their own networks and those that provide a combination of their own components with wholesale components from third-party carriers. The City also argued that several characteristics of VoIP are similar to traditional telephone providers including the fact that IP-PSTN calls rely on the partly copper portions of the network.

In reaching its decision, the court noted that "[t]he issue is an extremely close one." However, it found the City's position to be more persuasive and ordered the VoIP provider to pay the City's Telecommunications Tax. In so ruling, the court cited the D.C. Circuit's decision to uphold the FCC's broad interpretation of the phrase "provider of interstate telecommunications," concluding that the FCC has statutory authority under the federal Telecommunications Act of 1996 to require VoIP providers to make Universal Service Fund contributions. The court noted the FCC's determination that VoIP does in fact include telecommunications as a component, analogous to the City's argument that VoIP includes "telecommunications lines" as a component of its integrated VoIP product because every call that a VoIP subscriber makes to or receives from the PSTN must travel over a wired or wireless connection. The court also noted that although third-party carriers provide the wired connection to the VoIP provider, it is the provider, not these carriers, which provides this connection to the provider's customers. Finally, the Court rejected the argument that collection of the Telecommunications Tax from would constitute an unfair "double tax." order.

The probability of an appeal as well as the impact of this decision on the conduct of other jurisdictions remains uncertain. IT

William B. (News - Alert) Wilhelm is a partner in the law firm of Bingham McCutchen LLP (www.bingham.com). The preceding represents the views of the author and does not necessarily represent the views of Bingham McCutchen LLP or its clients.

WiMAX, LTE, MIDs: Related Developments

By: Gary Kim

Both Xohm and AT&T executives are singing from a single hymnal on one point: fourth-generation networks are not primarily about phones or voice services. Instead, fourth-generation networks, irrespective of technology, are about new applications and devices.

Mobile Internet Devices, a new category of mobile appliance, eventually will represent annual sales of 69 million units exceeding $17 billion by 2014, say analysts at Strategy Analytics. So watch developments by Intel (News - Alert), Qualcomm, ARM, AMD, TI, and Via, all of which are fighting for the allegiance of consumer device vendors.

A noteworthy development: Apple (News - Alert) is buying a boutique microprocessor design company called P.A. Semi.

The company is known for its design of sophisticated, low-power chips. Apple won't say why it wants the firm's capabilities, but observers speculate that Apple wants to preserve an edge for its iPhone and other devices.

Interfaces can be copied. By owning its own processing capability, Apple might hope it can avoid relying too much on "commodity" processors that all of its competitors will have access to.

MIDs generally are said to have screen diagonals of between 4" and 6"and are intended to bridge the gap between web-browsing mobile phones the smaller portable computers. MIDs generally are considered to have WiFi, Bluetooth as well as mobile network connections. Touchscreens generally are considered MID features as well.

The two ecosystems Strategy Analytics (News - Alert) researchers say are battling for control of the MID processor market are Intel, AMD, and Via representing the PC industry, and ARM-based systems from TI, Qualcomm (News - Alert) and others, representing mobile device vendors.

Strategy Analytics think the x86 ecosystem will emerge by the end of 2009 or early 2010, in an x86 format that unfortunately will prove to be too expensive to get much traction.

Strategy Analytics believes that the proven advantages of the ARM ecosystem in mobile devices will eventually outweigh those of the Intel platform and we expect ARM (News - Alert) devices to comprise the majority of MID shipments over the forecast period.

Global sales in 2008 are predicted to reach one million units, and will grow at an average annual rate of 102 percent to reach 69.1 million units by 2014.

The point here is that MIDs and machine-to-machine applications probably are key to the ultimate financial success of fourth-generation wireless networks. IT

Leveraging Carrier Ethernet

By: Bob Emmerson

Those performance parameters are on the cards, courtesy of Carrier Ethernet and Optical Burst Switching, but let's back off and look at future network requirements. Traffic over IP networks is set to rise between 25- and 100-fold in around six years. Nobody knows the exact figure but it's going to be huge. By that time around 5 billion people will have access to the Net and most of the predicted increase will come from the emerging markets, where average revenues per user (ARPUs) are going to be very low. That means that the 5 billion figure can only be realized if operating costs can be slashed dramatically.

Carrier Ethernet (CE) comes into play because it has five key attributes: (1) no need to change LAN equipment, (2) scales to millions of users and bandwidths go from 1 to 10 Gbps, (3) fast recovery times, (4) SLAs with high QoS, and (5) ability to monitor, diagnose and centrally manage the network. Moreover, unlike IP, connection-oriented layer 2 Ethernet transport can support the low latency requirements of voice and video traffic. The ability to extend LANs over the WAN is the key application. It enables the creation of a "transparent LAN" that connects all enterprise locations, i.e. they appear as a single physical site. Latency and jitter are low because traffic is transported, not routed. This means that CE support applications whose bandwidth requirements are variable and unpredictable.

So far so good, but it gets better. Ethernet goes to 10 Gbps: going further as required the deployment of complex and expensive DWDM (Dense Wavelength Division Multiplexing), which is combining and transmitting multiple signals simultaneously at different wavelengths on the same fiber. The key issue is how to leverage the benefits of packet switching and obtain the bandwidth of DWDM optics while cutting capital and operation expenses.

Matisse Networks (News - Alert) (www.matissenetworks.com) says the answer is EtherBurst technology and the architecture it enables. There is an excellent white paper at their website that explains how it works and the paper is not heavy techie. As the name implies, the technology sends and receives 10 Gbps bursts of data over different wavelengths. The architecture is based on optical burst transponders that communicate directly with all destinations. There is no need for dedicated circuit transponders at the ends of every single communication path and this results in a simple ring network that is managed as a single layer 2 switch.

The use of different wavelengths allows networks to scale to 640 Gbps and there is virtually no jitter or latency. The latter figure is 75 microseconds plus 5 microseconds per kilometer. Networks using EtherBurst technology are on trial in the U.S. and Europe. IT

Accelerating Device Testing to Much Fanfare

By: Greg Galitzine

Fanfare (News - Alert) came to Interop looking for an audience made primarily of the vendors they would be sharing the aisles with. And with a customer list that features some of the bigger names in our space, who could blame them.

Shameless name dropper that I am, here are just a few of Fanfare's customers: Fujitsu, Cisco, AT&T, Juniper, Tellabs, BT, Alcatel-Lucent, Dell, Motorola (News - Alert), Vyatta, NTT, and more, totaling between 60 and 70 customers.

Not too shabby for a company that was founded just four years ago.

So what do they do, you ask?

Well, I asked David Gehringer, vice president of marketing for the Mountain View-based firm.

Fanfare provides software solutions designed to allow equipment manufacturers and carriers simplify and accelerate device testing, which enables these constituents to build and run tests, track results against various metrics, and automatically generate documentation that can be easily shared.

In essence the company produces software that is designed to simplify complex device testing, and lessen time to market for their customers.

According to Gehringer, approximately 70 percent of testing is manual today, with developers manually writing out a test plan, running the test manually, manually writing up reports, and the like. The remaining 30 percent of tests are scripted, oftentimes based on older languages such as PERL whereby testers, try to script out manual sequences to help automate and repeat their tests.

But with complexity going through the roof, manual tests and scripted tests are simply not up to the scaling being demanded by carriers. Carriers want better tests, to better prequalify devices for running on their networks.

The dirty little secret is that carriers often buy a new device for their networks, and then spend six months RE-testing it for validation, and only then does the new device go into an acceptance tank, sometimes for up to four more months of manual testing.

Fanfare traps and records the manual testing, in non scripting language, for reuse afterwards.

Fanfare helps developer to automate tests, and — as importantly — to share and proliferate these automated tests to everyone in the chain. So let's say there is a U.S. based vendor, with product management in the U.K., and an Indian testing facility. Fanfare captures all the pertinent information and quickly and efficiently enables a very precise communication, which in turn helps to accelerate the ability to test successfully, resulting in a shorter time to market.

In fact Gehringer boasted to me of a carrier that is saving 12 man years of development and testing time simply by deploying the Fanfare solution. As the carrier told him, each new device has about 400 defects, some worse, some not so bad. But on average, each defect can cost up to two and a half days to reproduce, to understand it and for developers to remedy it. With two major releases per year and two equipment manufacturers in the carrier's lab that amounts to 12 man years of testing saved.

Currently Fanfare is enjoying a period of growth and increasing customer demand. But that doesn't mean they are resting on their laurels. With the threat of competition looming, from established testing vendors as well as new entrants, Gehringer told me they will continue to release newer and more powerful versions of the product in the weeks and months ahead. IT

www.tmcnet.com/2021.1

SAP and RIM Usher In a New Era for Enterprise Mobility

SAP AG and Research In Motion (RIM) announced a co-innovation designed to change the way people work, by enabling anytime, anywhere mobile access to SAP enterprise applications through the BlackBerry (News - Alert) platform. The first output expected from this new partnership is a native BlackBerry smartphone client that will merge the power of the SAP CRM application with core BlackBerry smartphone applications, including the BlackBerry Email, Address Book and Calendar applications, to deliver an indispensable tool for sales people.

www.sap.com

www.rim.com

www.tmcnet.com/2022.1

HearMe (News - Alert) Releases Version 3.0

HearMe has announced an upgrade to its current offerings with the release of HearMe Version 3.0. The latest version includes the ability to present prerecorded videos, an improved layout and user interface and enhanced audio quality. HearMe Version 3.0 includes: Video Library, which allows meeting presenters to upload and broadcast prerecorded videos or movies to all room participants; Enhanced Presentation Mode; and document sharing capabilities that allow a presenter to have more control and flexibility over the content.

www.tmcnet.com/2023.1

Nortel Government Solutions (News - Alert) Secures Unified Communications for Government

Nortel Government Solutions has introduced a new unified communications platform designed specifically to meet the stringent security and service assurance requirements of the U.S. Department of Defense (DoD) and other agencies of the U.S. Federal Government. Based on Nortel's new Applications Server 5300, the unified communications solution can enhance productivity and speed decision-making by integrating voice, instant messaging, multimedia conferencing and presence services to reduce delays in connecting people and information.

www.nortel.com

www.tmcnet.com/2020.1

CuPhone Announces Echo Free Phone Adaptor for VoIP

CuPhone has introduced an "Echo Free" USB-to-Phone Adaptor for VoIP. When plugged into the USB port of a PC, the small adaptor is designed to allow the user to plug his regular phone into the RJ11 port on the adaptor to make and receive either Skype (News - Alert) or normal landline "echo free" calls. The "Echo Free" Phone adaptor is based on TigerJet Network's single chip VoIP solution, the Tiger580, which has built-in Echo Cancellation hardware, SLIC/Phone interface and a 16-bit audio codec.

www.cuphone.com

www.tmcnet.com/2024.1

Report: 8 million U.S. Workers to Use VoIP by 2012

Acording to Pike & Fischer's Broadband Advisory Services, nearly 8 million U.S. workers will use IP telephony lines by the end of 2012, according to new projections from a business publishing company. An indication of the increasingly popular technology's reach, the figure will eclipse 5 million by the end of 2010. According to the report, more and more businesses are attracted to VoIP because it saves time and money.

www.pf.com

www.tmcnet.com/2026.1

BT and Siemens (News - Alert) to Deliver One-Stop Converged Communications Solution

BT and Siemens Enterprise Communications have entered into a global sales agreement to offer a converged communications solution for large multinational enterprises. The solution aims at helping large MNC reduce costs, remove complexity and risk, improve collaboration and enhance business processes, by leveraging existing investments in currently separate voice and data infrastructures and offering a transition path to a centrally managed IP-based communications platform.

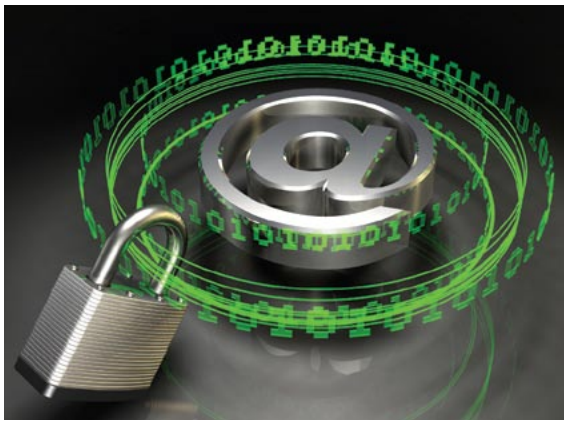
www.bt.com

www.enterprise-communications.siemens.com

www.tmcnet.com/2025.1

WhiteHat and Breach Security Offer Powerful Web Application Security (News - Alert)

WhiteHat Security and Breach Security have partnered to offer a solution for more comprehensive Web site security. Available immediately, the solution combines WhiteHat's intelligent web application vulnerability assessment technology



with Breach Security's automated, real-time protection against application-level threats. The companies have announced that current ModSecurity customers that also subscribe to WhiteHat Sentinel will receive the integration free-of-charge.

www.whitehatsec.com

www.breach.com

www.tmcnet.com/2027.1

MERA Systems (News - Alert) Rolls out New VoIP Softswitch

MERA Systems has launched MERA VoIP Transit Softstwitch Pro (MVTS Pro). The solution is a next generation Class 4 softswitch with session border controller functionality. The MVTS Pro includes collection, switching and transcoding of VoIP traffic, management of signaling and media data streams and border access control.

www.mera-systems.com

www.tmcnet.com/2030.1

Foundry Launches New Modules

Foundry Networks (News - Alert) has announced a pair of high-density interface modules to its data center switching and routing product lines, the BigIron RX Series switches and the NetIron MLX Series routers. The new modules will reportedly allow the BigIron RX Series switches and the NetIron MLX Series routers to deliver the industry's highest 10 gigabit Ethernet (10GbE) and gigabit Ethernet (GbE) density of up to 512 ports of 10GbE and 1,536 ports of GbE in a single system. The news of the new modules came on the heels of Foundry's announcement of a new vision for advancing the data center based upon four key pillars: performance, virtualization, convergence and efficiency.

www.foundrynet.com

www.tmcnet.com/2028.1

XO Communications Solution Bundles Mobility and Unified Communications (News - Alert) Features for Mobile Workforce

XO Communications has launched XO Anywhere — a new service designed to help improve worker productivity with mobility and unified communications features. The service enables employees to turn any phone into their XO office phone, providing an ideal solution for companies with mobile and distributed workforces.

www.xo.com

www.tmcnet.com/2029.1

BT (News - Alert) to Launch Managed Telepresence

BT recently demonstrated inter-company telepresence connectivity at the Cisco Expo 2008 in Berlin, Germany. The demonstration showed BT's ability to deploy the Cisco telepresence capability as a service allowing communications between enterprises. Up to this point many videoconferencing systems, not to mention high-end telepresence systems, have been able to enable communication within a single deploying enterprise, but not always between different enterprises. BT expects to have the service available to customers by September 2008.

www.bt.com

www.cisco.com

www.tmcnet.com/2032.1

IP Infusion (News - Alert) Successfully Integrates ZebOS with Media Global Links' MD 10000 IP Video Router

IP Infusion has announced the successful integration of its ZebOS Advanced Routing Suite with Media Global Links' MD 10000 IP Video Router. This integration will provide Layer 2 switching for a first-of-its-kind video routing solution to be installed at Fuji TV's new network operations center in Tokyo, Japan. This new center will make Fuji TV the world's first television station to deploy a fully IP-based internal and external video routing solution.

www.ipinfusion.com

www.medialinks.com

www.tmcnet.com/2031.1

March Networks and Sun Microsystems Offer IP Video Surveillance Solutions

March Networks, a provider of intelligent IP video and business analysis applications, has announced that it entered into a collaboration agreement with Sun Microsystems to market scalable, end-to-end IP video surveillance solutions to enterprises in North America. The solutions will include intelligent video management software and systems from March Networks VideoSphere portfolio along with Sun Fire x64 servers. These allow organizations to deploy surveillance applications like video analytics besides managing the convergence of IP video technologies with optimum IT infrastructure.

www.marchnetworks.com

www.sun.com

www.tmcnet.com/2033.1

VTN Implements First Cisco TelePresence Systems in Vietnam

Vietnam National Telecoms (VTN) has brought Cisco TelePresence to the country for the first time and is showcasing it in two new information and communications technology demonstration centers, which the national service provider has established in Hanoi and Hochihminh City. The Cisco TelePresence systems are among a range of advanced communications technologies that will be showcased in the two centers. The Cisco solutions are designed to enable staff and visitors at each location to participate in face-to-face meetings across a virtual table, using life-size, ultra-high-definition 1080p video.

www.cisco.com

www.tmcnet.com/2035.1

NMS Communications Brings Mobile TV to the Philippines

The Philippines' second-largest mobile operator, Glob Telecom, is offering its subscribers Mobile TV programming (live and/or made-for-mobile TV) on 3G wireless phones, a service built on NMS Communications' technology. Globe Telecom subscribers can now use their 3G capable phones to make a video call to a dial-in number and initiate their mobile TV activities. Subscribers have six channels to choose from where they can watch live feeds of CNN, three local broadcast television channels, sporting events, as well as made-for-mobile looped videos of news, cartoons and entertainment content.

www.nmss.com
www.globe.com.ph

www.tmcnet.com/2036.1

3G Mobile Phone Hits the Market

An international mobile device maker has announced the launch of a new touch-screen cell phone that can run Microsoft Windows Mobile 6.1. HTC's so-called "Touch Diamond" is among the first third-generation, or "3G," mobile telecommunications devices of its kind, according to the company's CEO, Peter Chou. The new phone includes a 2.8-inch screen and 640-by-480-pixel displayas well as a more appropriate Web browser for the size of the screen and will accommodate users who want to use the Internet for popular uses such as Google searches, YouTube videos and MapQuest navigation.

www.htc.com

www.tmcnet.com/2040.1

Tektronix (News - Alert) and LitePoint Offer Collaborative Solution for LTE Product Development

Tektronix and LitePoint Corporation have developed a collaborative solution for Long Term Evolution (LTE) product development. LitePoint's RSALTE software has been designed to run on Tektronix RSA3000A/B and RSA6100A real-time spectrum analyzers, and offer 3.9G compliance support for designers of UMTS LTE systems. The software enables customers to analyze the latest LTE signals with both our mid-range and high-performance RTSAs.

www.tektronix.com
www.litepoint.com

www.tmcnet.com/2037.1

Headset Makers Jump As States Ban Handheld Phone Use For Drivers

Seizing on a chance to sell hands-free devices as two West Coast states adopt laws for drivers, a headset manufacturer today launched a Web site designed to steer residents toward a suitable product. As of July 1, California and Washington's two state legislators will enact laws preventing cell phone use while operating motor vehicles. As that date approaches, Plantronics (News - Alert) is encouraging drivers to buy a headset from them. California and Washington follow a handful of states that are passing laws designed to prevent accidents by allowing drivers to use all their limbs when operating a car. The laws reflect the nation's rapidly growing market for handheld telecommunications devices. More states are expected to follow.

www.plantronics.com

www.tmcnet.com/2039.1

Atheros (News - Alert) Adds to Chip Family with GPS Combo for Mobile Devices

Atheros Communications announced the launch of a new addition to its Radio-on-Chip for Mobile (ROCm) family of GPS solutions. This will be a hardware and software GPS combination suitable for mobile phones, personal navigation devices (PNDs) and personal media players (PMPs). The new solution includes a second-generation, single-chip GPS receiver, the AR1511, and a companion ORION 3.0 software suite.

www.atheros.com

www.tmcnet.com/2038.1

TellMe Provides Voice Recognition Search Feature for BlackBerry

Tellme®
A Microsoft® Subsidiary

TellMe, a Microsoft subsidiary, has decided to provide BlackBerry mobile users with a voice recognition feature for searching functions specifically focused on finding local services such as a restaurant, movie or other business listing as well as traffic and weather conditions and driving directions. The 'Just Say it, See it' feature will enable users who have TellMe on their mobile devices to simply speak searches. For example BlackBerry users can just say 'Coffee' and find the nearest businesses based on their GPS location and also get maps, directions, and traffic information right into their screen.

www.tellme.com

www.tmcnet.com/2034.1

M3 Wireless Standardizes on DragonWave for Voice and Data Backhaul

Global supplier of next-generation wireless networks DragonWave recently announced M3 Wireless is converging its WiMAX data and GSM voice services for business and residential customers on a DragonWave IP backhaul solution. DragonWave's AirPair product interlinks 27 sites across M3's meshed Ethernet network spanning Bermuda.

www.dragonwaveinc.com

DEVELOPER

www.tmcnet.com/2041.1

Octasic's (News - Alert) Vocallo Multi-Core Media Gateway DSP Leading with Innovation

Octasic's Vocallo Multi-Core Media Gateway DSP solution has been getting a lot of attention in the multi-core processor for voice, video and data over IP space of late. The multi-core processor for voice, video and data over IP enables a new business model and offers optimal pricing flexibility for media gateways in enterprise and converged fixed-mobile carrier networks. Among the specific features, capacity and I/Os are designed to meet user specifications, with the ability to add software in the Vocallo framework to set products apart with unique features.

www.octasic.com

www.tmcnet.com/2042.1

BroadSoft Announces Carrier-Grade Voice Mashups Program

BroadSoft has launched the BroadSoft Xtended Developers Program designed to allow software developers to integrate BroadSoft's carrier-grade voice applications with unified communications solutions and leading web-based business and consumer applications such as Facebook and Salesforce.com (News - Alert). The BroadSoft Xtended Developers Program provides an application development portal that houses application programming interfaces (APIs), sample code and documentation, along with social networking features such as forums and blogs to facilitate interaction within the Xtended developers community.

