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**INTERNET TELEPHONY®** magazine is published monthly except February and August. Annual digital subscriptions free to qualifying U.S., Canada and Foreign subscribers. Annual print subscriptions are free to U.S. qualifying readers; \$69.00 U.S. non-qualifying, \$99.00 Canada, \$119.00 foreign qualifying and non-qualifying. All orders are payable in advance in U.S. Dollars drawn against a U.S. Bank. Connecticut residents add applicable sales tax. For more information, contact our Web site at www. itmaq.com or call 203-852-6800.

POSTMASTER: Send address changes to: **INTERNET TELE-PHONY®**, Technology Marketing Corporation, 800 Connecticut Ave, 1st Floor East, Norwalk, CT. 06854-1628 USA. Canada Post: Publications Mail Agreement # 40612608, Canada Returns to be sent to: Pitney Bowes International, PO Box 25542, London, ON N6C 6B2, CANADA

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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.

#### Top of Mind

#### What's New in Networking & Last Year's Model

This column is about the old and the new, or, as it were, the new and the old.

That said, first I'd like to again talk about the subject of software-defined networking, or SDN. If you're a regular reader of this magazine, or a close follower of the networking space, as I know you all are, you know that SDN is an area I've been covering closely in recent months and a topic that has received a good amount of attention in the industry overall. SDN is a disruptive new architecture that turns traditional thinking about networking on its head, approaching things from an application-first standpoint.

Recognizing the importance new trend of SDN, INTERNET TELEPHONY parent company, TMC, early this year put on its first SDN Precon. The next SDN Precon, this time at Mandalay Bay, and co-located with ITEXPO Vegas, will take place Aug. 26.

I've put together what I believe is a compelling program of topics and players for SDN Precon. That includes a talk by Ovum's Mike Sapien, who will present his new study on SDN's impact on enterprise services; analysis on various aspects of SDN by Frost & Sullivan's Ron Gruia; an update on SDN work at the ONF; and presentations and discussion from startups like Pica8 to industry giants like Cisco (among many others) on their own SDN strategies as well as SDN's relationship with NFV, with applications, with network visualization, with network programmability and automation, and with overall network – and network provider – transformation.

When you look at the SDN Precon agenda, which you can find at this link (http:// www.sdnzone.com/conference/agenda. aspx) and the SDN Precon speaker lineup (found here: http://www.sdnzone.com/ conference/speaker-list.aspx), you'll want to head on over to the registration page (https://www.tmcnet.com/scripts/ events/registration.aspx?theplan=SDN) to take advantage of what will be a great educational and networking opportunity. I hope to see you there.

OK, now that I've talked about the new, let's talk about the old – or, perhaps more correctly, the new aspect of the old.



Reporter/editor types like me tend to get all excited about new networking solutions based on the latest technology. We typically are not all that revved up about existing but widely deployed stuff that represents the majority of networks and the bulk of value to the network owner. But, as I've said before, and as we all know, networks are not so much like the world of The Jetsons. Rather, they are more like the movie Blade Runner – that is, they tend to consist of a mix of the old and the new.

I was reminded of that in my recent reporting for this issue when I spoke with 3M about copper.

With the subject of copper on the INTERNET TELEPHONY calendar for this issue, I was looking to find out what was new and exciting in this arena. I'd written fairly recently (in the December issue) about a new-ish thing called VDSL2 Vectoring, so when my discussion with 3M turned to this topic I was not so much interested in learning the basics of VDSL2 Vectoring – a technology that cancels noise on copper connections in a way that can improve data rates by up to 50 percent, as hearing about the latest developments on the VDSL2 Vectoring front.

JF Klein, access networks business manager for 3M's communication markets division, responded that AT&T is using the cabinets that it leverages to deliver consumer Uverse services (which are delivered via fiber to the node and copper to the consumer) to also feed small cells in the wireless heterogeneous network (aka hetnet). A lot of people thought small cell networks would be fed entirely by fiber, Klein explained. But this move by AT&T indicates that might not be the case and that, rather, small cells and hetnets could be new examples of applications that will give copper and other existing telco assets new life.

The case is really compelling for AT&T to reuse these relatively new cabinets, says Klein, and enjoy the cost savings of running copper to feed small cell radio units to support the need for bandwidth in the wireless.

On a related note, wireless service providers are also interested in using SDN in 4G networks and beyond.



#### Publisher's Outlook

#### With Tablets and Smartphones Eating the PC, What Can Microsoft Do?

These are very dark days for people who work for many divisions of Microsoft as tablets and smartphones have absolutely decimated the PC market.

According to IDC, PC sales are in a tailspin with 76.3 million units sold in the first quarter of 2013. This number represents a decline of 13.9 percent compared to the forecast decline of 7.7 percent. These are the worst numbers since IDC started tracking in 1994, and it is the fourth quarter of year-on-year shipment declines.

Acer, Apple, Dell HP, and Toshiba all saw their PC sales decline while Lenovo grew 10 percent in the U.S. but remained flat worldwide. ASUS saw some growth in the U.S. and substantial declines elsewhere.

What this tells us is we are indeed in a post-PC era and as smartphones become more usable and tablets approximate the functions of a PC, consumers are not upgrading their old computers as quickly or buying new ones at all.

This news comes on the heels of the Windows 8 launch, the new OS that fuses the best of the tablet and Windows experience in one platform. The only problem is the new OS with all its marketing and slick new form factors isn't cutting it, as consumers gravitate toward smaller screen devices.

Expect many calls for Steve Ballmer to be fired. When you consider how many markets Redmond has squandered since 2000 you could make a solid case for pushing him out. Tablets, music, cloud and smartphones are just a few. Eleven months ago, one reporter had the foresight to say he should have been fired already.

It's worth noting that Samsung has been one of the few companies besides Apple to capitalize on tablets and smartphones. Meanwhile, other companies, such as such as HTC, Nokia and RIM/BlackBerry, which enjoyed leadership positions in this space are also struggling.

Redmond will definitely see sales from corporate customers that upgrade PCs

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from XP and other operating systems to Windows 8 and of course its developer, server and Exchange lines of business are in no jeopardy at the moment.

Still, you have to wonder why the company isn't leading the market in app sales on Android and iOS. It is common knowledge that users want Office on their iPads for example. What is the delay? The latest rumors say the market needs to wait a full 18 months from now to see its debut! The company makes games as well, so why not try to dominate mobile devices with game development?

The additional challenge here is Microsoft already tried to fight Apple with the unveiling of Windows 8, and it seems this isn't a