www.broadsoft.com

SIP

www.tmcnet.com/2043.1

Companies Turning to Genesys (News - Alert) SIP Implementations in Droves

Genesys Telecommunications Laboratories announced at its G-Force event that it has successfully reached more than 100 major enterprise customers that have begun SIP implementations using its customer service software. This milestone for Genesys is proof that a key IP telephony standard is quickly gaining momentum. Enterprises are swiftly moving to leverage the SIP standard in their contact centers. As a result, the demand for Genesys solutions is quickly growing.

www.genesyslab.com

CHANNEL

www.tmcnet.com/2044.1

Communicado and Logix Group Sign Pan-European Distribution Agreement

Communicado, formerly known as SyncVoice Communications, announced a pan-European distribution deal with Logix Group to offer the new Communicado Streamline Management as a Service Platform that equips VARs and MSPs to remotely manage customers converged communication networks supporting real-time person-to-person communications. Under the terms of the deal, Logix will promote Streamline through its network of resellers to help businesses adopt converged communication's mobility benefits without the associated risks and management pain.

www.communicado-inc.com

www.tmcnet.com/2045.1

ADTRAN (News - Alert) Announces New Opportunities for SMB Resellers

ADTRAN announced it has enhanced its ADTRAN ADvantage Partner Program in a bid to strengthen relationships with mid-tier ADvantage partners. The enhancements are expected to help partners benefit from access to additional product lines, increased revenue incentives and certification training programs for ADTRAN's family of NetVanta routers, switches and IP Telephony (IPT) solutions.

www.adtran.com

IP CONTACT CENTER

www.tmcnet.com/2046.1

SugarCRM Delivers Enhanced Enterprise Reporting and Wireless Features

Open source CRM provider, SugarCRM, has announced the beta release of new reporting and wireless capabilities for SugarCRM. For SugarCRM users, this means more insight into sales effectiveness and customer behavior and with new wireless capabilities, a feature-rich SugarCRM user experience on mobile phones, including BlackBerry and iPhone mobile handsets. As part of the new enhancements, SugarCRM has said it also "strengthened data import features, enhanced the ability to create custom objects and modules with Sugar Module Builder, and introduced new tracking functionality which allows SugarCRM administrators to get a better view into system usage and performance."

www.tmcnet.com/2047.1

WPM Market Expected to Reach $2.5 Billion by 2012

The market for workforce performance management, while still maturing, has a bright future, according to the latest forecast from market intelligence provider IDC. The research firm notes that the workforce performance management (WPM) software and services market is expected to reach $2.55 billion by 2012, increasing at a compound annual growth rate (CAGR) of 10.1 percent.

www.tmcnet.com/2048.1

CRM's Salesforce.com Certifies Hot Banana for AppEx

Lyris has announced that Hot Banana Software, a web content management product that's part of the Lyris HQ integrated marketing platform, has been certified on Salesforce.com's AppExchange enabling customers to deploy Hot Banana via the AppExchange to build multi-level web forms with CAPTCHA validation on basic Web pages or on advanced landing pages. The product can also be used to set up web analytics, lead source, and conversion tracking and transfer the captured lead-generation data from the Web form to Salesforce.

www.salesforce.com
www.hotbanana.com

Each NEWS snippet is more in-depth on our web site.
Point your browser to the URL above the story you wish to read.

www.tmcnet.com/2049.1

Mobile Management Helps Organizations Save Time and Money

Organizations looking for ways to both embrace mobile communications and keep expenses under control can choose among several different management models. Some of these work better than others. In a white paper, Mobile Management Models, telecom expense management solutions company Amtel (News - Alert) outlined some of the most frequently employed techniques for keeping track of wireless expenses, and outlined the pros and cons of each.

www.amtelnet.com

www.tmcnet.com/2050.1

Business Leaders Stress Growing Need For Telecom Expense Management

Saying the ability to track information technology expenses can save time, money and aggravation, the head of a Rutherford, New Jersey-based company is touting a new inventory system designed to solve problems faced by many large corporations. With Control Point Solutions Inc.'s Telecom Inventory Services, companies can unearth and separate the often muddled and elusive costs of internal telecommunications services.

www.controlpointsolutions.com

www.tmcnet.com/2051.1

ETeleSolv Enhances TEM Capabilities with New TeleManager Release

To help businesses further assess and manage their telecom spend, telecom management and Web services company ETeleSolv announced the launch of version 2.1 of its TeleManager, a telecom resource management application. TeleManager offers additional features that provide enterprises with better financial control over wireless and internal chargeback. Some of the new features include manual invoice capture, cellular optimization with number portability, a more flexible chargeback module, and a detailed invoice/contract reconciliation upgrade.

www.etelesolv.com

www.tmcnet.com/2052.1

Tangoe (News - Alert) Partners with Avalon to Support Wireless TEM Initiative

Tangoe has announced a new partnership with mobile computing and communications provider Avalon Technology to offer support for wireless TEM services within the federal government. Avalon Technology recently won a Federal Strategic Sourcing Initiative (FSSI) Telecommunications Expense Management (TEM) contract along with three other companies to offer support for mobile TEM initiatives within federal agencies. By partnering with Avalon, Tangoe is able to help provide government agencies with full visibility over the mobile enterprise.

www.tangoe.com
www.avalontechnology.com

www.tmcnet.com/2053.1

Averox Announces Enhancement Plan for Provisus

Averox plc, a wholly owned subsidiary of Averox Inc., has announced plans for major enhancements to its licensed Provisus provisioning and activation solutions portfolio to support the provisioning and activation of next generation services mainly based on Internet Protocol (IP) and in particular, support for IPTV. "These further enhancements will enable communication service providers to quickly deploy revenue generating next generation services. We believe IPTV is a major part of next generation services," Salman Mahmood, President and CEO of Averox Inc. said.

www.averox.com

www.tmcnet.com/2054.1

Avotus Intros Adaptive Communications Model

Avotus Corporation has announced a first-in-market model, dubbed Avotus Adaptive Communications. This model aims to provide clients strategic leverage of their communications infrastructure. According to Avotus' officials, the model's strategic set of services are Communications Assessment capabilities, Advisory Services, Managed Services, and Outsourcing Services.

www.avotus.com

www.tmcnet.com/2055.1

Ruckus Wireless Implements Arena PLM

Ruckus Wireless has implemented on-demand Arena PLM (product lifecycle management) after evaluating other competitive PLM applications. With this implementation, Ruckus Wireless will look to accelerate its efforts to speed products to market, innovate quickly, manage costs, maximize efficiency and meet quality and regulatory compliance requirements. With this agreement, it will be easier for Ruckus to efficiently and accurately document its activities for compliance.

www.arenasolutions.com
www.ruckuswireless.com

Introducing the Global
IVR Community

Evolving standards and speech technologies are driving the business case for companies to deploy new speech applications to create additional revenue streams, increase customer satisfaction, and trim costs. Voxeo's IVR Global Online Community on TMCnet is the industry destination for tools, information, and resources for building and deploying enhanced IVR and VoIP applications.

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- **Free developer tools**
- **VoiceXML, CCXML and SIP Standards**

http://ivr.tmcnet.com

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Special Focus: It's a Service Provider World

By: Richard "Zippy" Grigonis

There's no reason for smaller businesses to be stuck with cheap knock-offs of the kinds of advanced communications systems found in major enterprises. Service providers can now offer a wide range of high quality technologies and applications delivered as a service to SMBs. Services can either be completely hosted or "managed" in that the hardware is on premise but it is being taken care of by the provider. Service providers have always had a powerful economic argument going for them and many businesses now realize that they can partake of today's VoIP and unified communications revolutions without any "fuss or muss". Outside of the business world, inexpensive broadband has enabled service providers to bring exciting triple and quad play service bundles to homes everywhere. Truly, the Era of the Service Provider is upon us.

If the average business has heard anything about VoIP at all, it's that they can somehow save money. In the case of the provider Lingo, for example, it offers three plans for small businesses, costing $39.95, $49.95 and $79.95 per month, respectively, plus over 20 calling features including voicemail, call forwarding, *69, and three-way calling. You keep your current phone number, and the included Office Assistant enables you to easily manage Lingo calling features directly from Microsoft Outlook and Internet Explorer.

But providers are also increasingly fulfilling this "cheap VoIP" idea via SIP (Session Initiation Protocol (News - Alert)) Trunking, which converges voice and data onto one pipe. Enterprises with an IP PBX can now communicate not just internally over the LAN but outside the enterprise a SIP trunk provided by a carrier functioning as an ITSP (Internet Telephony (News - Alert) Service Provider) either directly to the IP interface of another company's PBX or else via the provider's gateway to the traditional PSTN. Old ISDN PRI service gives you 23 lines (timeslots) whether you want them all or not. With SIP trunking, you can buy however much bandwidth that you need, and it's dynamically allocated.

For example, in the case of a Broadvox GO! SIP Trunking line, a call can travel most of its path over the Broadvox network instead of the PSTN, then it drops back down to the destination at the last mile. Traditional local and long distance charges decrease dramatically because the call travels mostly over the IP network and not the PSTN. Broadvox says that pricing for SIP Trunking is typically 40 to 70 percent below what legacy telcos can offer, and owning and maintaining a PSTN gateway is no longer your problem.

Services Galore

Many businesses don't realize the number of applications now available to them that can be delivered as a service. Some businesses use 8x8's popular and innovative Packet8 offerings, such as their hosted Packet8 Complete Contact Center (delivered as a Software-as-a-Service, or SaaS), and the Packet8 Virtual Office Interface for Salesforce, a downloadable software client application for users that subscribe to both Salesforce and Packet8 Virtual Office. It enables you to make, receive and track calls directly from your contact database. You can place calls directly from the Salesforce application by either clicking the contact's phone number or by using the dialpad on the Packet8 interface window. Incoming calls are displayed with pop up screens based on your Salesforce contacts.

Video-based services continue to gain in popularity, and service providers find it challenging to deal with multimedia in general, owing to fluctuations in bandwidth and quality of service (QoS) issues. Some of these providers will get help from Dilithium Networks (News - Alert), a master of converged video solutions for mobile and broadband networks and the Internet. Among other things, they have a huge 60 percent global market share in multimedia gateways, are the market share leader in 3G-324M/H.324M/H.324 Protocol Stacks and they offer the integrated multimedia gateway and service creation environment, ViVAS.

Paul Zuber, Dilithium's CEO, "In the beginning we provided high quality multimedia delivery, initially over 3G mobile networks to any device, but over time over any type of network. Are CTO and technical founder was on the ITU Group that helped develop the worldwide standard for video telephony, the H.324 and H.324M protocols. We developed some of the first protocol stacks that are on the majority of 3G mobile phones in the world today, and about 85 percent of TD-SCDMA designs and chipsets in China incorporate our chipsets too. We then moved into multimedia gateways that connect mobile switching centers and enable the delivery of all types of 2-way interactive high quality video services. Over the years we've evolved from being just a pure network equipment to also developing service creation software to help customers rapidly create and deploy applications on the network, and well as many of the applications themselves, so over time, we've evolved to become an end-to-end provider of multimedia solutions. We believe we have the most comprehensive portfolio in the world today. Our customer list reads like a Who's Who of the industry."

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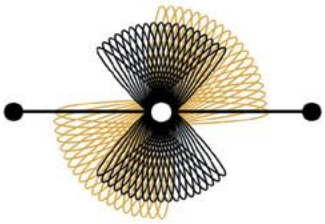

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"Our new Dilithium Content Adapter, or DCA, was really developed for the Internet, media and content market," says Zuber. "To our surprise there has been strong interest from the service providers and there have been deployments already and many trials going on in Europe and Asia. It's a product that's ready now. We come from the service provider world, which is very complex, having a multitude of codecs and devices and network infrastructure. When we first started talking with aggregators and content delivery networks and Internet companies, their view of the world was very simple — 'We're in an all-IP world, so it's pretty easy — we just deliver IP to IP'. When we asked how they were going to be taking their content to the mobile world or how they were doing it, we were told that they stored content in anywhere from 25 to 250 different formats. They had to do that because they didn't know what the devices were going to look like or what the bit rates were going to be, or what the media codecs were."

"When we told them they could store the content in one format or maybe a couple, and that we could take care of it on-the-fly, they didn't understand how that was possible," says Zuber. "We explained that in a telecom network we can't tell people to wait 30 minutes when they make a phone call so we can figure out what the devices look like in the network. So we decided to solve the most difficult problems first and now in coming to the Internet world, many issues involving network diversity and provisioning have already been solved by us. So it's very easy for us to take our underlying technology and our deployment experience in 50 countries and use that for the Internet world to spread their audience to the vast mobile audience."

Unmesh Mehta, Senior VP of Value Added Services, "In talking with broadband and media companies, they have a lot of digital content, but there are challenges in that it's much easier to distribute content in the broadband space because it's a more controlled environment where you can manage the pipe and provide high quality services. But that's not the case when it comes to mobile, because the three fundamental mobile challenges are: First, transcoding. There are different codecs, different bitrates that must be managed, and so the content transformation from one format to another is one of the biggest challenges. The second challenge is bandwidth reliability, because the dynamic nature of the network and bandwidth reliability is a constraint when you are delivering major content on the mobile. And the third is dealing with the different sizes of screens while maintaining video quality."

"Beyond that, we also recognized that the mobile industry and especially video, has a lot to do with user-generated content and real-time access. People aren't watching three hours or 12 hours of movies on the mobile, but they would be very much interested in a brand new movie trailer or somebody's blog with regard to what was seen just seen on the road and has been distributed via a social networking environment. These are some of the key challenges facing those who want to bring content to the mobile space. That's why our Dilithium Content Adapter was developed. We had tackled the problem in the 3G space, but the DCA is primarily focused on packet-to-packet solutions, and on how to bring about content conversion, whether it happens to be at the protocol level, network level, streaming level or screen size level. How do you do that in a most efficient way? That's the problem we solve."

The fact that America is just starting to catch up to the rest of the world broadband-wise in itself presents opportunities to international carriers establishing a presence here.

Tiscali International Network (TINet), the wholesale carrier division of the Tiscali Group, is said to be the only carrier exclusively dedicated to the wholesale IP/VoIP-MPLS market and has network presence and customers in EMEA, Americas and APAC. TINet brand international products include Global IP Connectivity, providing connectivity to the Global Internet; MPLS lines, supporting Remote Peering services and Data backup links; voice services: voice termination and collection services based on VoIP technology delivered by what's said to be the largest pan-European VoIP network to date. TINet sells services to customers demanding high capacity and availability, such as telecom carriers, cable TV operators, web hosting companies, and to smaller ISPs, also known as Tier 2 carriers.

Palo Gambini, Chief Marketing Officer of TINet, says, "We operate a large IP and MPLS network across Europe and across the U.S. from Washington, New York, Chicago, Miami, all the way to San Jose. We're now building in Seattle and Dallas, and the Asia-Pacific region such as Singapore. We apply transit for Internet connectivity, and MPLS transport services to major operators, carriers, content providers such as Amazon and Yahoo, DoubleClick (News - Alert), and so forth. We've been active in the U.S. since 2005 and now we're expanding our scope into the U.S."

TINet and high-performance networking company Juniper Networks (News - Alert) recently announced that TINet is scaling its core infrastructure to support the growing demand for multiplay services with the Juniper Networks T1600 multi-terabit core router. TINet will deploy the T1600s in several Points of Presence (POPs) throughout Europe and America, to accommodate its traffic growth and to support the latest 40 Gbps technologies. The service-aware core router, capable of delivering 1.6 Tbps of throughput in a single half-rack chassis, will enable the company to scale-up the delivery of multiple high capacity services over its global MPLS infrastructure.

Since the world is still a hybrid network, major service providers still tend to separate their telecom and broadband operations. This is the case with the Atlas Group of Companies, created in 1995, which encompasses Atlas Telecom, a group that terminates international voice traffic into "hard-to-reach" countries and mobile operators, and Atlas Broadband, which covers the full range of the broadband value chain, thus providing a complete solution. Atlas Broadband manages projects from telecom infrastructure deployment to service provisioning and distribution of triple play services. Atlas has done everything from selling minutes wholesale to telemedicine to international collect services. (Don't confuse them with Atlas Telecom of www.goatlastelecom.com, a manufacturer since 1988 of fine communications devices, including the inexpensive yet feature-laden Atlas IP PBX.)

Out of Sight

Although we associate service providers with fixed-line and wireless environments that we experience daily, we forget that geosynchronous satellites in orbit 22,300 miles (35,786 kilometers) above the earth — owned by companies such as SES (News - Alert) AMERICOM — help financial institutions complete everyday card-swipe transactions at the ATM, gas pump or grocery store. Some television programming delivered by cable companies is first distributed via satellites, and some airlines have been experimenting with offering in-flight broadband via satellite to their passengers. SES AMERICOM (News - Alert) satellite technology is already used to deliver broadband Internet connectivity to cruise ships, enabling both passengers and crew on cruise ships and yachts to make VoIP phone calls from ship-to-shore or check email from the middle of the ocean. Moreover, corporations or telecom service providers wanting to expand, extend and ensure their networking capabilities in remote and offshore commercial data networks often resort to satellite solutions.

Mix-and-Match

Businesses fathoming the depths of the service provider world will be astonished to discover the number and variety of IP communications-based providers, such as classic ITSPs. IP communications opened the doors for many entrepreneurs who jumped aboard the IP voice/video/data bandwagon. For example, Speakeasy, now one of America's lead-

ing providers of voice, data and IT solutions, started out in 1994 as an Internet café. By providing top-notch Internet service and superlative customer service, Speakeasy grew rapidly, starting a hosted voice (VoIP) service in 2005 and an Integrated Voice offer for customers wanting to hold onto their existing phone system.

In an ocean of providers, differentiation and flexibility are important, and, rather than create a 'walled garden' scenario where customers must use the voice service of the broadband provider (or use off-net voice services), Speakeasy has instituted a remarkably flexible policy wherein their customers are allowed to choose their broadband provider with any of Speakeasy's voice services. Of course, Speakeasy would like them to use Speakeasy's voice services with Speakeasy's own broadband service to enjoy the best quality of service, as their voice packets are prioritized over data packets, along with dynamically allocated bandwidth. But by making this an option, many small businesses can effortlessly switch to Speakeasy services while maintaining their current telecom infrastructure.

Once you've got a broadband connection and subscribe to one or more services, you might want to buy some inexpensive, high quality USB IP phones for your PC or laptop from companies such as Eutectics. Founded in 2001, Eutectics says that conventional Ethernet-based IP Phones are more expensive than their USB Phones because in order to connect to the Ethernet additional components are needed as compared to Eutectics USB based products, which provide superior sound quality, the ability to make free phone calls, convert your PC to a phone, and have been tested with Windows XP, Cisco AVVID, Broadsoft, 3Com NBX and CommWorks (now part of UTStarcom (News - Alert)) softswitch solutions. They also support fax-over-IP.

Whether you're looking for a simple VoIP service, a satellite link or a sophisticated hosted call center application, there's a service provider out there that has exactly what you're looking for. **IT**

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

The following companies were mentioned in this article:

8x8
www.packet8.com

Atlas Group of Companies
www.atlastelecom.com

Atlas Telecom
www.goatlastelecom.com

Broadvox
www.broadvox.net

Dilithium
www.dilithiumnetworks.com

Eutectics
www.eutectics.com

Lingo
www.lingo.com

SES Americom
www.ses-americom.com

Speakeasy
www.speakeasy.net

Tiscali International Network
www.tiscali.net

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Talking with Chris Lyman, CEO, Fonality

By: Richard "Zippy" Grigonis

Fonality (News - Alert), pioneer of the 'hybrid hosted' PBX, is the third startup of CEO Chris Lyman. Prior to Fonality, he founded and led Virtualis, a top-ten Web Hosting company that he sold to Allegiance Telecom in late 2000, re-branded it to hosting.com, and joined the Allegiance management team as Vice President of Web Hosting Services. There he led the acquisition and roll-up of additional hosting firms. Earlier, in 1994, Lyman founded a media-focused systems integration firm in Los Angeles. Lyman is a licensed SCCA-Pro driver and owns a motor sports racing team.

RG: What are the differences between trixbox CE, trixbox Pro and PBXtra?

CL: Open Source myths confuse people. Most of these "open source" companies such as Digium (News - Alert), mySQL, and so forth, aren't really pure open source anymore. One model they often use is that they have a completely closed source commercial version of their code on top of their open source model. I admit, what these companies do is very clever. They essentially say, 'We have an open source version of our code. If you make changes to your version and you ever want them picked up by us in our open source forum, you have to sign this piece of paper, a waiver, that gives us the rights to your changes so we can sell them in our commercial version. Failure to sign is okay, but you'll never see your changes in the public program.' These waivers are interesting. One essentially says, 'Once you sign this document, we have the right to sell this piece of code of yours forever, never cut you in on the revenue, and also the company that we sell your changes to can make further enhancements, and they don't have to give it back to you or the community."

"It's a kind of a Chinese wall or one-way membrane built between the companies to which they sell the software, and people contributing the code," says Lyman. "We think this activity is very 'anti-open source' and we never sign such waivers. When we make changes or 'patch' Asterisk, for example, we distribute source code to our customers, and we publish the changes to the community, the truly open source GPL version of Asterisk, but not Digium's commercial branch. We got frustrated with not having a branch of Asterisk to which we could contribute, so that's why we acquired the Asterisk@Home IP-PBX in 2006, which we've now rebranded as trixbox. Asterisk@Home was originally an application stack by Andrew Gillis built on top of Asterisk, Linux and Apache, mySQL and SugarCRM, that was basically a free, downloadable PBX. It was and is a massively popular fork. We average about a million downloads a year. Now, trixbox CE is a pure 100 percent GPL open source customer premise PBX – no commercial license. It's our 'philanthropic' enterprise."

"Then there's our commercial offerings, trixbox Pro and PBXtra products, which have basically the same code base," says Lyman. "Whereas trixbox Pro is software-only, PBXtra is a whole hardware-software bundle. Moreover, trixbox Pro and PBXtra are what we call 'hybrid hosted', which means we can combine the benefits of a hardware PBX with the affordability and ease of use of a hosted offering. We're a VoIP-enabler for business. We partner with sellers of minutes, so they can 'smarten up' their dumb pipes. The switching occurs on the customer premise, and our data center does several things: first, it acts as a lighthouse for remote phones, so when users take a hardphone or softphone outside of the firewall, our data center acts as a registration point. The big problem with premise PBXs is that once you take your phone outside the firewall, it becomes hard for it to act as a remote extension. You need VPNs, open ports and what-not and that makes teleworking an expensive proposition. We discovered that smaller businesses just don't have IT staff, so telling a staff member to take their phone home is not an affordable concept. Our data center can keep track of this, because it has a public IP address. Even if one or both sides of the premise or the remote worker have a private IP address, our data center acts as a sort of 'man-in-the-middle' or lighthouse, if you will."

"Secondly, our data center acts like a Software-as-a-Service (SaaS) model, where the moves, adds and changes happen at the data center and are pushed down to the premise. For example, if a security flaw in the code is detected, we can remotely patch thousands of installations in one evening, since we have constant VPN connections to every 'box'. We've eliminated much of the truck rolling that would occur otherwise. 96 percent of our PBXtra customers do their own installation, even for 100-seat call centers. Those are the advantages of having a data center and a hybrid hosted model." IT

www.tmcnet.com/2056.1

Active Voice Chooses LumenVox (News - Alert) Speech Recognition for SPEAK Solution

Active Voice, LLC, and LumenVox today announced the availability of Active Voice SPEAK, an advanced speech-enabled auto attendant designed specifically for the small and mid-sized business environment (SMBs) and the mobile workforce. The engineering framework for SPEAK enables an out-of-the-box turnkey solution that is considerably more affordable, while being easy to implement, deploy and use requirements for SMBs. SPEAK uses the LumenVox Speech Engine to power the robust and accurate speech-enabled functionality. In addition, the Digium hardware enables the high performance, yet affordable connectivity.

www.lumenvox.com
www.activevoice.com
www.digium.com

www.tmcnet.com/2057.1

SugarCRM Ramps Up with Enterprise Reporting and Wireless Features

SugarCRM, announced the beta release of reporting and wireless capabilities for SugarCRM. In addition to end-user features, this release provides capabilities for importing data into SugarCRM, managing users, and building and deploying custom objects and modules. SugarCRM introduces functionality for tracking how workers are using the system and how SugarCRM is performing. These measurements provide CRM administrators and managers better visibility into user adoption and system performance.

www.sugarcrm.com

www.tmcnet.com/2058.1

New On-Demand Platform as a Service to Enable Java and Ajax Over the Cloud

Morph Labs and Webtide have announced the launch of a new platform version to enable developers to deploy, deliver and manage Java applications without the time and expense of setting up and managing a web delivery environment. The Morph Application Platform for Java, a Platform as a Service (PaaS) that virtualizes the application environment and leverages cloud computing resources such as the Amazon Elastic Compute Cloud (EC2) is now in limited developer preview.

www.mor.ph
www.webtide.com

www.tmcnet.com/2060.1

Bluesocket Announces Availability of BlueSecure 802.11n Access Point

Bluesocket, Inc., the leader in trusted wireless access and enterprise mobility, has announced availability of its 802.11n BlueSecure Access Point 1800 (BSAP-1800) based on draft 2.0 of the 802.11n standard. The BSAP-1800 complements Bluesocket's existing 802.11n-ready BlueSecure Controller family and Edge-to-Edge direct forwarding architecture and has achieved 802.11n draft 2.0 WiFi Alliance certification, ensuring interoperability with standards-based WLAN solutions.

www.bluesocket.com

www.tmcnet.com/2061.1

Hook Mobile Intros Open Mobile API for Social Media Delivery

Hook Mobile is now offering its MobileHook API for Web 2.0 application developers to push multimedia content — including photos, video, audio, and slideshows — from social networking applications to mobile phones. This API provides open access into Hook Mobile's MAX 2.0 platform that provides Multimedia Messaging (MMS) delivery into wireless carrier networks, with the potential to reach nearly 200 million phones in the U.S. and Canada. Hook provides access to the MAX 2.0 platform for seamless mobile delivery across an endless variety of device types, media formats, diverse carrier network connections and user handset capabilities.

www.hookmobile.com

Primus Brings Peace to the Dinner Table with the Help of SIPDEV.org

By: Greg Galitzine

When it was introduced in November 2006, the Pactolus-led SIPDEV.org community was considered to be the first such developer community offering application developers an environment that included all the elements they needed to quickly and easily create innovative, media-rich applications for next generation VoIP and IMS networks.

The SIPdev.org initiative was created on the core underlying Pactolus RapidFLEX Service Delivery Platform (SDP) technology, and includes a SIP-based service creation environment, application server, and software media server in addition to a series of working applications and supporting application frameworks provided in open source form to help developers quickly gain proficiency and create deployable applications for their markets.

INTERNET TELEPHONY spoke with Pactolus' Vice President of Marketing and Product Management Ken Osowski (News - Alert) last year and he explained that the SIPDEV.org community is one of the most comprehensive resources available to developers.

"SIP dev.org reflects several of the components needed at the application layer. It includes the service creation environment the application server and the media server. There is no real definition in the industry of what a service delivery platform is, although several analysts have tried. Suffice it to say we probably have the most complete set of components that represent that.

"In a lot of cases you have service delivery platforms without service creation. You might have application servers without media servers. In some cases you'll find hardware media servers with application servers mixed in.

"So there are all kinds of combinations. We are doing it on a pure software basis, all of which is downloadable from SIP dev.org.

It's encouraging to see some well known large carriers leveraging the SIPDEV.org resources to create innovative applications. Recently, Primus Telecommunications Canada announced the launch of Telemarketing Guard, a service designed to give customers a new level of control over intrusive telemarketers.

Matt Stein, Vice President New Technology (News - Alert) and Services for Primus Telecommunications Canada, told *INTERNET TELEPHONY* that their customers wanted some respite from the incessant flood of telemarketing calls.

"We offer a local phone service and one of the things that we've been striving to do for a long time is to build a block for telemarketers so that when telemarketers call in, they are interrupted and can't reach our customers," he said.

Developed exclusively with Pactolus' SIPdev.org open source/open access service creation environment, Telemarketing Guard lets Primus customers proactively identify and block annoying telemarketing calls before they become interruptions.

TMC's Executive Editor Richard Grigonis explained how the service works:

"First, Telemarketing Guard technology automatically identifies suspected frequent, mass telemarketing calls. Some of these suspected telemarketers will choose to hang up or their automatic dialers will hang up without your phone ringing. Others may choose to provide their name or purpose for their call. If they do, your phone will ring and when you answer your phone, Telemarketing Guard will tell you that it has intercepted a call and will play the caller's recorded name.

"At that point you have various options:

- Answer the call, after which you may use *44 to block the caller from any future calls;
- Send the caller directly to voicemail;
- Reject the call by using a keypad entry or by hanging up the phone;
- Send the current call, and all future calls intercepted by Telemarketing Guard, to voice mail."

Primus' Stein said that a familiarity with Pactolus was among the reasons they chose to develop the Telemarketing Guard using the SIPDEV.org toolkit.

"We at first looked for this application, we spoke to a number of people, and we explored building this with some of the open source tools such as Asterisk, and so on, but we just couldn't find anything that delivered the scalability and reliability and rapid application development environment that we found with Pactolus.

"We had already used their services for years," Stein continued. "We have a product of theirs in our prepaid card business, so we were already comfortable with them as a company, and what they can do. But this was a place where we planned to patent the service, which we subsequently have. Therefore, we wanted somebody we could work with, but we wanted to build it ourselves."

One of the most evident benefits of leveraging the resources of the SIPDEV.org community is the rapid application development and quick time to market that Primus was able to realize.

"One of our developers was so impressed with it that he actually stayed here late that night working on it and had a basic proof of concept running the next day. And within a couple of days we had a fully workable proof of concept," Stein said.

Primus is considering reselling the Telemarketing Guard service to other service providers. IT

– Greg Galitzine (News - Alert) is Group Editorial Director at TMC.

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Dialogic®
Making Innovation Thrive™

On A Global Stage, Making Innovation Thrive

Ever since Dialogic announced their first PSTN-to-IP gateway in 1996 the company has played a pioneering role in helping customers stay ahead of the game by providing the tools and building blocks they need to make innovation thrive.

Whenever technology has led developers to a crossroads, Dialogic has been there, working with its partners to ensure they had the tools to make the transition to new and innovative applications. In addition to its storied history in the development and proliferation of advanced computer telephony solutions, Dialogic has been at the forefront of every technological wave, including Voice over IP (VoIP), fax over IP, SS7 integration, and most recently the integration of video with traditional voice.

Dialogic maintains over 50 patents and through its participation in standards bodies and organizations such as the IETF, Dialogic has helped craft industry standards for solutions such as the Media Resource Function (MRF) in 3GPP's IP Multimedia Subsystem (IMS). Dialogic also created the first SIP media server.

1996	2001	2002	2003	2004	2006	2007	2007	2007	2008
First PSTN-IP gateway announced	First SIP-controlled media server shipped	First release of Host Media Processing (HMP) software shipped	First commercially available SS7 PCI board to exceed 20K MSU/s	Media server platform for first 3G video messaging application deployment	First IP-based fax at V.34 speeds shipped	First IP multimedia processing board (AdvancedTCA) shipped	First "hybrid" gateway shipped for Microsoft® Office Communications Server 2007 environment with integrated Mediation Server	First 3G-324M interface shipped on an AdvancedTCA board	First Fax over IP shipped with V.34 and T.38 support

Globally, service providers are deploying applications built using Dialogic's suite of open telecom hardware and software components (IP and TDM) that include field-proven media and signaling gateways, high-density multimedia processing solutions, IP media servers/MRFs, and signaling protocol software at multiple levels of integration. These building blocks enable the company's partners to create world-class applications across IP, wireless, and even video by taking advantage of Dialogic's technology heritage. As such, the name Dialogic is well-known to the global service provider market. Following are several examples of partners who have chosen to build on Dialogic, using their technology to make innovation thrive.

Auris provides turnkey solutions from prepaid and VoIP services to MVNO wireless and WiMAX operations in the form of a hosted platform solution. Leveraging Dialogic products, the company develops solutions for service providers looking for a competitive edge.

According to Freddy Sidi of Auris, their approach helps carriers save time and money. Using an example of a simple calling card application, Sidi explained, "…if AT&T wants to launch a calling card, traditionally they would approach a manufacturer such as Nortel, Lucent, Cisco, buy a platform, spend four or five million dollars to build a platform and then launch a product to see if the product works."

Instead, Auris fills that gap by developing the calling card solution for the carrier. Then, working in partnership with them, they offer the product for free, obviating them from any infrastructure investment. According to Sidi, "Auris will then charge them a toll per minute, let's say around a half a cent per minute, for the traffic that goes through the platform. This way they can launch a product and if it is successful, great. If it fails, they don't lose any money and they go from there."

"Basically, our mission is to deliver a product free to the customer, where we partner up with the customer to share in revenues when they launch the product. Many companies don't want to purchase the equipment right out. They can still generate traffic and revenue from the equipment but they don't necessarily want to make that investment. That's where an Auris can come in and say 'we'll put up the equipment and we'll launch the product,' and as the product grows, and the service grows, it becomes a win-win in that sense."

Auris has long been a Dialogic partner, and most of their product portfolio was built on Dialogic. No matter the application — callback, calling card, traditional long-distance, cellular, video conferencing, VoIP — Auris uses a variety of different Dialogic tools.

Sidi explained, "Our original building block was on their voice side with their CSPs (Converged Services Platforms), and when we started, they were the only robust scalable solution for large scale operation."

"They run really well, and everything since has grown off of that. They [Dialogic] have brought in new products and continue to build new solutions as the market evolves and we've been using a lot of their Internet Solutions portfolio, basically replacing most of the Cisco gear we were using before."

Dialogic recently released an updated version of its Multimedia Software for AdvancedTCA. The MMP Software 2.0 for ATCA enables customers to build high-value, next-generation video services such as advanced IVVR, video call center and video conferencing/chat for 3G wireless and broadband IP networks.

According to Sidi, "We're building an application for some of the larger carriers that are doing videoconferencing over 3G, which enables videoconference calling from a cell phone to another cell phone over 3G networks. We're developing that on Dialogic equipment. We do a lot of video over IP, and we're working with Dialogic as they are making a big push onto the video side."

Bay Talkitec provides digitized voice application products, and has been a player in the computer telephony space since 1991. The company offers a vast array of applications to its customers, ranging from IVR to contact center applications, mobile software solutions, and they are now offering innovative VoIP and video messaging applications for 3G network operators.

The company's Co-Founder and Director, D. Arunan, believes that one of the key reasons for Dialogic's success, and indeed one of the reasons Bay Talkitec continues to be a premiere partner, is Dialogic's support for all media, starting with voice, fax, video, and IP.

Arunan also touts Dialogic's GlobalCall API as a key differentiator.

"Let's say today a developer is building a simple voice-based analog solution," he says, "and he develops the application using the GlobalCall API. Tomorrow when he migrates to a video solution or a highly complicated speech enabled solution, the same GlobalCall API will support the new application, so there is no need for further understanding required to develop the application. It is very easy to develop applications using Dialogic."

Arunan feels the ease of development extends out to SS7-based solutions as well. "Traditionally, if I want to develop an SS7-based solution, then I need to use different boards and APIs and such. Dialogic boards have integrated the GlobalCall APIs, which makes it very easy to use for developing these types of applications."

With the advent of 3G mobile, end users are demanding personalized applications such as Video Caller Ringback Tones, Video Chat, Video SMS etc.,

"When 3G was introduced, other than video calls, carriers were expecting lots of value added solutions, because 3G calls on their own were not a big enough driver to generate traffic," Arunan said. "They required some kind of value

add, like a video greeting or video mail. Today you can send a video greeting to other 3G mobile users using your mobile handset."

Bay Talkitec is staying true to their IVR roots, generating a lot of business from those types of applications. Arunan sees great opportunities with speech enabled IVR implementations as well as payment gateways where using IVR, customers can make credit card payments without the need for an agent in between.

The company is bullish on a new solution built on Dialogic, called Mobile Global Radio.

Explained Arunan, "Today in North America, you have about 2.3 million Indian expatriates, many of whom would like to listen to music from their home country, or a program featuring a particular host. Today there is no way a subscriber can listen to their own FM stations.

"What we are doing is transmitting the radio stations throughout the world over IP. We deliver to the local network through traditional TDM or mobile links. So for example, in the U.S. you can dial a local number and you can listen to FM stations from India.

"Dialogic's various T1/E1 boards help us to implement this solution over different TDM or mobile links."

Vinay Kumar Mahajan is a vice president with Bay Talkitec. "Our roadmap and Dialogic's roadmap look somewhat similar," he says. "We are aligning our strategies with Dialogic as they are truly leading in areas like video and audio and CTI. There is a big push on the video front now, with their latest MMP boards. I think the delivery of video solutions will become very easy using the Dialogic platform."

(jinny)™

Jinny Software is a Dublin-based company whose solutions are designed to help service providers deliver compelling personalized messaging and media services to subscribers while adding value and increasing operator revenues.

According to Co-Founder and Strategic Marketing Director George Yazbek, "We build messaging and media products for GSM, CDMA, TDMA operators all around the world."

Chief among Jinny's applications are SMSCs and MMSCs (short and mobile messaging service centers, respectively) that have a lot of features in them to allow the subscriber to personalize the experience.

Yazbek explained that this solution allows subscribers to "automatically add a signature to whatever SMS you send. You can block messages from certain people; you can have auto-reply forward your messages and so on, thus personalizing the experience of your messaging."

The company also offers Voicemail Ringback Tones, Voice SMS, and missed call notification.

According to Yazbek, "We use both signaling and media products from Dialogic.

"In the signaling space we use the high-density SS7 boards and the SS7 protocol stacks as well as their SIGTRAN stacks for our customers who are on SIGTRAN now. In the media space we use the high-density CompactPCI boards for voice processing and media. We are now moving to host media processing for both IP and TDM."

Yazbek added, "We practically use all of their building blocks and build our products around them."

The relationship with Dialogic began a long time ago. And as with any relationship, a time came for re-evaluating the company's position.

According to Yazbek, "At several points in time, we revisited the decision. Should we stay with Dialogic or should we move on, particularly in the signaling area... and we decided to stay with Dialogic. We did a complete evaluation of either buying source code, or keeping the same model or switching vendors and so on, and we decided to stay with Dialogic."

Jinny is currently developing a solution to enable advertising on mobile messaging applications.

"We are moving into enabling advertising on most of the messaging and media channels, so we will be able to add small adverts to SMS or to MMS or listen to small adverts when you call someone. Instead of hearing a Ringback Tone, you hear a small advert, or you can advertise your own company, and so on. The idea behind this is to target the low-ARPU, low-income countries like in Africa, and in Latin America, where you can have somebody subsidize the actual voice call or the actual messaging experience, and allow the subscribers to enjoy it for free. We see that advertising could potentially create a lot of demand for messaging and media and also for even regular voice calls."

As far as what's next, Yazbek too sees that building video applications based on Dialogic's building blocks is the future.

"The future component is the video stack. We will be using 3G video on top of the Dialogic boards. We are also planning Video IVR and Video Mail and Video Ringback, and these too will be built on top of Dialogic products."

Tristan Dessain-Gelinet is CEO of Tetco Technologies, a software development company based in France.

Tetco develops software for the enterprise market as well as telecom operators, be they mobile, fixed, or IP operators.

According to Tristan Dessain-Gelinet, "We are building most of our applications on top of Dialogic. Essentially the platform we are working on is the VXML platform, using HMP for IP interconnection and the Dialogic boards for the TDM and SS7 connection. We have a range of products around IVR, unified messaging, and a new video solution based on the HMP video that are mainly around video IVR and video voicemail."

Tetco currently has two video trials underway at telecom operators, one in Southeast Asia and one in Brazil.

To hear Tristan Dessain-Gelinet explain it, the future is based around simplifying the experience for the end user in the midst of the telecom convergence that is taking place.

"Today we have too many ways to be reached: fixed line, mobile, office phone… It's become very complicated, and anything that can simplify the use of telecommunications is a step in the right direction."

Tristan Dessain-Gelinet himself uses a one-number solution. "People call my office number but I can be at the office or on my mobile at home… you just have to call this single number. The unified number allows the end user to manage incoming calls, and it is their choice — not the choice of the one who is calling. All in all it's about how we can simplify access for connecting people. This is the driver we have to emphasize."

Similar to Bay Talkitec, Tetco believes the ability to use a single interface to connect to various networks is a key differentiator for choosing Dialogic. Dialogic's ability to provide access to the right network protocols through a single interface, is very useful to Tetco.

"Because we can use the same telecom interface to go through TDM, SS7 or IP, the fact that we are able to connect — through Dialogic — to different kinds of networks using the same software, has been a real benefit for us."

Tristan Dessain-Gelinet believes that another critical benefit is Dialogic's global presence.

"We have local support. The Dialogic team is quite significant here, so we have real technical people who can interface with the team, which is helpful for us so that we can, if necessary, exchange ideas on a daily basis regarding development ideas, and features. Proximity is very important to us, because as the French say, 'far from the eyes, far from the heart.'"

Tristan Dessain-Gelinet referenced the recent merger between Dialogic and Eicon, and said that it was important to Tetco because it extended the range of products and the range of features that they have available to them, which allows them to build better and more varied products for their customers.

"Our range of applications is initially dedicated towards corporates (enterprises), he said. "Until now, most telcos targeted consumers, a large number of people with 'not so significant' ARPU.

"As the market matures, they [carriers] are moving to enterprises so they are looking for the promotion of solutions to corporates. Due to our experience directly selling to corporates, we see a tremendous opportunity.

"The corporate market will be a good driver for mobile operators, because by adding value, the money they can get from this market is much bigger per user than what they can get from the consumer."

BUILD ON DIALOGIC

It's evident that Dialogic has become a catalyst for communications service innovation, enabling partners and customers the world over to be successful. The company has been at the forefront of technology, enabling innovative applications by providing flexible platforms that allow their partners to accelerate the deployment of value-added solutions around the world.

Leveraging their experience, their patents, their international presence, and their world-class distribution channel, Dialogic has positioned themselves as an industry leader that is truly able to help their customers create cutting-edge, innovative next-generation applications and services. And, throughout its history and with all of the recent growth, Dialogic has retained its core values: a commitment to growth, a dedication to serving the needs of their customers, unfailing integrity, and most importantly, a passion for making innovation thrive.

To learn about the latest voice and video services and how to implement them quickly and cost-effectively, register now for "From Mass Market to Mass Customization: How You Can Compete in the Age of Personalization" at **www.tmcnet.com/webinar/dialogic**. This information-packed webinar on June 24, 2008 at 1:00 PM EST is presented by experts from Dialogic, an established catalyst for innovation in media resource technologies.

Service Providers Take On Network Monitoring

By Richard "Zippy" Grigonis

Although we've long championed LAN and WAN monitoring for business, Service Providers (SPs) also need to constantly monitor networks for traffic congestion and failing systems, be it their own or the ones they take care of in managed services scenarios. Some systems can automatically detect and respond to threats and performance issues in real time, as well as predict upcoming problems, though the fanciful idea of a completely self-healing network still resides in the world of science fiction.

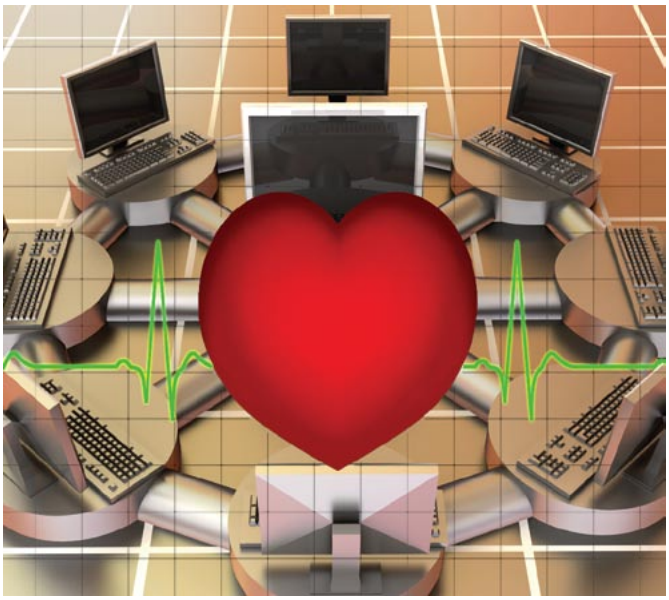
Network monitoring involves various combinations of active ("intrusive") and passive ("non-intrusive") probes operating at various points in the network, with data being analyzed and presented at a particular administrative location. For example, GL Communications has long offered a variety of solutions for network wide monitoring and surveillance consisting of both intrusive and non-intrusive probes for TDM, VoIP, and wireless networks. The probes, deployed at strategic locations in a network, transmit and collect voice, data, protocol, statistics, and performance information, and relay this information to a central / distributed Network Management System (NMS). This NMS may be client/server-based or a web-based system and consists of a database and applications for controlling, collecting, and analyzing the information provided by the various probes

Whereas GL's current NMS solutions for digital T1/E1 line monitoring, testing and diagnostics use both intrusive and non-intrusive probes, its SS7, ISDN, wireless protocol monitoring and surveillance system, as well as its packet and VoIP Voice Quality and VoIP monitoring and surveillance systems can work with just non-intrusive probes.

Another famous company in this area is Empirix (News - Alert), a provider of many voice and web application testing and monitoring solutions.

Dan Teichman, Senior Product Marketing Manager at Empirix, says, "We're involved in five important areas. First, we give SPs solutions so they can know the quality of their VoIP service before their customers do, which means that if everything is good, it's good, and if it's not good, you don't find out when your customers call to complain. Second, you can't always be proactive, so we're building solutions to make our customers run as quick and efficiently as possible when they have to react to network congestion or equipment issues. Certainly accuracy of information has to do with monitoring both the actual media and not just the signaling associated with calls, so we what we provide involves media measurements, producing metrics by looking at every RTP packet in an RTP stream and providing an assessment of voice quality based on that."

"The third item is carrier class scalability," says Teichman. "We know that what customers encounter when they enter the market is not what they encounter when their networks are scaled up. Workarounds and processes when you have 1,000 customers don't necessarily work when you have 100,000 or a million customers. You want to know whether the investments you need to make can be made today and 'grown' tomorrow. So, having the right information and the proper solutions for scalability are critical for success in the large carrier space."



"The fourth item in which we've seen a lot of traction is what I call 'avoid the blame game'," says Teichman. "Every one of the VoIP SPs today is interconnected to one or more other carriers and probably the PSTN. So, obviously, you can't cross your fingers and hope that your interconnected SP is going to provide good quality and likewise they can't just hope that you as a SP are giving them good quality service. So there really needs to be both a way to measure voice quality on both sides of an interconnect, and a way to share that information, so you don't find yourself in the blame game."

"Fifth and finally, accuracy of information is important," says Teichman. "We have found that many people provide VoIP quality monitoring solutions, but the question arises over whether or not a SP can trust the accuracy of that information and ensure that they can take action on that information as a competitive differentiator. You can have service level agreements with customers' interconnected parties, in which case you must be sure that those metrics being measured are accurate so that you can commit to service level agreements without penalties."

"Certainly there's going to be tremendous value in integrating the reporting of quality metrics from the customer premise," says Teichman, "involving solutions such as IP media loopback — being able to run a loopback test — from an SP's network to a customer's network to measure service quality or having the customer premise equipment actually report quality measurements that they take through some standard mechanisms such as an RTCPXR. So being able to provide good quality measurements comes down to truly knowing the quality that the customer is experiencing on the actual call itself, or the aggregate of all of the calls."

Seeing is Believing

Symmetricom (News - Alert) designs, manufactures and markets atomic clocks, oscillators and network synchronization and timing solutions used in wireline and wireless telecom networks, space, defense and avionics systems, and enterprise IT networks.

Gary Croke, Symmetricom's Director of Marketing, says, "We recently created a new line of business, which is Quality of Experience [QoE] monitoring. We did this in 2007 by acquiring a couple of different companies in the video technology space and combining and packaging together the technologies into a QoE monitoring solution."

"Video in particular can bring about quality challenges on the network," says Croke. "Video is real-time traffic. It has very strict delay and delay variation requirements. Not only does video 'stretch the envelope' in terms of network traffic, but what's worse is that end users are more sensitive to video errors than voice errors. This is the major point fueling the drive behind all of the monitoring efforts. The end users get frustrated and complain and end up moving to another service."

In fact, Symmetricom commissioned a study to gain insight into the recognition of quality issues, the use of video quality monitoring, and where the video quality issues are coming from.

"The study reveals that 77 percent of people said that video quality, or lack thereof, was the main cause of customer churn," says Croke. "Also, 78 percent was the main cause of customer calls in IPTV. You really get the sense that video quality is important to these services. Video also acts differently than other services to errors. For example, a 10 millisecond (ms) loss of service is more noticeable on a video service. TCP/IP just retransmits and there's no impact. Voice service failure is tolerable up to 50 ms. 10 ms of voice is about 80 bytes of data. But 10 ms of HD video is 10,000 bytes of data. So you're talking about a great deal of traffic that's impacted by a network failure. Networks that appear okay don't always behave well when you send video over them. This further drives the need for network monitoring."

"Monitoring approaches used today basically monitor QoS," says Croke, "of which there are four metrics: packet delay, jitter, loss and bandwidth. Overwhelmingly, we see that this is not sufficient for two reasons. First, impairments come from areas other than the network. So if there's an impairment in the content itself, such as a camera introducing blur, or artifacts introduced by the electronics, then just monitoring the network from a QoS perspective is not sufficient. Furthermore, even if you look at the QoS metrics and the network, that doesn't tell you exactly what's happening in terms of how the end users see the video. In video some packets are more 'noticeable' than others."

"Fortunately, Symmetricom offers a technology that goes beyond just looking at QoS, and instead examines video QoE," says Croke. "We monitor the video from an end user perspective. We catch all of the different impairments from all of the different places, and look at how the impairments are impacting the end user's video by modeling the human vision system to determine whether or not the problem will actually be seen by the user. A packet disturbance right after a scene change probably isn't going to be noticed as much, for example. Our V-Factor QoE Platform can handle QoE management for triple play services. Perceptual video quality is measured via deep content analysis, and network impairments are correlated to content. The system understands what's really going on since it's based on a human vision system model. It's a highly adaptable platform and has been deployed by leading cable companies worldwide."

Have You Checked Your FCAPS Today?

Virtela is a "Super" Virtual Network Operator (VNO) that designs, builds and manage complete customized network solutions that fully integrate into existing network architecture. Virtela is a combination of a traditional VNO, a large network integrator and managed service provider (MSP). Virtela's Regional Policy Centers (RPCs) are situated worldwide. They understand that network monitoring is critical to the widespread adoption of such things as global unified communications.

Mark Hansard, Vice President of Systems and Security for Virtela, says, "In terms of network monitoring and security, we started out, like everyone else did, with the FCAPS [Fault, Configuration, Accounting, Performance, Security] network management model. Within each area we did certain things to cover the base. For example, on the 'Fault' side we employed HP OpenView in the early days, using it as our fault detection tool for all of the network services that we were providing and built those into the apps and so forth. We found it had some severe limitations at that time, and we had to create our own stopgaps. For example, one limitation would be the provisioning of the devices within OpenView. It was very 'manual' to administrate, and we needed to automate those functions, but it was difficult to do that within HP's user interfaces of the time. When managing devices of multiple customers, some overlapping of network device IP addresses would occur, since there could exist shared IP address schemes, from one customer's network to another customer's network. OpenView had difficulties dealing with that overlapping IP space, so we had to deviate to some tools developed on some open source technology and then we took it in-house. So for about the past five years, we've used custom plug-ins and algorithms on top of the open source Nagios host, service and network monitoring program, to create a custom fault monitoring environment."

"We have about 10,000 devices under management," says Hansard, "and about 15 different vendors represented in that management set. Some analysis we wanted to perform on the collected data was beyond the capabilities of Nagios and that's when we developed some custom analysis tools. We had in the early days some off-the-shelf products to do those things. They were great for an enterprise but their pricing model made them way too expensive for a carrier. So we built our own."

"We then kept increasing and integrating security by using security information management platform tools such as ArchSight and netForensics," says Hansard, "that allow us to do security behavior analysis on top of the network 'basics', if you will, and then look for security correlations. A good example of that is when we have network devices, firewalls, IPSs, remote access devices and even information from internal virus or vulnerability scanning packages, and we needed to bring all of that into a single analysis engine and then you see quite a different picture when you're able to pull various things together than if each item is analyzed independently in its own 'silo'." IT

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

The following companies were mentioned in this article:

Empirix
www.empirix.com

Symmetricom
www.symmetricom.com

GL Communications
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www.virtela.com

i2Telecom Delivers the Best of VoIP and Wireless

By: Richard "Zippy" Grigonis

Until recently, leading edge communications has been divided into two realms: Voice-over-IP (VoIP) phone service over wired networks, particularly the Internet — which makes U.S. long distance and international calls amazingly inexpensive — and the pricier world of cellular smart phones, voice-enabled PDAs and similar wireless devices. Mobile users resorted to using prepaid calling cards to save money, all the while wondering if the fabulous economics of VoIP could be infused into the world of communications "portability".

Users need not ponder this question any longer. i2Telecom International, Inc. (www.i2telecom.com) develops proprietary high-quality VoIP products and services in precisely this area. They can deliver international and domestic long-distance calling services to subscribers (as well as streaming video and text chat) at remarkably low "Internet rates", thanks to VoIP technology, the company's own services network and the Internet itself.

i2Telecom® first grabbed the public's attention with the unbeatable combination of a Plantronics® headset and its VoIP Service Access Module (VSAM), the VoiceStick® (www.voicestick.com) — a 64 megabyte USB memory stick that incorporates a free, preloaded softphone. Users were offered three ways to make and receive calls anywhere in the world where broadband Internet was available: i2Telecom's i2Bridge® service, a software phone for PCs or Macs, or a conventional phone using i2Telecom's analog telephone adapter (ATA). The VoiceStick® device can work with any telephone or business phone system (such as a PBX) to access i2Telecom's global VoIP network and advanced routing methods to complete most of the call over the Internet — thus, you pay for only for the "last leg" of the connection.

VoiceStick® and i2Bridge® also introduced such impressive features as Global Call Forwarding, which automatically forwards your incoming calls to a different phone number anywhere in the world. For example, you can have all calls to your VoiceStick® number forwarded to your hotel in any city in the world for free. Moreover, customers can make unlimited calls worldwide to other VoiceStick® subscribers, also at no extra cost.

Recently, i2Telecom® announced the beta version of its new service, MyGlobalTalk™, which won a Best of Show Award at TMC's Internet Telephony Conference and Expo East 2008. (The company's innovative technology has won many awards, including Internet Telephony Magazine's "Product of the Year 2007" and Unified Communications Magazine 2007 "Product of the Year Award".)

MyGlobalTalk™, bolstered by i2Telecom's most advanced patented technology, enables any cell phone user to realize the economic benefits of IP communications, regardless of the wireless carrier handset maker or the type of wireless carrier voice/data plan involved. Moreover, MyGlobalTalk™ can perform its feats without the need for local Internet access, such as an Internet "hotspot". No fancy dual-mode WiFi phone is required either — you can enjoy the same features using your existing mobile handset.

With MyGlobalTalk™, you can call anywhere in the world for as low as 2 cents per minute.

First, you sign up for the service at www.MyGlobalTalk.com. During the sign-up process, you'll receive your MyGlobalTalk™ phone number and will be asked a few questions in order to automatically configure your account. Next, you enter the phone number of the phone you plan to use with the MyGlobalTalk™ service. If you have a smart phone, you then select which data plan you have (e.g., IP Messaging, SMS Messaging) — this may be automatically configured on your smart phone.

You then input your credit card information, and place US$15 or more in the online prepaid "phone bank". After completing the sign-up process, a text message will automatically be sent to your cell phone. By clicking on the link in the text message, the MyGlobalTalk™ application will download to your cell phone. After downloading, you make sure you've got an Internet

connection, and then you click on an icon, thus launching the installation process. You then make a selection that enables you to place International Calls, International Calls and U.S. Domestic Calls, or All Calls. After a brief period, you can start making calls for all international and U.S. domestic long distance calls, dialing them as you normally would, without any need for Internet access.

The current Mobile VoIP Beta Version 2.0 is quite impressive, with its support of low-cost international and domestic telephone calls. Upcoming releases will include speed dial and access to enterprise VoIP-enabled communication products currently available from such companies as Microsoft, Nortel, Avaya, Cisco, Vertical, and Mitel.

MyGlobalTalk™ is being released in phases. During the first quarter of 2008 it became available to customers in the U.S. and the U.K. with smartphone handsets running under Windows Mobile® 5.0/6.0. Subsequent releases will be accessible from anywhere in the world and will include support for BlackBerry, iPhone and Symbian-enabled handsets, while at the same time adding new features

Paul R. Arena, Chairman and CEO, is the founder of i2Telecom International, Inc. Arena is no stranger to visionary innovation. An aggressive entrepreneur, he's participated in the successful completion of over $2 billion of combined financings during his 30-year career. These ventures included cable television, colorization of black and white motion picture films, mercury detection devices for drilling rigs, ATM debit cards, color video telephones, color fax technology and various types of manufacturing, commercial real estate for hotels and shopping centers, and multi-family housing projects.

"At one point, we had six Ph.Ds in our development lab, putting together many of the critical components of central IP that will drive the future of Internet appliances, VoiceStick® applications, microgateways and a variety of other innovative devices and technologies..."

Mark Hewitt, i2Telecom's Chief Strategic Officer, says, "We're all about the convergence of communications and entertainment media. The company is focused on developing and delivering a plethora of innovation in the VoIP and broadband world. We are best known for the popularity of our VoiceStick® USB device and soft client phone that many companies have copied. Recently we have adjusted our legacy softswitch architecture to a new edge or session border controller service delivery platform that is capable of global scale. The company itself has built a strong intellectual property portfolio, which is necessary to have a defensible position as one launches successful products into today's complex marketplace."

"Paul Arena, who comes from the world of Wall Street, developed this vision with a clear understanding of what's necessary to build a highly sustainable technology company," says Hewitt. "At one point, we had six Ph.Ds in our development lab, putting together many of the critical components of central IP that will drive the future of Internet appliances, VoiceStick® applications, microgateways and a variety of other innovative devices and technologies."

Hewitt has over 26 years of experience in communications and entertainment technologies. He started his career in Alaska with the creation of a paging network that was later acquired by Craig McCaw. He was then elected Chairman of the Public Utilities Board to help rebuild the state's utility infrastructure, including the telephone, electric, water, sewer, and steam/hot water utilities. Hewitt later joined Motorola Communications, where he first worked on the design of the trunk radio system (core to the Nextel system), the ARDIS Network (core to the Blackberry system), and finally the IRIDIUM system's ground segment support and network design. Later, he joined Frontier Communications as Senior Director, Engineering and Product Development, where he was responsible for technology in the emerging IP systems field before Frontier was acquired by Global Crossing (News - Alert). Frontier was one of the first to introduce Session Initiation Protocol ("SIP"), now an industry standard, into the Softswitch Consortium formed in conjunction with Level 3. Mr. Hewitt later joined I-Link as Senior Vice President of Business Development and Product Marketing, where he launched the first softswitch/IAD in the United States. The associated service became the first national broadband voice network in the United States and was subsequently licensed to Net2Phone. Mr. Hewitt has operated as CTO at a number of communications, portal, and entertainment device companies. He's well known in the industry as a visionary and a technology guru.

i2Telecom's Chief Marketing Officer, Larry Stessel, is a seasoned senior-level marketing executive with over 30 years' experience in the entertainment and media industries. His colorful career with Sony Music included responsibility for the marketing strategies for Michael Jackson (including "Thriller", the biggest-selling album of all time), Babyface, Gloria Estefan, Celine Dion, Charlie Daniels Band, Pearl Jam, Stevie Ray Vaughan, Luther Vandross and numerous others. Mr. Stessel was implemented all strategic marketing plans for the international market as it related to U.S.-based artists, and he was responsible for all of the activities of the marketing, sales, promotion, media relations, creative services, artist development, touring and video production departments.

For all its impressive work thus far, the i2Telecom® team is just beginning. "MyGlobalTalk™ is a foundation technology that will propel the exponential growth of our customer base," says Mark Hewitt. "We'll also pursue other new and exciting patentable innovations involving mobile handsets, maximizing the value of our intellectual property along the way."

As for what the future holds, the words "Session Initial Protocol" and "unified communications" are critical elements in the company's roadmap. The company that converged the cost-effectiveness of IP communications with mobile devices will undoubtedly unify and converge other technologies and services, as well. We'll be keeping a close watch on i2Telecom® and their exciting new offerings. IT

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

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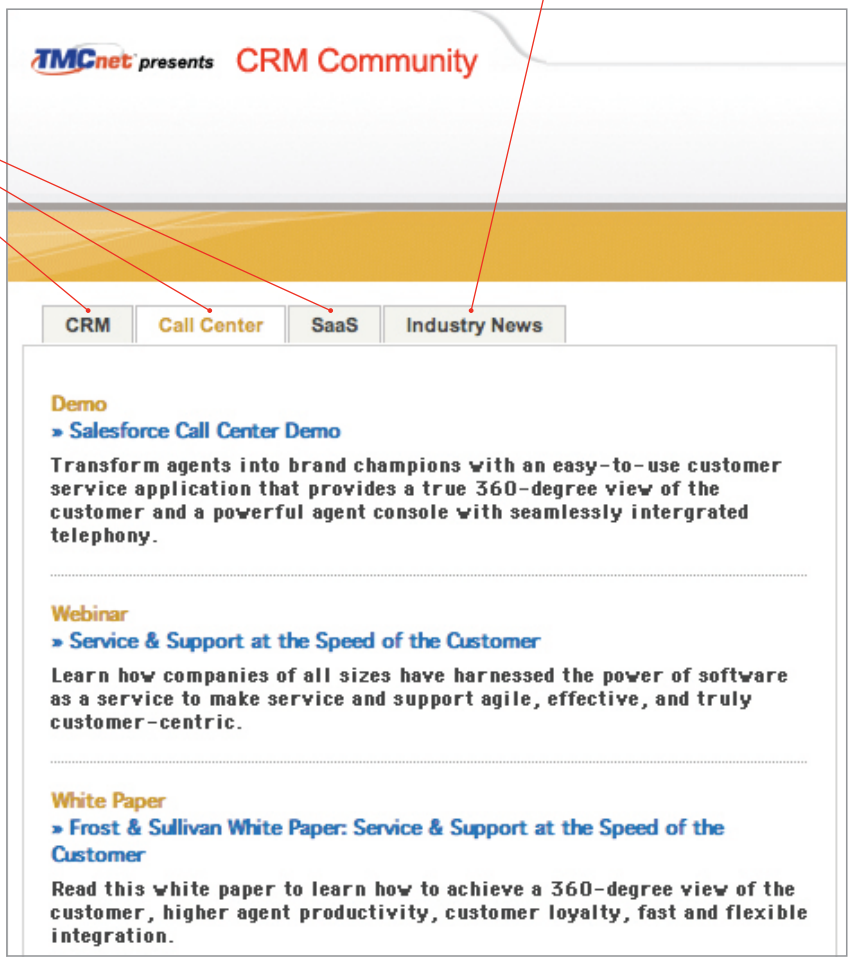

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Metro Ethernet is a Hit

By Richard "Zippy" Grigonis

Ethernet is everywhere. Appearing first in the LAN, then on the rackmount backplane, Ethernet can now be used both as a Metropolitan Access Network (MAN) to connect subscribers and businesses to the Internet and by enterprises to connect branch offices to their Intranet. Unlike older TDM-based technologies, Metro Ethernet supports high bandwidths with fine granularity. Bandwidth can be dynamically altered if necessary. Since it's Ethernet, it can be connected to your network without much fuss. On a MAN, Ethernet can take the guise of Ethernet, Ethernet over MPLS, Ethernet over SDH, or Ethernet over DWDM (Dense Wavelength Division Multiplexing). There are even ways of squeezing some additional bandwidth out of existing copper lines instead of resorting to optical fiber.

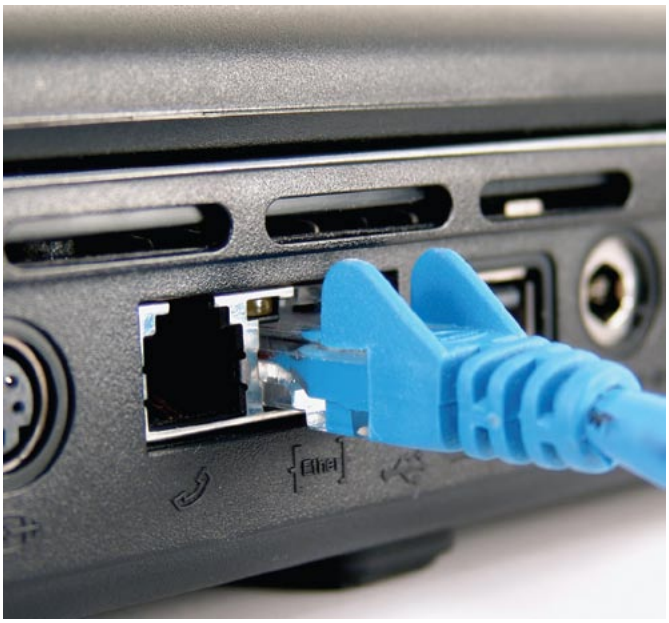
Recently Yours Truly looked at Matisse Networks' EtherBurst, said to be the world's first Packet WDM System, purpose-built for scaling metro and campus networks. The EtherBurst Packet WDM System includes the SX-1000 Ethernet Service Node (these nodes serve as both a local Ethernet switch and the on-ramp to the packet WDM photonic layer), the PX-1000 Photonic Node (these nodes are deployed in a metro ring, and provide a fully automated optical layer, enabling incremental scaling) and the MatisseView Management System, which provides unified access to integrated optical and packet service management software.

EtherBurst is just another example of how carriers have finally tried to stop selling ATM to their business customers and are now giving them what they've wanted all along – Ethernet in the Wide Area Network (WAN), particularly in metro segment between the last mile and the network core, which is still dominated by MPLS.

End-to-End at Layer 2

ANDA Networks (News - Alert) provides innovative carrier-class Ethernet equipment solutions for delivering cost-effective Metro Ethernet services over fiber, copper, and wireless based access networks worldwide serving a key role in Maximizing Ethernet Service Reach for our carrier customers worldwide.

ANDA Networks Greg Gumm, Vice President of Marketing and Business Development, says, "From a market perspective, there are various reasons Ethernet is being deployed so heavily. What is the common interface sold today? Ethernet is found on your desktop PC, handheld devices, wireless Ethernet on phones, and so forth. Clearly Ethernet is the dominant interface. From a technology and production perspective Ethernet has clearly been a 'high runner' in terms of a common interface standard. There's clearly a proliferation of the chipset, the standards and the ability to have large volumes of either virgin silicon or interface boards with that type of interface available. Every router and switch that's out there today typically will have some type of Ethernet interface on it as a standard component. It used to be that you had to plug in an Ethernet card. But now PCs now all have 10/100 Mbps and Gigabit Ethernet that's standard on a Dell (News - Alert) or Apple computer."



"Clearly, all of the LANs today are Ethernet," says Gumm. "When you start moving out of the LAN into the WAN, in the past we used services such as Frame Relay or private line services or, way back when, ISDN to actually provide transport to traverse the Wide Area. What's happened now is that the LAN people have said, 'Everything behind the WAN is Ethernet, so why would we not use Ethernet in the WAN?' If you're Customer A and I'm Customer B, and we want to talk to each other, you're in New Jersey and I'm here in Sunnyvale, California, in the 'normal' way of doing it, the typical plan was that outside of the LAN you had a router, from that router you then needed some kind of private line or frame relay lines. Or you might have a city ring, such as an FDDI ring or some kind of OC-3 SONET connection into the Internet POP or service provider. And that allowed you to have a connection. That also meant that you had to have conversions of the frame relay or the ATM, or whatever you're using and, on the other side, convert that down from the router and then convert that to Ethernet so it could point out to your PC."

"So basically, the value proposition is pretty easy when you move Ethernet into the WAN," says Gumm. "Instead of playing 'follow those legacy switch converters', protocol converters that are doing conversion of frame relay and ATM back down as Ethernet, you can now remove those network elements and the protocol conversion and do Ethernet all the way through, Layer 2 Ethernet end-to-end. That allows you to have a more simplified network, which means fewer network elements and less cost. It's also a more common interface so the equipment costs tends to be less, because there's more volume production in these types of products – high volume runners."

"Essentially, the market centers on business broadband," says Gumm. "We may not hear much about it but, just as we have residential broadband craze, clearly business broadband is also taking off quite nicely, primarily because of the Ethernet delivery services capability that the carriers and others will offer because of all of those economic reasons, and also because customers would prefer to have a native Ethernet

connection into their point of presence. I'd say if you take a look at the list of the top 100 carriers in the world based on revenue, I believe that about 90 percent offer or are planning to offer Ethernet services.:

"We originally started out developing some voice gateway equipment when the carriers were looking to deliver voice over DSL," says Gumm. "Based on the market conditions after the big crash in 2000 or thereabouts, we decided to refocus the company on delivering Ethernet access equipment. We saw the move to delivering converged voice and data and video over wide area transport. That was also coming along with the rise of VoIP, of which we've seen a fair amount. As services such as VoIP and streaming video start to hit these networks, frame relay and private lines are not very good at handling delay sensitive traffic. You don't want to be talking on a VoIP phone and then have it clip out. You can't afford to lose a lot of packets. You can't have a lot of delay in the network. Real time traffic is very sensitive. So when you move to Ethernet, that provides not only a universal interface, but a good medium to deliver integrated or converged voice, video and data traffic over a Layer 2 service. And that's another major reason why ANDA decided to get into the market back then. We have a fair amount of voice and data experience and we saw that things were going to be converging over an Ethernet transport."

"We have developed a full suite of metro Ethernet products," says Gumm. "Our boxes are deployed at business customers' premise, and then upstream from that we have an aggregation box that takes in all of the business locations. Our EtherEdge 4000s can aggregate all of the Ethernet traffic into a much larger pipe and then feed that data traffic into larger switch routers such as a large Cisco routers, or those from Juniper or Alcatel. If you think about it, it's very similar to how DSL was deployed in the residential area. You had DSL modems on the premises and you had DSLAMs at the edge to aggregate the traffic and take it to the network. So we have a set of products called EtherReach, which are in our premise boxes that sit at the business customer's premises and then we have products such as our EtherEdge or our EtherSLAM product which does the aggregation of those boxes and then takes all of that Ethernet or VLAN traffic into a larger switch router. We sell directly to large tier 1 and 2 carriers worldwide. Bell Canada (News - Alert) is a customer, as is Level 3, XO Communications and most recently we won a fairly large tender with British Telecom for their 21CN Ethernet network. Those are some of the carriers to which we supply this gear. They take our gear and put it into their network as infrastructure to deliver their Ethernet services. Our boxes are used to enable their global Ethernet services for international Ethernet private lines, ELAN services, and point-to-point or multipoint services that they provide to their business customers."

"One big driver moving Ethernet services is clearly the convergence of VoIP streams – streaming video and data," says Gumm. "About a year ago, Verizon won a very large deal with Chicago Mercantile Exchange. In about 700 locations they needed to terminate an Ethernet service because they wanted their traders, who are commodities traders, to access not only their email and their corporate databases but a big application for them which involves able to converge their VoIP phone service and streaming video. One main application was being able to quickly see what's happening on the trading floor, where's the market going. All of the applications had to run seamlessly over one type of WAN connection. They wanted the same type of capabilities in a consistent manner across all of their locations. So Verizon rolled out an Ethernet service to all the locations, a very big deal. They won over AT&T, which was bidding frame relay, private line type services. Verizon won that deal primarily because of their ability to provide Ethernet to all of the locations and to handle the delay-sensitive applications being converged over Ethernet service."

"ANDA equipment can provide Ethernet over both TDM circuits and fiber," says Gumm. "That allows the carrier – in this case, Verizon – to offer Ethernet service fairly ubiquitously. Their reach is close to 100 percent. There aren't too many places they can't get to thanks to our equipment, either over copper circuits or over optical fiber. Only about 13 to 15 percent of the business buildings in North America are actually directly fiber connected, so supporting copper facilities is important."

Making the Grade

Ciena Corporation provides flexible platforms, intelligent software and professional services to build converged networks for enhanced services and applications.

Dave Parks, Product Marketing Director, "We're focused on Ethernet and see many opportunities in this market. It's a big growth area. Our customers are investing heavily in Ethernet as both a service to their end customers but also as a new infrastructure technology to eventually replace their SONET/SDH networks. We've added more and more Ethernet functionality to our existing product line and are developing new products focused on the Ethernet market. We just announced an acquisition of World Wide Packets, which is one of the leaders in the Carrier Ethernet space. So we're really focused on this segment and see a lot of growth and opportunities."

"There's been a lot of talk about Ethernet as a business service to replace traditional private lines, frame relay and VPN," says Parks. "We're into that. There's also a movement for Ethernet as the 'infrastructure' for these new residential services. It's a much lower-cost, higher bandwidth solution for residential triple-play services, for example, especially when you look at how much more bandwidth people need for Internet access and new video services, both broadcast, on-demand, IPTV and all of that. Another emerging application is Radio Access Network [RAN] transport, a wireless backhaul application that's normally TDM-based, such as a leased T1 or E1 from the incumbent provider. Your handset is wireless to the cell tower but then from the base station everything is wireline with the exception of some point-to-point microwave links. As mobile operators move from 2G voice-centric services to 3G data-centric services, and then 4G WiMAX-type services, those handsets will be consuming a lot more bandwidth. In this environment, Ethernet has emerged as a really nice technology to get that traffic from the cell site back to the network operator's mobile switching center. That part of the network is called the RAN, and it presents some technological challenges that are being overcome but it has taken some time to work through some of them. Those challenges center on timing and synchronization issues regarding voice traffic. Fortunately, there are a number of standards being developed by the ITU and IEEE (News - Alert), such as Synchronous Ethernet, to deal with this."

"Another challenge that Ethernet is overcoming is how one can troubleshoot and monitor the network," says Parks. "There are a number of standards being developed by the IEEE to handle various OAM [Operation, Administration and Maintenance] issues, specifically

those involving Ethernet in the 'last mile'. Ethernet is a technology that's evolved from the LAN to the MAN to the WAN, and so we've had to augment it to make it carrier grade."

"We've put together a portfolio that addresses all of the applications I've mentioned that's very flexible," says Parks. "It's a solution that basically starts from the customer premises, or what we like to call the service delivery location, where the service is delivered to the residential or business customer, or perhaps even another network operator. From there, the solution encompasses the access network where the traffic is aggregated, and of course we have aggregator solutions as well. And we have Ethernet transport solutions and Ethernet service edge and core solutions too. Our Ciena CN 3000 Ethernet Access Series are service delivery/customer premise devices. Then there's our CN 4000 Series. We've just made a significant enhancement to the CN 4200, which is basically a metro transport platform, a Layer 0 or Layer 1 platform, which is very successful in the market. We've introduced a Layer 2 Ethernet switching and aggregation functionality on that system. Our customers can now just add a new blade to those systems to make them an Ethernet switch as well as a transport platform."

"Finally, there's our CN 5000 Series products, which can do high capacity Ethernet switching," says Parks. "So we've taken a number of steps to add that Ethernet intelligence to those products and to obtain MEF [Metro Ethernet Forum (News - Alert)] certification. The MEF wants to ensure that Carrier Ethernet looks and feels similar from one vendor to another and from one service provider to another."

Extreme Networking with Extreme Networks

Extreme Networks (News - Alert) designs, builds, and installs powerful yet open Ethernet infrastructure solutions for enterprises and service providers. Converged networks built with their equipment support voice, video and data, over a wired and wireless infrastructure.

Recently, Extreme Networks announced the general availability of its complete Provider Backbone Bridging – Traffic Engineering (PBB-TE) solution that spans from the edge of the network through the metro core. PBB-TE is a technique to transport Carrier Ethernet services, thus natively extending Ethernet services across a provider's network rather than employing other technologies such as SONET/SDH or MPLS. Extreme Networks' solution is comprised of new software and hardware, as well as a strategic relationship with control plane partner Soapstone Networks.

Peter Lunk, Director of Service Provider Marketing, says, "There's been a lot of discussion concerning Provider Backbone Bridging – Traffic Engineering [PBB-TE] technology, so we're excited about what we've put together from a solutions and product perspective. During 2007 there just about every major provider began to seriously contemplate deploying Ethernet services, and so we're excited to have a product in the right place to take advantage of this shift. To do this we had to develop the proper software and a hardware platform that extends from the metro core out to the customer edge where you run the PBB-TE circuits. Because PBB-TE takes the control plane out of the standard Ethernet protocol, we still needed a way to establish connectivity throughout the network. For that you need an external control plane to handle that. So, keeping these things in mind, we decided to develop a solution. We discussed the project with providers and got a lot of feedback. We discovered that the providers have a significant investment in their existing MPLS core network. Providers at first didn't understand where PBB-TE fit into the infrastructure, but they soon realized that it provided lower cost access from a metro perspective and it could still work with their MPLS core."

"BT has a huge deployment going on right now," says Lunk. "Not all providers will have deployments that big, so you need to have smaller scale hardware to be able to handle some of the lower density networks and smaller sites were you may not be bringing in as many business subscribers in the same location. So we realized the need to offer a variety of hardware density to successfully deploy a PBB-TE network."

Testing the (Ethernet) Waters

Ixia (News - Alert) is a leading provider of performance test systems for IP-based infrastructure and services. Service providers, network and telephony system vendors, semiconductor manufacturers, governments, and enterprises use Ixia's test systems to validate the functionality and reliability of complex IP networks, devices, and applications. Ixia's test systems use various standard interfaces, including Ethernet, SONET, ATM, and wireless connectivity.

Mike Haugh, Ixia's Senior Product Manager, says, "We've played in this space for a long time, and we're a leader in Ethernet testing. We had the most 1 and 10 gigabit ports shipped last year of any test vendor, so we've certainly found a sweet spot in the marketplace. With Metro Ethernet and Carrier Ethernet in particular, the trend has been that service providers over the last seven years or so have invested heavily in their backbone networks, which are mostly IP and MPLS based. Over the last two years, service providers have been evaluating and deploying new technologies and spending money upgrading their medium-haul or metro networks. A number of drivers are behind this, but primarily it's similar to what was going on in the core in that they have legacy technologies there that are becoming more expensive to upgrade, as in the case of, for example, SONET infrastructure. To keep building out and expanding SONET, the cost-per-port is much higher than going with a technology such as Ethernet."

"In terms of getting out totally new, flexible and higher-speed services, Ethernet has proven to be the most cost-effective transport mechanism, so there's definitely an expansion of Ethernet into the metro and medium-haul networks," says Haugh. "Now, aside from Ethernet as just a Layer 2 transport, there are still challenges around deploying Ethernet as a service. The Metro Ethernet Forum [MEF] is really leading in this area in terms of defining what those services are, such as the Ethernet Line Service [E-Line], a point-to-point service, and E-LAN multipoint-to-multipoint services, and the options that should be provided with those types of services. Where the technical challenges lie is what specific technologies are used in the cloud. It's pretty clear, especially from the MEF's definition, of what is delivered from one customer edge to another customer edge, but then in the middle there's the cloud. And that's really where the service providers are facing some challenges."

Haugh drills down: "The primary question is, do they extend MPLS into the metro and medium-haul network, or do they use or leverage another technology? Really, the main competitor to peer MPLS in the metro is using peer Layer 2 Ethernet services. Some examples are using Q-in-Q, MAC-in-MAC, and the emerging Provider Backbone Transport or PBT, which is becoming a standard under the IEEE as PBB-TE."

"Ixia participates in the MEF," says Haugh. "Each specification we monitor closely and when a new specification is developed, such as MEF9, MEF14

and now MEF19, we're on those specifications and we typically provide a conformance/performance test suite to test specifically to the MEF specification, though many of our customers want to go well beyond what the MEF is specifying. But definitely the MEF drives our activities. And when it comes to technology, there has been a surge of Layer 2 test requirements for peer Ethernet involving the testing of Q-in-Q and MAC-in-MAC, and the pre-standard implementation of PBT as well as the standard implementation of PBT-TE. Ixia's other major effort is in fault management technologies, such as Ethernet OAM. The three main 'flavors' of that are the IEEE 802.3ah for point-to-point and last mile, and 802.1ag and y.1731 for fault management end-to-end over Ethernet service."

Intelligent Choices

Sycamore Networks (News - Alert) makes intelligent networking products such as multiservice cross-connects, multiservice access platforms, access gateways, optical switching platforms, and element/network management and design software for major fixed line and mobile networks.

Sycamore's Director of Marketing, Bob Travis, says, "We've actually had Gigabit and 10 Gigabit Ethernet service interfaces in our optical switches for about four years now. We had some customers in the Asia-Pacific region that were embarking on offering Ethernet services and they were converging their networks early on over there. Obviously, there was a lot of infrastructure technology begin implemented, and MPLS was happening from an IP service layer. These customers were looking for alternatives of how they could take and aggregate that to Layer 1. So we introduced 1Gbps and 10 Gbps service interfaces on our SN 3000, an optical edge switch, and then we really focused on the SN 16000, our core switch. So we've had Ethernet services capability for quite some time."

"To fast forward from that time," says Travis, "We see such advances as the packet optical phenomenon and different converged transport systems that are offering a plethora of multiservices. We entered that market back in the fall of 2007 with our introduction of a packet optical switching system called the SN 9000. The traditional TDM interfaces such as a T1s and DS3s are still out there and aren't going away, and we found that we needed to offer a product that really supported a diversity of service interfaces and provide a system for network in transition that can do high density T1, E1, DS3, Gigabit and 10 Gigabit Ethernet, and optical services driven off of the same platform. That's where we are."

"Our biggest focus and value set is in a number of key areas," says Travis. "For example, there's interoperability. Ethernet has moved from the enterprise, gaining some functionality to run in a carrier class environment, but when you enter a carrier-class model, you must have compatibility and interoperability. We participate in the OIF [Optical Interconnect Forum], which started a major initiative back in the fall of 2007 and held an interoperability demonstration for on-demand Ethernet services. We all hear about Ethernet flexibility, but actually trying to achieve it in a real network with multiple vendors being provisioned by a management system could get quite 'interesting'. So the OIF's event focused on testing and interoperability. For example, carriers are starting to leverage Ethernet as an extension to private line service, so they tested and demonstrated that. They demonstrated how we could go beyond manual provisioning methods and move into a more automated discovery capability. They also demonstrated how you can throttle Ethernet bandwidth, which they call 'non disruptive bandwidth modification'. If an event trigger such as a video session occurs, how can you quickly, between multiple vendors and through an operational management system, actually increase bandwidth, taking advantage of Ethernet's flexibility? That was demonstrated."

Carrier Ethernet: Extending Control to the Customer Edge

By Rebecca Rachmany

Metro Ethernet has been going through some important changes such as Provider Backbone Transport (PBT), a group of enhancements to Ethernet defined in the IEEE's Provider Backbone Bridging Traffic Engineering (PBB-TE) spec that separates the Ethernet Service Layer and Network Layers, therefore enabling development of carrier-grade public Ethernet services.

PBT has begun to take hold in the industry. The main arguments for PBT are based on lower cost, revolving around the technology's simplicity and capabilities for management of large-scale system. It is logical that most incumbents with large MPLS deployments are going to stay with MPLS cores. However, even the large router companies have admitted that PBT is going to provide the scalability on the edge, even in some MPLS networks. Furthermore, the complexity of converged networks is increasing as we see more mergers and new providers within the industry.

Much of the debate on this issue is conducted with the major vendors taking one side or another. Predictably, the vendors with large interests in routers and traditional Ethernet, such as Alcatel, Cisco, and Juniper, are consistently plugging MPLS and VPLS as the solutions of the future. Smaller vendors and those without router interests, such as Nortel, Siemens and Corrigent, are reliably pushing for PBT solutions.

Certainly, within the PBT realm, there are a great number of new technologies ranging from the silicon all the way out to the network management systems. The wide variety of activity in the PBT area makes it look like an exciting industry. At the same time, the past suggests that making transitions to new network solutions takes an extremely long time, and the existing networks have a very strong foothold.

The Metro Ethernet Forum (MEF) is constantly debating this question, and establishing standards for how the services will be deployed. Within this debate, interoperability and OAM (Operations, Administration and Management) are the hot topics. Reliability and robustness are the top priorities when it comes to interoperability within the converged networks.

Despite the hot debate, eventually the vendors will need to admit that it's not about taking sides: it's about choosing the appropriate technology dependent on the specific operator's needs in the specific areas of the network. In other words, for the foreseeable future, MPLS and PBT will co-exist in a variety of converged networks.

Even the largest companies with deployments of MPLS have admitted that the management is complex. However, they are already heavily invested in MPLS and VPLS solutions. AT&T, for example, has already developed sophisticated management solutions on top of the MPLS network, and it simply does not make sense for them to move to a PBT system at this time. Furthermore, due to the nature of their customers, they've found that sophisticated VPLS solutions are required only in a small percentage — fewer than 5 percent — of deployments. Within that specific business model, provisioning for large multinationals, the current system is working well for them.

Other telcos have taken alternative approaches. ntl, for example, is agnostic to the management capabilities, arguing for simply over-

provisioning. Because of their wide reach, targeting of small customers, and the fact that they provision primarily data customers, this approach means that they aren't even focused on the underlying solution. The approach of over-provisioning isn't a popular one with major telcos, but it is a unique approach that allows ntl to focus on Applications at Level 7 needs rather than control on the Layer 2 and Layer 3 level.

Certainly the core networks are going to stay MPLS based for the medium to long term. However, by and large, the argument for PBT seems to be dominating the edge deployments for Metro Ethernet in the industry. Because of PBT's deterministic approach, management of nodes becomes straightforward. Traffic shaping, granular provisioning, and fault identification are all built into the system. Furthermore, the intrinsic structure of the MAC-in-MAC addressing scheme mean that it is straightforward to create additional nodes and sub-nodes, further scaling the network.

When discussing the lowered costs of PBT, it's important to note the source of these lowered costs. The main points are in the area of management and fault detection. Firstly, regarding management, PBT provides a centralized control plane, allowing centralized management. Furthermore, PBT's addressing scheme means that it is easier to add nodes to the network within that management system.

This quickly translates into easier management, and less required training for staff. The major operators using MPLS have developed proprietary in-house management solutions. Obviously, such solutions are very expensive to develop, maintain, and train staff to use.

A further cost savings is achieved when it comes to fault management. Identifying a fault requires that the network can see each node, and each Virtual Local Area Network (VLAN), and measure exactly what is going on at each point. A multitude of approaches are offered for fault management, but currently PBT is offering an elegant solution for granular identification of traffic behavior. Another financial incentive for PBT is the ability to provide differentiated services and Service Level Agreements (SLA). Once an operator establishes a VLAN, the service quality can be guaranteed across that VLAN. This is not useful just for singling out specific customers, but even looking at different types of traffic within a particular customer's network. For example, a brokerage firm may have all of its trade data to be mission-critical, needing a different level of priority than its email or even video data. Therefore, a highly granular level of QoS management actually allows operators to sell differentiated services. This kind of tiered service increases income opportunities for service providers.

The next natural step for PBT is further extension out to the edge. Currently, when vendors talk about PBT to the edge, they are referring to the network edge, that is, the first aggregation point. However, PBT can naturally have applications further out, at the actual customer premises. For example, at a campus or multi-tenant building, PBT can be used to provision each office separately, or again, to provision separate services within the office.

Until now, lack of PBT to the edge limited the level of service that could be provided to individual customers. Furthermore, if an individual customer office was not getting sufficient service, it is difficult and expensive to identify the location of the traffic delay. Operators can only see at the level that is provisioned at this level, meaning that there are a limited number of available VLANs. When considering the needs for differentiated services among various customers, and the rising customer demand for Ethernet services, it's clear that the number of VLANs will reach its limit relatively quickly.

Within this context, a customer-edge device with built-in PBT capabilities makes sense. Today's advanced silicon solutions are al-

"The two main standards used are UNI [User Network Interface] and ENNI [External Network-to-Network Interface]," says Travis. "The UNI is used when a client device connects to a switch-type device. The ENNI, also called the NNI, is used if two larger switch or transport devices connect to each other. The interconnect communication between one of our optical boxes and a competitor's would be done via an ENNI. It provides some communications of the control plane through the system and it provides some interconnectivity."

"With the influx of Ethernet services, there's an interest in how you can adapt flexible optical services based on network resiliency," says Travis. "Service providers can provide what I call 'peered levels' of services for network and service resiliency. By that I mean they will have the ability to offer different quality levels of service at different pricing levels, such a best-effort service or they could use existing SONET/SDH 1+1 protection services. Or they could use a nationwide mesh network, in which case they can offer some pretty dynamic offerings for tiered services for resiliency. They could offer different dynamic path restoration, a diverse conduit path or different conduit paths. This is useful because if your normal and emergency fiber paths through the network run to the same conduit that fails, the service stops anyway. But we have the ability to embed in all the nodes conduit IDs, which are attached to different circuits and you can examine those to ensure that you truly have diversely routed paths, so if there's a fiber cut or failure in a circuit or a path, then the traffic will automatically take a separate path."

"We're also involved in operational excellence and efficiencies," says Travis. "Carriers offer more capacity and services and need more efficient ways to turn up, monitor and reconfigure services more effectively and using fewer technicians. This is especially true of Ethernet services, because they are more dynamic than the traditional services. People talk about how Ethernet is striving for better OAMP [Operations, Administration, Maintenance, and Provisioning] services. We've put a great focus on developing those. For example, we offer CNM [Customer Network Management] and we have a feature extension whereby a carrier can extend some secure network visibility and have a partitioned view so that the customer can actually see the service that they're running. Part of that is extending a bandwidth scheduling tool which is used for on-demand bandwidth modification. We provide that too."

"Ethernet is everywhere and it's becoming more dominant," says Travis. "We also see things happening in the larger enterprise networks, such as the financials and global or nationwide networks where they're actually starting to install private networks. This has been going on for quite some time. Some people outsource their network, and then a new management team may decide to bring it back in house. We're seeing private networks being built within different cities, states and government agencies. They are obviously looking at the interconnectivity and the value set that Ethernet and optical mesh bring together."

Teaching Old Copper New Tricks

Hatteras Networks (News - Alert) develops equipment enabling carriers and service providers to deliver high-bandwidth reliable business services to business locations not served by fiber. This is driven by the very large bandwidth and services gap that currently exists between a traditional T1/E1 service and next-generation fiber-based services. Hatteras Networks delivers broadband Ethernet solutions over existing copper facilities to enable service providers to deliver transparent Metro Ethernet services and address the growing demand for high bandwidth mobile wireless and DSLAM backhaul transport.

Hatteras Vice President of Marketing and Product Lifecycle Management, Gary Bolton, says, "Every service provider is trying to significantly reduce their network and OpEx costs, and are attempting to deliver more advanced services. Data has long dominated service traffic on any network. The TDM-centric world of the past has given way to IP and VoIP. Ethernet has been around for 30 years, and it continues to evolve. In the past, we always awaited the 'next big thing'. Ethernet continues to be 'what's next'. It's the only service I'm aware of that's fully ubiquitous worldwide. You can plug in an RJ-45 connector anywhere in the world. That significantly reduces costs and eases management. When people think of metro Ethernet they think optical transport. It has high bandwidth and resiliency. However, only 15 percent of businesses in the U.S. and only 9 percent in Europe have access to fiber facilities. As businesses move to converged services, they need more bandwidth and transparent LAN services and multi-site connectivity, but they don't have fiber everywhere. That's where we come in."

"Hatteras is able to deliver a full Ethernet service set over existing copper wire facilities," says Bolton. "This gives carriers a wide-ranging Ethernet offering. They can deliver Ethernet services to the big new buildings over fiber, and to the other 85 percent of the locations over existing copper. They can have the same SLAs [Service Level Agreements] and high bandwidth. It's a great opportunity." IT

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

The following companies were mentioned in this article:

ANDA Networks
www.andanetworks.com

Ixia
www.ixiacom.com

Ciena Networks
www.ciena.com

Matisse Networks
www.matissenetworks.com

Extreme Networks
www.extremenetworks.com

Metro Ethernet Forum
http://metroethernetforum.org

Hatteras Networks
www.hatterasnetworks.com

Sycamore Networks
www.sycamorenet.com

lowing the building of cost-effective Customer Premises Equipment (CPE) with PBT as part of the basic feature set. Such CPE equipment can be provided in 1U or even smaller form factors, so that it can easily be integrated into the customer's data center. Currently, the CPE vendors have gone with much more simplified solutions, and are using various management overlays and probes in order to address the solution. However, the CPEs including PBT are already priced similarly to the other customer equipment devices. Having gained equal footing on this point, this approach presents a far more elegant and practical solution than the management overlays, probes, and other solutions so far proposed.

Bringing PBT to the customer edge exponentially increases the number of VLANs that can be provided at multi-tenant sites, as well as at base stations and other types of end-user premises. Once the operator provides such an extensive solution, routing, fault management, and provisioning become much more cost-effective.

Operators can measure exactly what each individual customer is getting, and charge for guaranteed SLAs accordingly. This provides increased sources of income, and a higher level of customer satisfaction.

Fault management on a granular level is also critical, because of the high costs of servicing the edge. Without granular levels of management, operators can find themselves needing to send out support personnel to the edge in order to identify the source of the fault. If the fault is indeed at the edge, this makes sense, but if the fault is actually with the customer's equipment, or in the core, the deployment of personnel ends up being a huge cost. Operators welcome any solution that can help reduce this major cost.

Currently, the CPE vendors have gone with much more simplified solutions, and are using various management overlays and probes in order to address the solution. As the CPEs including PBT are priced similarly to the other customer equipment devices, the provides a much more elegant solution than management overlays, probes, or any other type of solution meant for addressing this problem.

The exciting point about extending PBT to the edge is that its impact throughout the industry is a lot broader. As operators are able to differentiate themselves with guaranteed QoS and reliable management for sensitive voice and video traffic, mission-critical data, and even the ability to serve as a backbone for delay-sensitive TDM access networks, it will be interesting to see how the Carrier Ethernet players as a whole will adapt and expand their role in the market.

Rebecca Rachmany is Director of Marketing for Telrad (News - Alert) Networks, a company that has been developing carrier-grade communications equipment for more than half a century. Telrad provides development capabilities that focus on integration of core technologies into standardized, Tier-1 carrier-class products. For more information, visit www.telrad.com

Location-Based Services Finally Arrive

By: Richard "Zippy" Grigonis

Location-Based Services (LBS), capable of determining and using a user's physical location to provide an enhanced service or experience, have been "just around the corner" for the past eight years. Now they're here. Early systems relied on inaccurate cell tower navigation. Calling upon GPS satellites improved things a bit, but these types of systems may have trouble if the user is in an urban environment or indoors. The latest systems use either cell towers, GPS, a database of WiFi locations or a combination of two or more of these.

For example, TruePosition (News - Alert), Inc., a leading provider of wireless location technologies and solutions and a subsidiary of Liberty Media Corporation, recently announced the TruePosition® Hybrid Location Solution™, a mobile positioning method that provides better accuracy and consistency for consumer services such as local search and location-based advertising. It incorporates a combination of location technologies such as Cell ID (CID), Enhanced Cell ID (ECID), Angle of Arrival (AOA), Uplink Time Difference of Arrival (U-TDOA), and Assisted GPS (A-GPS) to ensure optimum accuracy, latency, and yield across every type of environment and condition — urban, suburban, rural, indoors, in-vehicle, in-motion and stationary. It has the accuracy, latency, and yield required for safety and security services such as family monitoring, personal medical alerts, and emergency number services including E-911 (in the US) or E-112 (in the European Union).

SiRF Technology (News - Alert) has also evolved beyond ordinary global positioning systems technology to to "Portable Location Awareness", the ability to know where you and your loved ones are, to navigate to any destination, and to always find your way home again; built right into the handhelds, portable PCs, cell phones, music, video players, and car navigation systems you use every day while on the move.

Kanwar Chadha, Co-founder of SiRF Technology, says, "We're the leading supplier of location technology into the mass-market or consumer space. Most of our technology is based on GPS positioning. We sell GPS chipsets, software, client-server architectures for wireless operators and network operators, and things like that. Today we have probably the largest GPS chipset market share in the world. We focus on four main mobile platforms: First, automobiles, where people use it for navigation and telematics. Second, mobile phones and wireless handheld devices. Third, we provide a complete end-to-end solution where the client software goes into the handsets and we provide servers and things like that for the network. We essentially provide what we call a location-enabling platform for LBS applications, which links up to the servers and the client side. The third market is mobile computing, which includes notebook computers, UMPCs and mobile Internet devices – basically it's an Intel and Microsoft world. We are developing future technologies which combine things such as WiMAX and WiFi connectivity with location and short-range technologies such as BlueTooth. Our fourth market is consumer electronics, which is an emerging market. Traditionally people have used GPS for handheld recreational type of applications, but we are looking at broader applications such as the integration of location and GPS into cameras, portable gaming machines, portable entertainment devices, and things like that."

"Today, automobiles are our largest market," says Chadha. "But wireless is our highest growth market. It exploded over the past year, especially with customers such as RIM and some in Asia. Mobile computing right now is a relatively small market as is consumer electronics. But we do see these taking off starting late in 2008 and early 2009 with some new applications and content."

"We have three levels of product," says Chadha. "We have multiple chipsets and client software which runs in the location-aware devices, be they for regular wireless or for automobiles. Our second layer is the server architecture, which typically resides either in the operator network or else in the application service provider network which provides assistance to the client to improve performance of location calculations in the devices. The third level is the LBS-enabling platform which we launched in 2007, which enables content and app providers to write and validate their applications using this set of tools, which makes it very easy for them to port

Going Beyond LBS with Machine-Based Communications

By Alex Brisbourne

With a slight 'bang', you feel your car pull sharply to the left, as you immediately realize that you have a flat tire. Rare though this may be, it happens to thousands of drivers every day – from coast to coast. Being alone, finding those tools and changing a wheel is a daunting challenge, and for some may not even be possible. What you need is instant help from a reputable repair truck.

Today, millions of motorists enjoy the security of knowing that, if this happens to them, a quick push of the blue button will summon help, and that this help will get there quickly and efficiently, thanks to the integration of location with assistance services with GM's OnStar service. Locating your car to within a few yards through the help of GPS satellite service, and real-time communication on demand over the cellular network makes this possible at a price anyone can realistically afford.

OnStar supports 5 million users today. Yet it represents just one of many examples of applications that, today and into the future, are quietly improving our lives through the convergence of a number of technologies.

The roots of Location-Based Services (LBS) lie in the de-militarization of the U.S. government array of satellites in the mid 1980s. However, it was 15 years later before applications started to appear that leveraged this technology for 'the common good' as was decreed by President Reagan at the time. For a number of reasons, the accuracy of early GPS systems was wide of the mark, often being accurate to only a few kilometres. However, further declassification in the late 1990s allowed the development today's systems with accuracy to within 20 -50 meters under normal use.

However, being able to confirm your location through GPS satellite links is only a part of the solution. Unless this information can be delivered, on-demand, ubiquitously and cost-effectively, to some kind of application (or a call center) there is no solution. The second part for LBS success has been the worldwide evolution of the cellular network to the point that today, all-digital GSM and CDMA networks span the globe, delivering SMS and IP services over more than 90 percent of the world's populated areas. Moreover, machines are now constantly chattering away over cellular networks to other machines, sharing useful information that is increasing our security, improving our safety and making our businesses more efficient.

The integration of cellular networks and GPS satellite services has driven a final part of the solution into the forefront. One obvious drawback of satellite services is that, if you can't 'see' them, you can't get your location. So, inside buildings, or in densely developed areas, satellite dependent services have real limitations. But a cellular network device is always connected to more than one cell tower – and its location is known. Enter cell location technology as an added ingredient, a technology widely used in E911 services today but generally unavailable to third party services. Now, the trivector of GPS, ubiquitous IP cellular and the integration of cell location is enabling powerful, friendly and life-enhancing applications where location is paramount to the value of the service.

We've already briefly discussed OnStar at the start of this article: peoples' lives are being saved today through OnStar as a result of the accurate dispatch of emergency services after an accident or medical emergency. But that is only the beginning. For several years in Europe, advanced navigation services are routinely available in both OEM and aftermarket applications that combine real-time traffic data, up-to-the-minute maps and customer navigation route needs into simple, voice-driven, turn-by-turn directional services without needing to install expensive (and potentially distracting) pictorial maps. A simple request for a destination to a call center over a cellular connection – often by a voice call – results in a route 'token' being downloaded to the vehicle. Based upon the precise location of the vehicle, turn-by-turn directions are spoken to the driver. Compared to on-board navigation systems, this kind of approach eliminates unnecessary driver distraction, is cheaper to buy, and is always up-to-date, with latest roads, road layout changes or traffic holdups immediately available to the route plan software.

Machine-based communications are now all around us, with more new applications appearing every day. There is much talk that 'Personal Navigation Devices' (PND) are the next big wave for consumer adoption – like email and Instant Messaging were over the past few years. This is hardly innovation; simply repackaging proven services onto consumer handsets. But,

from one environment to another, be that a different operating system environment or a different underlying mobile phone hardware environment. We're working with more than 100 application content providers who have joined what's called the SiRF Location Ecosystem Platform."

"There was a lot of hype in the LBS space around the year 2000," says Chadha. "Everybody was looking at billions of dollars of opportunity. The problem at the time was that there was no infrastructure in place to enable both content and applications. There weren't enough mobile phones with location capabilities, networks and components were not in place to support LBS platforms, and the business models weren't clear. The E911 mandate that location had to be in every handset helped the hype, but the operators focused on that particular requirement and they didn't work on building a broader LBS ecosystem, with a few exceptions, such as NexTel, which actually built a location-enabling platform. We supply our technology into all of the NexTel phones."

"In the last two years, however, much has changed," says Chadha. "In the U.S., Verizon, Sprint (News - Alert) and Cingular / AT&T have now started deploying a broad range of LBS applications. Many more location-enabled platforms have become available from RIM, Motorola, Nokia, and OEM handset makers such HDC, Asus, and others out of Asia. So we're seeing a broad range of handsets becoming available and even some of the tier 1 handset people are entering the market. We're also starting to see the operators become more serious about in the U.S., where four of the five major ones are now deploying location technology. In Europe we're starting to see Orange, Vodafone in Germany and Telefonica in the U.K. get more serious about LBS."

integration of location capabilities is now widespread in applications as diverse as emergency response, taxi and limousine services, and improving call rates for repair and maintenance crews by being able to know, precisely, who is available, and where, to respond to customer calls. The payback is fast: one more job every week by a plumber or electrical contractor more than pays for these service enhancements.

Smarter applications are appearing in areas such as advertising. Many buses and taxicabs have traditionally carried advertising banners. However, a major level of concern for advertisers is that these cabs may not even be able to influence customers' buying habits. Enter smart billboards — in these applications, advertising messages are dynamically adjusted to reflect the location of a vehicle. In a simple example, a fast food outlet may change the address and phone number in the advertisement on the cab top to show the nearest location dynamically based on the cab's location. To the customer, the value is obvious, to the advertiser, the payback is real and to the cab company (and its advertiser) they are able to charge premium rates as they assure relevance of their billboards.

It's not all about consumers however. Many of the fastest growth areas in machine communications, and especially those leveraging location awareness, are in areas such as security and commercial asset control. Sheriffs' departments across the nation are increasingly adopting tracking devices, using 'ankle bracelets' and other approaches, to keep track of low and medium risk offenders. Parole organizations recognize that helping offenders to re-integrate into society is critically important – but only if our society is comfortable with the process. For example, certain offenders may have restraint orders under which they must live: perhaps not visiting certain neighbourhoods, or being close to children or spouses. With location-awareness built into the tracking devices they are wearing, these individuals can be 'geofenced' – in effect controlled within an electronic pen so that if they break the boundary (for example venture within a mile of a school), then the controlling agency is immediately notified.

If these sound too much like Big Brother at work, think of more benign but perhaps equally important applications of the same base technology. If we have elderly parents, perhaps suffering from memory lapse, or Alzheimer's disease, what would we pay to know that, should they get lost, we can locate them quickly and ensure no harm befalls them? It's technology being put to positive use in our community today.

Controlling and tracing assets, from automobiles to industrial equipment, is lowering insurance costs for high value items that, in the past, may be lost forever. But the insurance industry in Europe has been pioneering innovative thinking to solve a different type of problem: youth drivers and their associated high insurance premiums. Conventional wisdom was that young drivers – especially male – were poor risks. As premiums rose, so too did the restrictions on these young people to pursue career-enhancing mobility, such as in summer employment or internships due to the high cost of providing them access to cars to get to their work. One insurer developed a 'Pay-for-Use' insurance program, entirely based upon routes, driving conditions, time of day and a number of other variables. By having real-time tracking in place on designated vehicles, they were able to measure driving behaviour such as speed, aggression and roads travelled and adjust the rate charged per mile accordingly. These innovations may be coming to an insurer near you in the not-so-distant future!

In other areas, cellular machine communications linked with location capabilities are seeing innovative solutions to supply chain and logistics services. Transporting food materials is a tricky business, especially when needing to control such critical areas as temperature change. The shelf life of many goods, from hamburgers and chicken to fresh produce, depends significantly on the variances that these goods encounter during transit. Many of today's foodservices companies are starting to actively monitor refrigeration units – for maintenance and performance – temperature gradients during transit, and even if doors have been opened or closed in locations off route to ensure that produce has not been tampered with. All of this leads to a better quality product, and with lower wastage, arriving on store shelves.

These industrial applications for cellular and location are taking off rapidly. They complement (and in some cases, eclipse) the push for consumer-centric services that have been much talked about, but have only limited success to date, like IM-based friendship groups, or mobile marketing pushed content. The level of innovation is now high, and the time of location and cellular has now arrived!

Alex Brisbourne is President and Chief Operating Officer at KORE Telematics (www.coretelematics.com), North America's largest independent provider of digital wireless services for the machine-to-machine (M2M), telematics and telemetry markets. He has more than 20 years of experience in the networking and telecom industry, in Europe, North America and Asia and most recently, as a General Partner in Aegis Management, an early stage technology incubator.

Making the Connection

With platforms and applications designed to meet the needs of both consumers and enterprise customers, WaveMarket Inc. has pioneered the delivery of location-based solutions to mobile handset users, their peers, groups or the world. One interesting appilication they've developed that gives parents peace of mind is the Family Finder (Sprint's "Family Locator"), that gives mobile subscribers accurate information regarding the location of family members via the web or mobile phone, and alerts them if children or elderly loved ones leave a pre-specified "safe-region". Family Finder's easy-to-use interactive maps can be accessed from both a desktop and mobile devices. WaveMarket also offers asset tracking services that help enterprises improve efficiency and productivity.

WaveMarket has a partnership with Aepona, whose products and solutions provide the important connection between the Internet / IT domain and the telecoms domain, allowing telcos to offer many new services that combine web and telco capabilities to create compelling new composite applications or "mash-ups". WaveMarket uses the Aepona platform to deliver location-based services to mobile carriers, who in turn offer them to their subscribers.

Michael Crossey, Aepona's VP of Marketing, says, "We're a provider of the kind of Web Services technology that makes it easier for companies such as WaveMarket to connect into the telco networks. We abstract the telco capabilities, location being one of them, but also messaging — both multimedia messaging and text messaging. We cover call control, so we can do conference and person-to-person calling, application initiated calling. We also cover things such as presence and profiles and so forth — a whole range of telecom capabilities that we expose and present as Web Services which means that applications developers such as WaveMarket can simplify the process of connecting into these telco functions. We not only simplify it but make it repeatable across networks. Currently they're in the Sprint network, but with our technology they can enter our European customer base of providers and not have the same integration headaches as they would without Aepona's technology."

"We don't specifically focus on location-based services," says Crossey, "but certainly LBS is one of the application areas we think is very exciting. Our technology replicates the web model in the telecoms domain, especially Web 2.0 where you have services that are made available by web providers and other players can use those services as mash-ups in their applications. A very simple example of this is Google Maps, which can be used by apps developers to create a composite customer experience. So we're taking that model and replicating it within the telco domain so that telco capabilities can be represented as a Web Service in exactly the same way as Google Maps can be represented as a Web Service."

Hearing a Different Drummer

The satellite-based GPS system provides the raw material for many LBS systems. One interesting exception is the WiFi Positioning System (WPS) from Skyhook Wireless, said to be the first location platform to use the native 802.11 radio already on many mobile devices, particularly those that don't have GPS. (If they do, WPS' indoor availability and 10-20 meter accuracy in urban areas complements GPS' known limitations.)

To pinpoint location, WPS uses a huge reference network comprised of the known locations of tens of millions of access points. To develop this database, Skyhook has deployed drivers to survey every single street, highway, and alley in tens of thousands of cities and towns worldwide, scanning for WiFi access points and plotting their precise geographic locations.

Skyhook currently provides coverage to 70 percent of the U.S., Canadian, and Australian populations. The top 50 metropolitan areas of Europe are covered along 70 percent of the population in Germany, France, and the UK. Skyhook is also expanding its Asian coverage.

iPhone and the WiFi-enabled iPod Touch can find their location and, using mapping daga from Google, receive instant directions. This is a software update that is free for the iPhone and $20 for current Touch owners. Skyhook also powers the location capabilities of the Reigncom iRiver portable media player and AOL (News - Alert) Instant Messaging Service, among others.

Ted Morgan, CEO of Skyhook Wireless, says, "People have talked about location-based services for eight or nine years now, and until recently it hasn't lived up to the hype. That's because the pieces weren't in place. People talked about potential uses, services and apps, but there wasn't the proper infrastructure in place to provide any of it. So there's no surprise that it all seemed a flop around 2001, since there were no handsets that could deliver location data, and there's no surprise that consumers didn't adopt it. Now, however, the infrastructure is starting to come together across a number of device categories, and certainly on the handset side, there's a large number of devices that are location-enabled using GPS, and if you talk to every major handset maker, they're all attempting to infuse location abilities into all of their device suites. That's because they're seeing a lot of really good trends coming out of the navigation market. What really kickstarted everything was the big success of the Garmin (News - Alert) and TomTom personal navigation devices for your car. For example, Verizon rolled out the VZ Navigator service that turns your cell phone into a turn-by-turn driving navigation device, and it already has millions of users."

"As the device makers get into this field, they're trying to figure out what they need in order to have a reliable service," says Morgan. "So the first thing they did was to look to GPS, because the U.S. government runs it, it supposedly works everywhere and you just have to put a chip in your device. But they've discovered that while GPS is a whole lot better than technologies based on cell towers, it still isn't designed for finding consumer locations – it doesn't work indoors, doesn't work around buildings and it takes a really long time to get your first location. All of these things make it poorly suited for consumer applications. As people are putting these pieces in place and they see the market demand is there, they're trying to figure out how they're going to put together the underlying location system that can support all of that. That's where we come in. Skyhook has developed a global positioning system using WiFi instead of satellites or cell towers. We've leveraged the sheer growth and usage of WiFi."

Yes, location-based services are here and soon we'll all be wondering how we ever got along without them. IT

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

The following companies were mentioned in this article:

Aepona
www.aepona.com

SiRF Technology
www.sirf.com

Skyhook Wireless
www.skyhookwireless.com

TruePosition
www.trueposition.com

WaveMarket
www.wavemarket.com

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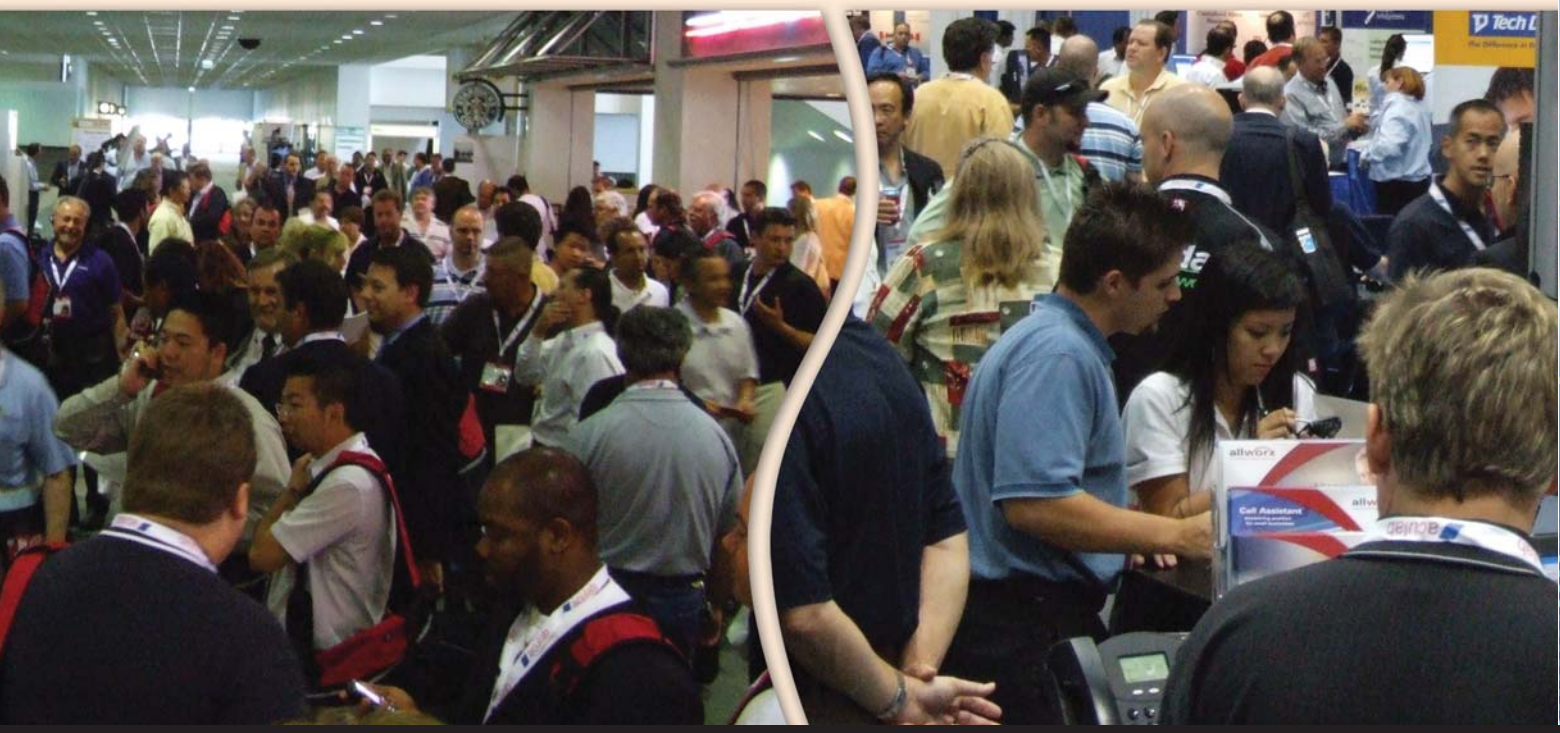

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INTERNET TELEPHONY Conference & EXPO Agenda-At-A-Glance

Day One: Tuesday – September 16, 2008

	IPTV Workshop for Carriers	TMC University: Microsoft OCS	TMC University: FMC/Mobility	TMC University: Open Source	Call Center 2.0 at ITEXPO	TMC University: SIP in the Contact Center
	Conference fee required	*Conference fee required*	*Conference fee required*	*Conference fee required*	*Conference fee required*	*Conference fee required*
8:30 - 9:00	Continental Breakfast - Paid Attendees Only					
9:00 - 9:45	How to Implement IPTV Networks	Intro	Overcoming FMC Challenges	Advantages of Open Source VoIP	Adding Intelligence to the Next-Generation Contact Center	Welcome to the Contact Center of the Future
10:00 - 10:45	Overcoming IPTV Challenges	OCS-PBX Interoperability	Addressing Femtocell Integration Challenges	Opportunities in Deploying Open Source Applications	Contact Centers: Results from the Labs	Adoption of IP in the Next-Generation Contact Center
11:00 - 11:45	Measuring Quality of Experience for Successful IPTV Deployments	OCS Servers	Messaging and Mobile UC	Understanding Open Source Standards	Trends in IP Contact Center Deployment	Technology Considerations for Contact Ctr Evolution
11:45	Conference Luncheon - Paid Attendees Only					
12:45 - 1:30	What Will it Take to Deploy IPTV?	Call Flow Scenarios	E-911 Considerations	Using Open Source to Roll Out Next-Gen Applications	Contact Center Security Strategies	Top 10 Reasons to Consider Hosted Call Centers
1:45 - 2:30	The Progression of Streaming Video	Configuration & Planning	Cost Containment as a Driver for FMC Deployment	Recognizing the Opportunities in the SMB Market	Embracing Unified Communications in the Contact Center	Make Your Contact Center Smarter: Best Practices
2:45 - 3:30	TMC University Exam	TMC University Exam	TMC University Exam	TMC University Exam	Planning Ahead for Optimal Contact Center Deployment	TMC University Exam
3:30 - 5:00	FREE Keynote Session					
5:00 - 6:00	FREE Networking Reception					

Day Two: Wednesday – September 17, 2008

	Service Provider Solutions	Unified Communications	Hosted Communications Workshop	TMC University: IP Network Security	Call Center 2.0 at ITEXPO	TMC University: SaaS
	Conference fee required	*Conference fee required*	*Conference fee required*	*Conference fee required*	*Conference fee required*	*Conference fee required*
8:30	Continental Breakfast - Paid Attendees Only					
9:00 - 9:45	Quality of Service Considerations	Deploying UC	Welcome to Hosted VoIP	VoIP Security Myths & Realities	Position Your Contact Center in a Web 2.0 World	Software-as-a-Service: The Basics
10:00 - 10:45	The Continuing Evolution: From TDM to SIP	Network Management & QoS	Deploying Hosted VoIP	Best Practices in VoIP Security	Understanding Your Customers	Using Hosted Speech Solutions in the Call Center
11:00 - 11:45	Applications as a Competitive Differentiator	Exploring Mobility in Unified Communications	Delivering on the Promise of Hosted VoIP	Security Considerations for the Enterprise	Benefits of VoIP Enabled Recording	CRM Software as a Service
11:45	Conference Luncheon - Paid Attendees Only					
12:45 - 1:30	Service Creation Considerations	UC for the SMB	Open Source Options for Hosted Voice	Deploying Secure Wireless VoIP	IP Contact Center Shootout	SaaS and the Home Agent Model
1:45 - 2:30	Imagining Tomorrow's Wireless Landscape	UC Round Table: The Future of the Industry	Session TBD	TMC University Exam		TMC University Exam
2:30 - 4:00	FREE Keynote Session					
4:00 - 8:00	Exhibit Hall Grand Opening Reception					

Agenda-At-A-Glance

Day Three: Thursday – September 18, 2008

	Service Provider Solutions	TMC University: Unified Communications	VoIP for SMB	TMC University: SIP	Call Center 2.0 at ITEXPO	TMC University: Next-Gen Call Center Mgmt
	Conference fee required	*Conference fee required*	*Conference fee required*	*Conference fee required*	*Conference fee required*	*Conference fee required*
7:30	Continental Breakfast - Paid Attendees Only					
8:15 - 9:00	Not All Collocation is Created Equal	Introduction to Unified Communications	Reality Check: Southern California End Users Speak Out	SIP (Session title TBD)	Innovation in the Skype-Enabled Call Center	Contact Center Benchmarking Study Results
9:15 - 10:00	Customer Retention Through Analytics	Defining the Business Case for Unified Communications		SIP (Session title TBD)	Using Natural Language to Improve the Customer Self Service Experience	Improving Customer Experience One Transaction at a Time
10:15 - 11:00	Keeping Mobile Carriers Competitive	Unified Communications in the Call Center	SMB Networking Alternatives	SIP (Session title TBD)	Service and Support: Strengthening the Bottom Line	The Importance of First Call Resolution
11:00 - 5:00	Exhibits Open					
12:00	Conference Luncheon - Paid Attendees Only					
12:45 - 1:30	The Convergence of Communications & Entertainment	Collaboration & Conferencing	Making the Business Case for VoIP in the SMB	SIP (Session title TBD)	Translating Customer Voice into Bottom Line Benefit	Leveraging Speech Analytics for Customer Satisfaction
1:45 - 2:30	Accelerating IMS Deployment	Does OCS Fit Into Your UC Migration Plans?	SMB VoIP Options	SIP (Session title TBD)	Contact Center Mobility	Workforce Optimization Strategies
2:45 - 3:30	Service Provider State of the Industry	TMC University Exam	The Role of Applications	TMC University Exam	Customer Experience 2.0: Competitive Differentiation	TMC University Exam

Free Keynote Speeches:

Rodrigo Madanes
Chief Product Strategist
Skype

Michael Tessler
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By Sven Freudenfeld

Development Platforms:
Integrated xTCA Architectures Offer a Choice for Highly Reliable and Scalable Network Designs

Network services, such as IPTV, social networking and 4G presence-enabled services continue to drive growth, setting the foundation for a broad spectrum of content delivery platforms. Competition is intensifying as Network Equipment Providers (NEPs) and Telecom Equipment Manufacturers (TEMs) must keep up with these time-to-market demands, Quality of Experience (QoE) expectations and increasing complexity of the network, while focusing on differentiating their application.

However, building a distributed, highly available and reliable system to deliver network services is a complex and often time-consuming task. Developers of content delivery platforms looking to add new revenue streams cannot afford 18 to 24-month deployment cycles. Designing the entire system in-house is no longer a realistic use of resources nor is it a cost-effective option. Instead, network equipment designers are looking to a Commercial Off-The-Shelf (COTS) approach that is driven by standards in order to accelerate the development cycle, reduce risk and ultimately shorten time-to-market.

The Advance Telecommunications Computing Architecture (AdvancedTCA, or ATCA) was defined by the PCI Industrial Computers Manufacturing Group (PICMG) to address the need for COTS solutions to address the specific needs of telecom. Advanced Mezzanine Cards (AMC) modules, ATCA plug-in expansion cards, address the need for high levels of modularity and configurability. AMCs can extend the benefits of the AdvancedTCA fabric to individual modules, enabling designers to customize, scale, upgrade and service their systems. Micro Telecommunications Architecture (MicroTCA) is a complementary, smaller scale platform, ratified in July 2006 and built around the use of AMC modules. Together, AdvancedTCA, MicroTCA and AMCs make up the xTCA ecosystem offering the freedom of choice to source from multiple vendors.

AdvancedTCA Building Blocks

The advent of the AdvancedTCA specification to meet carrier-class requirements provides an ecosystem of flexible hardware building blocks for the integration of complex high-performance systems. The advantages of AdvancedTCA are its extremely high computing power, high communication bandwidth, and high availability. Manufacturers who take advantage of the latest multi-core processors in these COTS building blocks from multi-vendor ATCA component providers will be able to build high performance, scalable systems without upgrading the framework or increasing floor space.

The AdvancedTCA specification defines a number of backplane protocol and topology choices, providing flexibility depending upon the needs of the application. The processing boards communicate over the backplane via high bandwidth channels, typically Gigabit Ethernet or 10 Gigabit Ethernet — in either a star, dual star, or full mesh topology. Peripherals such as packet processing modules and storage drives using iSCSI both communicate over the backplane, typically via PCI Express, GbE, 10GbE, Serial Rapid IO, SATA, or SAS (News - Alert).

The redundancy of the dual star and full mesh topologies are a key factor in making AdvancedTCA systems highly available. Other features of AdvancedTCA that support high availability include the ability to hot swap all FRUs (Field-Replaceable Units), redundant IPMI (Intelligent Platform Management Interface) buses for blade management, and shelf management. These features, if properly leveraged through judicious use of middleware and/or application support, can provide systems with up to five nines (99.999%) availability.

MicroTCA — Compact Size and Flexibility

One of the biggest advantages of MicroTCA is its small form-factor, high bandwidth and high availability. Despite its small size, MicroTCA offers a wide range of bandwidth, options both in terms of compute bandwidth and communication bandwidth. The abiliyt to plug up to 12 compute boards into a single backplane give MicroTCA a tremendous amount of potential computing resources, especially when each board is using a multi-core processor. Communication bandwidth capabilities range from 1 Gbps to 10 Gbps using multiple switch protocols such as 1GbE, 10GbE or brio. With this amount of compute and communication power, MicroTCA has more than enough bandwidth for most demanding applications.

MicroTCA also offers design flexibility with several packaging options for different environments and support for a number of interconnect technologies, including Ethernet, PCIe and RapidIO (News - Alert).

Potential applications are as varied as WiMAX and cellular base stations, data centers and the enterprise, along with VoIP and IMS applications. One area of potential growth for MicroTCA within the telecom market is IPTV-based or content delivery services. The challenge is deploying an end-to-end IP-managed network that can deliver superior quality of service and quality of experience for the consumer. Since it offers high availability, low-power, ultra dense processing and lower operating costs, designers can use MicroTCA for residential media gateways. The smaller form-factor and lower entry cost in footprint of MicroTCA communications servers supports a "pay-as-you-grow" business model, allowing service providers to enter a market with less initial capital expenditure and to expand their computing platform capabilities in small, low-cost increments as demand for the new service increases.

Other Critical Building Blocks

Selecting the appropriate hardware to support a given set of communications protocols and applications is just the beginning of the

engineering workload associated with launching a new carrier-class platform. Along with the robust, highly intelligent, high availability and reliable hardware components provided by xTCA also comes a degree of complexity in the details of virtually every facet of the system. Besides the standards-based COTS system management building blocks, there are a number of other elements which must all work together seamlessly (see Figure 1).

System design engineers must also integrate the associated OS and in some instances the Board Support Package (BSP) with the associated supporting drivers for the components on the board or system and develop middleware to integrate the hardware with the application reliably. The management capabilities for all the hardware, fabrics, software, and system components are quite sophisticated and require an expertise of complex standards to pull all the building blocks together into a cohesive system.

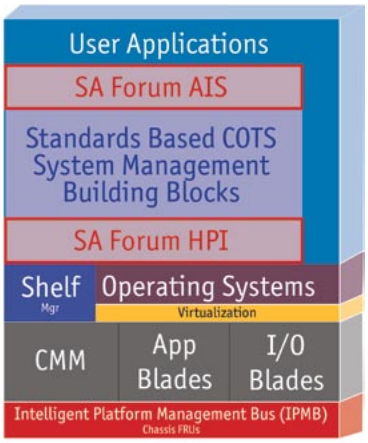


Figure 1

However, standards-based middleware provides TEMs with off-the-shelf high availability software to complement its carrier-grade equipment. Frequently there is a lapse between the availability of the hardware and the date with which it is possible to deploy applications because of the development costs associated with the back-end software. This gap can be filled with middleware platforms that provide chassis management functions, interprocess communications, and services that are scalable from deeply embedded to large, complex systems. The availability of open system solutions and open architecture middleware platforms make it possible to integrate essential services without being a technical expert in communications.

Interoperability is Critical for Mainstream Adoption

One of the keys to the adoption of any open standards computing platform is interoperability. Because the system configuration options using the xTCA approach are diverse, multi-vendor interoperability is key (see Figure 2).

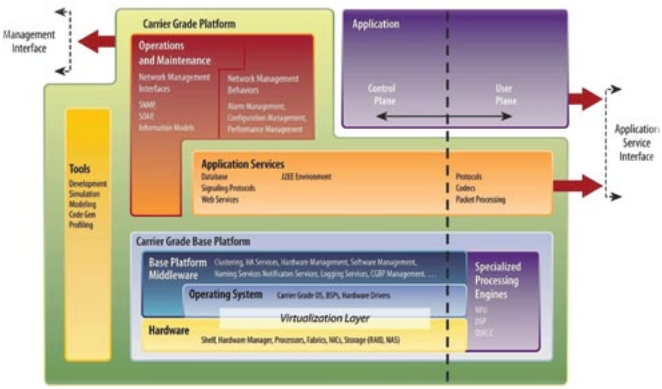


Figure 2

The Communications Platform Trade Association (CP-TA) is a global association of communications platform and building block providers dedicated to accelerating the adoption of SIG-governed, open specification-based communication platforms through interoperability and testing. CP-TA has delivered interoperability documents for ATCA and is currently addressing AMC and MicroTCA specifications. COTS building blocks tested according to the CP-TA Test Procedure Manual and validated according to the Interoperability Compliance Document.

Beside the CP-TA, there are a number of other working groups dedicated to solving issues related to xTCA interoperability and compliance (see Figure 3). The SCOPE Alliance (News - Alert) has defined a reference architecture for a generic Carrier Grade Base Platform (CGBP). This architecture, which includes hardware, operating system, operations and maintenance functions and tools, also specifies middleware as a fundamental component for service availability. SCOPE also creates profiles for The Service Availability Forum (SA Forum), the main organization active in the middleware standardization effort.

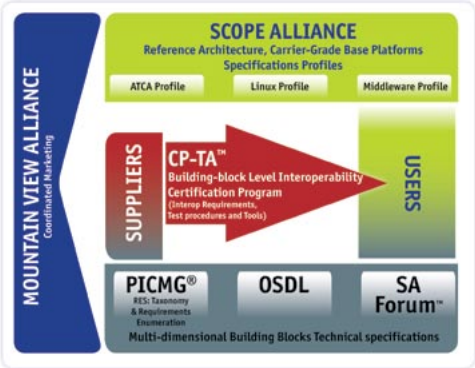


Figure 3

The Daunting Task of Integration

While there are significant benefits in using standardized xTCA building blocks, developing a complete system still requires an integration effort that can take from six to 12 months to make sure all of the elements work seamlessly together. In addition, integrating the hardware platform can require a great deal of support in the form of program management, functional experts, quality assurance, tools and deployment support all of which adds up to a tremendous amount of precious personnel, time and money resources.

Integration efforts must start from interoperability on the hardware level when using multiple sources for the system components. There are also the considerations of thermal, mechanical, fabric connectivity and IPMI interoperability. Having all the tools to perform this task is already a significant investment not to mention the engineering time to perform validation and integration. When integrating multi-sourced standard components, further challenges arise when the design team must identify which "vendor" is at fault when a problem arises.

The next level of integration requires that the preferred OS works properly and is supported on the desired boards. The manageability within the system can become a major undertaking. Even when standard-based components are implemented, the system management (middleware), HPI, and shelf management all must be validated as a cohesive management unit.

The following provides an example of the associated costs of resources and lost revenue due to incremental time-to-market in a real-world network application developed entirely in-house:

From the initial procurement phase (including component selection, procurement and learning curve) to carrier-class integration and validation of the hardware platform all the way through deployment support (including debug and component upgrade), the incremental time to market can add up to more than 700 days. The lost revenue due to this delay can add up to a loss of $1 Million for every month not in the market, which totals to nearly $24 Million.

For a product to be successful, it needs to be an integrated solution with hardware, middleware, OS, etc. As a result, partnering with hardware and middleware experts that can provide integrated, validated and tested platforms is very important to the long-term success of the application (see sidebar).

Summary

It is a complex and laborious undertaking to build a distributed, highly available and reliable system to deliver network services. The COTS approach has proven to help reduce risk and accelerate time-to-market. As the COTS xTCA ecosystem continues to grow, multi-vendor interoperability becomes essential. CP-TA tested building blocks offers developers with the freedom of choice to select the best of breed in price and performance, alleviating the issues about hardware integration or interoperability and allowing them to focus on differentiating their application. Collaborating with an experienced platform integration partner can help ensure the application can be successfully brought to market.

Sven Freudenfeld is responsible for North American Business Development for the Kontron (News - Alert) AG line of AdvancedTCA, AdvancedMC, MicroTCA, and Pre-Integrated OM Solutions. Sven possesses more than 15 years of experience with voice, data and wireless communications, having worked extensively with Nortel Networks in Systems Engineering, Sanmina-SCI in Test Engineering, and Deutsche Telekom (News - Alert) in Network engineering. Sven holds an electrical engineering degree from Germany, is VP of The Communications Platforms Trade Association (CP-TA) and is the Chair of the CP-TA marketing workgroup focusing on the interoperability of COTS standard building blocks. His company, Kontron (www.kontron.com), designs and manufactures standard-based and custom embedded and communication solutions for OEMs, systems integrators, and application providers in a variety of markets. IT

Choosing a Viable Platform Integrator

The availability of open system solutions and open architecture middleware platforms make it possible to integrate essential services without being a technical expert in communications. Pre-integrated open modular platforms take much of the guesswork out of system operability and reliability. This is especially the case when the NEP or TEM collaborates with hardware and middleware suppliers from an early stage in the design process to understand the goals, implementation, and operation of the system.

When choosing a platform integration partner, developers should consider the following:

- Make sure the system is clearly defined
  - Well defined hardware, middleware with the operating system
  - Complexity requires purpose-driven integration
- Program management and risk mitigation capabilities
- Amount of resources
- Availability of functional experts, i.e. manageability
- Availability of development, test and measurement tools
- Quality assurance
- A solid technical agreement to fully supports the integration initiatives and to resolve issues of technical incompatibility quickly
  - Establish value of integration on the system, time-to-market is not a trivial amount
  - Customer consulting and end-point integration
  - Deployment support 24/7
- Compliance certification expertise e.g. NEBS level 3 certification

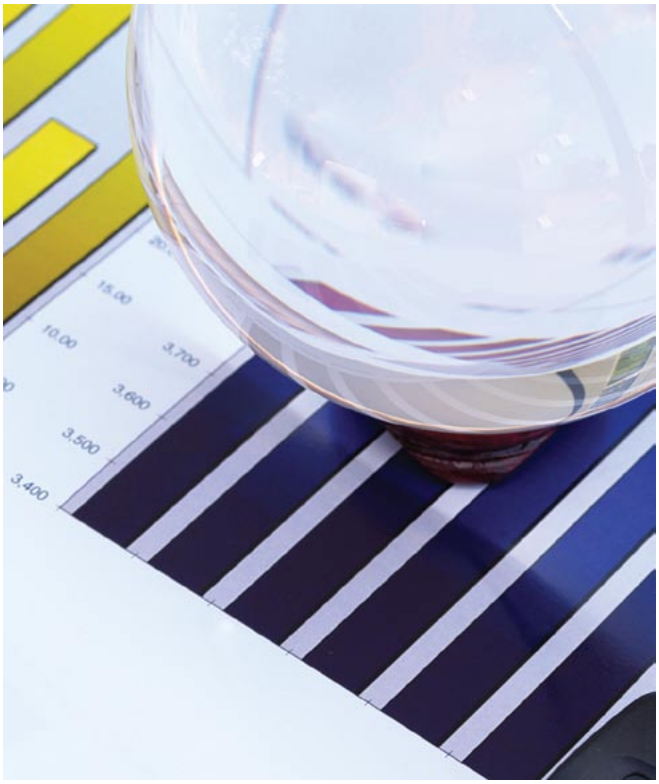
Telecom Expense Management Sees All, Knows All

By Richard "Zippy" Grigonis

Telecom Expense Management (TEM) is more than simply a way to identify telephone billing errors that can make up 15 percent or more of your telecom budget. TEM is now a big "umbrella" term that encompasses not just telephony but all communications expenses, such as the provisioning of mobile phones and wireless services including mobile wireless broadband computing. TEM now even impacts such things as inventories and business processes. It's becoming important for businesses everywhere. Perhaps that's why a Telecom Expense Management Industry Association Report reveals U.S. total spending on TEM to the tune of more than US$29 Billion.

One great example of a state-of-the-art TEM platform is PAETEC Software Corporation's PINNACLE Communication Management Suite, an Enterprise Resource Planning (ERP)-type integrated software application that delivers total Service Lifecycle Management (SLM) for IT resources. (Service Lifecycle Management is a proactive method of managing the internal service delivery and service support processes of a business.) PINNACLE from PAETEC is designed so that large enterprise customers are able to effectively perform communications lifecycle management and consolidate the management and delivery of all technology-related services.

Larry Foster, Vice President and General Manager at PAETEC, says, "PINNACLE is distinctly different from a traditional TEM solution. The industry and its products will go through many changes over the next few years. We call our suite a Service Lifecycle application. It's more of an ERP rather than a TEM solution. PINNACLE is not just focused on processing the bills – which is an important component – but we're taking an ERP approach wherein we're tying and/or relating many business processes that IT telecom handles put that into an integrated application suite. If you go back to 1990 to 1995, there were lots of GL and HR [General Ledger and HR] systems that eventually became CRM [Customer Relationship Management] and those have evolved into ERP. Dozens of companies evolved, and two powerhouses emerged, SAP and Oracle (News - Alert). I see the same changes happening in the TEM industry. Many niche players focused on just billing are partnering with other application vendors, and what we've taken is a different approach, building this application over the past 20 years into a very robust suite that manages everything from the provisioning and procurement through payment, disputes and chargeback. We're into infrastructure management, true lifecycle asset management with a major focus – our "sweet spot", if you will – enabling business intelligence across the IT."



"Traditionally you have OLTP [On-Line Transaction Processing] and OLAP [On-Line Analytical Processing]," says Foster. "We've taken a different approach, integrating those two frameworks into a single, scalable, Oracle framework. We're leveraging new technologies from Oracle, such as analytical views, and we've embedded them on top of our application so that they're all really in one framework. Oracle was at our most recent users' conference, because they're very interested in what we've developed. In fact, they've incorporated some of our technology into their latest release of their Oracle Database11g. We've been working with Oracle for the past three years."

"First there were apps running on mainframes, then they broke that up into client-server, then that evolved into three-tiers: application and database servers with a third tier [middle tier server] between the user interface [client] and the data management [server] components, which provides process management where business logic and rules are executed. We've incorporated all of those technologies into a technology platform which allows us to provide the same solution to our licensed customers as well as our hosted and managed customers. We promote and advocate portability, so if a customer loses their IT person, we can take the application, host it for them for a while, then they'll actually bring it back in when they get their resources back on line. We've essentially embraced the concept of Software-as-a-Service [SaaS]. It could be your internal asset or hosted, and it's

portable across all platforms. We've insulated ourselves from the operating system."

Over at Tangoe, Inc., they've also left traditional TEM in the dust, and have adopted a comprehensive communications lifecycle management offering designed to transform every aspect of your organization's fixed and mobile communications. Tangoe's CommCare suite of managed services has been formulated to bring control, visibility, and understanding to every critical process within your communications environment.

CommCare's complete Communications Lifecycle Management services are built upon Tangoe's patented technologies and functionality that optimizes all essential voice, data, and mobile communications and makes absolutely clear your communications infrastructure, future needs, and financial investment.

"TEM is a strange artifact that's been around for 20 or 30 years. When AT&T divested, everybody who no longer worked for a big carrier hung up a shingle and declared themselves an expert in this space. That created a world full of individual contributors, standalone consultants and a whole ecosystem of people..."

At Amtel, Inc., their Amtel Enterprise Software Solution provides Telecommunications Procurement Management, Invoice Management, Auditing, Chargeback Accounting, Mobile Management, Vendor Contract Management and more. TIMS™ (Telecom Information Management System) is a sophisticated web-based platform developed by Amtel engineers to manage all aspects of an enterprise's telecom services. The system provides Total Telecom Management including hierarchical procurement, automated invoice processing, cost center allocations, Inventory management and customized reporting. The Inventory Manager creates and maintains a dynamic inventory of all the voice, data and mobile assets across an enterprise to a centralized location. It is updated automatically with changes made in Service Manager to keep it current and accurate.

Amtel's services have SAS 70 Type II certification hosting to achieve the highest level of security and compliance.

Managing the Mobiles

Avotus Corporation enables its customers to gain control over their complete global communications environment by bringing together eProcurement, Expense, and Usage Management into a fully-integrated solution called Intelligent Communications Management (ICM). Avotus provides verifiable cost savings of as much as 50 percent of an enterprise's current communications spend and a triple digit in-year ROI. Avotus' consulting and analytical services examine all areas of your corporate spend, not just voice, data and wireless. Their certified IT services teams support Oracle and SAP environments. Thus, by combining technology, automation, communications experts, and industry best practices, Avotus solutions both realize significant spend reduction and continuously verify all cost and process improvements.

Alan Gold, Chief Marketing Officer of Avotus, says, "TEM is a strange artifact that's been around for 20 or 30 years. When AT&T divested, everybody who no longer worked for a big carrier hung up a shingle and declared themselves an expert in this space. That created a world full of individual contributors, standalone consultants and a whole ecosystem of people. Some of the earliest people in this space were doing pure invoice processing. Companies such as Invoice Insight (News - Alert) were taking big cumbersome bills, processing them, doing some base level of validation and sending them off to be paid. But then it started to evolve into looking at such things as inventory and lifecycle management and then mobile management and so forth. It wasn't until just a few years ago that the phrase 'telecom expense management' even existed. In fact, we launched our lifecycle management story back in early 2003, which we call Intelligent Communications Management, or ICM, our trademarked brand. So its story was always lifecycle management, from sourcing and procurement to operational expense and inventory management to demand management with call accounting and usage management."

"We set forth to build a technology set in this model and a set of services that wrapped around that technology to support the concept," says Gold. "Gartner examined this whole big diversified and heterogeneous industry and called it Telecom Expense Management. The industry sort of backed into a homogenous story that falls apart pretty quickly once you start taking a look at what the individual companies do. In the midst of all of this chaos there are over 100 companies that claim they're in this space in some way. Gartner tracks about 35 of them closely and there is a so-called 'top tier' of three to ten companies, which include companies entering the business such as large systems integrators with software vendor partnerships, and it includes the business process outsourcing people such as ourselves. The field is a sort of chaotic jumble."

"Clearly, from an industry perspective, there are far too many companies chasing the same dollars," says Gold. "This precludes a stable environment. So there will be a great deal of consolidation, which will revolve around building out a broad footprint of services encompassing all of a company's communications spend. You're already seeing that now with the various partnerships and expanded offerings that you read about with regard to mobility management and so forth. Just a few years ago you had standalone wireless optimization companies and people who specialized in only wireline. We're now starting to see all of that come together. We also see a trend of business processes being outsourced as opposed to companies buying software. I would say about 50 percent of the expenditures are driven by managed services of some sort, from partial to full outsourcing, about 25 percent would be pure software maintained by internal resources, and 25 percent to consultants, strategists, auditors and people doing episodic work for a company."

"From a functional trend perspective," says Gold, "the larger enterprises are global, and there needs to be a global solution.

Centralization is very useful and sometimes critically important to get visibility into something as expensive as a voice and data network, which is one of the top five expenses that a company has. Every percent of cost you can pull out of that helps the bottom line. But the real shift taking place concerns mobility management, not just invoices for landlines or even cell phones. Now we're talking about devices that sit at the edge of the network, and when you throw convergence and VoIP on top of it, you've now got a very different management challenge. There's corporate data at stake, and there's a fairly unregulated world on somebody's hip or in their briefcase. So we see the industry moving to a more holistic view of managing the communications environments."

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Keeping Things Simple

One radical way to deal with Telecom Expense Management is to simply adopt a communications system wherein you get to work with one provider, receive one bill at a flat rate, and deal with one company for support.

iPass (News - Alert), for example, helps mobile professionals who often struggle with gaining Internet access through a complicated and expensive combination of high hourly or day rates and individual subscriptions for cafés, local airport, and preferred hotel chains, since most WiFi hotspot services have limited coverage. Also, 3G alone is not a complete solution since broadband speeds are usually only available outdoors and in major cities. The solution from iPass combines WiFi and 3G into one simple service and allows users to access nearly 1,000 hotspots in more than 500 airports, including 83 of the world's 100 busiest. Also, more than 20,000 hotels such as the Hyatt, Hilton and Marriot; and tens of thousands of retail locations including Starbucks coffeehouses and McDonald's restaurants.

Piero DePaoli, Director of Global Product Marketing at iPass, says, "What we started off doing was a bit like an ATM or bank machine where you can be in another country and insert a card and input a code, and get money. We've basically built an authentication platform that allows a similar model to take place for ISPs. Then we extended that to the enterprise as companies were decommissioning RAS [Remote Access Servers] and it was also when enterprises became more comfortable with using the Internet for business; for employees getting access back to an internal corporate application, or email or what have you. At the same time saw an influx of home DSL and cable usage as well as the beginnings of WiFi. As higher bandwidth became available, we quickly realized that dial-up at some point was going to go away or become a smaller part of our business. Being able to extend our value proposition to higher speed networks was going to be a key strategy for us."

"So, we began our work in 2001 with Cisco, developing the first roaming WiFi platform by introducing Ethernet-enabled hotels in Asia in September of 2001 and then our first integration to WiFi hotspots through a relationship with Wayport in March of 2002," says DePaoli. "That model of getting users connected to WiFi has extended out to over 70 countries and 95,000 WiFi hotspots in various airports, hotels and cafes all around the world. Our customers base consists of 3,800 companies. We have 417 of the Forbes Global 2000 using our service and over a million active users using the service on at least a quarterly basis. We also have some carrier partners around the world using this platform to enable their services."

"There are two other aspects to our offering," says DePaoli. "First there's the client aspect, where we have the ability to make all of these networks look the same to users. They don't need to know that they're getting connected to a SingTel (News - Alert) WiFi hotspot in Singapore, versus a BT Openzone hotspot in the U.K. – it all looks the same to them and they're able to do that in a uniform manner. We've also introduced the ability to get connected to 3G networks, thanks to our relationships in the U.S. with 2 EVDO providers as well as relationships in the U.K. and the Netherlands for HSDPA [High-Speed Downlink Packet Access] and then in Asia we have relationships in China, Japan, Singapore and Hong Kong that allow us to connect users to a variety of different mobile data technologies. So our value is that users can effortlessly connect to networks all over the world via the same client interface and with the same username and password. On the IT side, they get to work with one company, get one bill and have one company for support. And we offer the services on a flat-rate basis. Users roaming internationally with 3G cards and incompatible devices no longer generate runaway expenses."

Whether you take a radical approach such as this, or purchase a comprehensive TEM system, businesses in today's immensely competitive environment can no longer ignore the many functions telecom expense management offers. IT

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

The following companies were mentioned in this article:

Avotus Corporation
www.avotus.com

Amtel
www.amtelnet.com

iPass
www.ipass.com

PAETEC Software Corp.
www.pinnsoft.com

Tangoe
www.tangoe.com

Advertising Index

Sprint, Clearwire Resurrect WiMAX Plans

By Greg Galitzine

WiMAX has seen its fair share of fits and starts over the past several years. And just when you thought it was curtains for the oft-maligned technology, it looks like it's finally ready for prime time.

For starters, the analysts seem to think that the opportunity for WiMAX is big. In recently released analyses, Juniper Research (News - Alert) forecasted that by 2013, WiMAX will displace up to 12 percent of the global DSL installed base, with deployments in the Far East set to lead the pack with better than 20 percent of the projected subscriber base.

According to report author Howard Wilcox, "WiMAX will be an attractive offer in areas where there are no wired networks, and in areas where the existing DSL speed is suboptimal. WiMAX will solve the broadband access problem for users located at the fringes of DSL coverage. This is in fact the case in a number of developed nations such as UK, USA, Ireland and Scandinavia, and WiMAX network operators are deploying networks to address this market need. Additionally in developing countries, such as India, network operators are aiming to provide basic connectivity."

Meanwhile, back on the home front, Sprint and Clearwire (News - Alert) made huge headlines with the news that they were resurrecting their plans to offer high-speed mobile Internet service based on WiMAX technology.

At the time of the announcement, Sprint and Clearwire also revealed investment from five key industry players: Intel Corporation, Google Inc., Comcast Corporation, Time Warner Cable Inc. (News - Alert), and Bright House Networks. All told, the companies have committed to a $3.2 billion investment in the new company.

Upon completion of the deal, Sprint will own approximately 51 percent equity ownership, existing Clearwire shareholders will own approximately 27 percent and the new investors, as a group, will hold approximately 22 percent of the venture.

In an interview with TMCnet's Mae Kowalke, St. John's University Law and Business Professor Anthony Sabino said that it's the big names — the investors and the personalities involved — that make this deal a blockbuster.

For example, Sabino said, it is significant that Craig McCaw (who built McCaw Cellular into a major cell phone company before selling it to AT&T in 1999 for $11.5 billion, and who is Chairman of the existing Clearwire Corp.) is putting his weight behind this deal.

"Here's a guy with tremendous experience, and tremendous reputation in the field, aligning himself with these major players," Sabino told TMCnet. "If anyone doubted that this technology had arrived, all doubts were erased. WiMAX is real and it's here to stay. When you have this kind of backing, assuming the technology does not break down, they're going to make it work."

Among the more exciting developments resulting from the Sprint/Clearwire partnership, it was announced that Google would play a major role in the development of Internet services, advertising services and applications for forthcoming mobile WiMAX devices. In addition, Google will be the search provider and a preferred provider of other applications for the new company's retail product.

Writing on the Official Google Blog, Google product manager Larry Alder confirmed, "In addition to our $500 million contribution as part of the investment group, we will provide search and applications to the network's users, and will work with Clearwire to offer additional services and applications. This will include jointly creating an open Internet protocol to work with mobile broadband devices (including Android-powered devices) and implementing other open network practices and policies."

Alder is excited by the opportunity. "We believe that the new network will provide wireless consumers with real choices for the software applications, content and handsets that they desire," he said. "Such freedom will mirror the openness principles underlying the Internet and enable users to get the most out of their wireless broadband experience."

Of course, the big news has had an immediate ripple effect in the industry, and not all of it is positive. For example, iPCS (News - Alert), an affiliate of Sprint Nextel, is suing the telecom giant because they believe that the deal with Clearwire violates an exclusivity arrangement that existed between the two companies allowing iPCS the right to sell wireless mobility communications network products and services under the Sprint brand in 80 markets.

On the positive side of the equation, the news did lift the financial fortunes of a number of companies associated with the technology.

As reported in Canada's Financial Post, Canadian firms Craig Wireless Systems, DragonWave, Inc., Redline Communications Group (News - Alert), and even Nortel Networks all stand to capitalize from the positive buzz generated by the deal. All of the companies enjoyed a lift in their stock prices after the Sprint/Clearwire deal was announced, with some significant financial repercussions. DragonWave shares jumped as much as 63 percent the day of the announcement and Redline saw its shares climb by almost 130 percent as a result of the news. IT

– Greg Galitzine is Editorial Director for TMC.

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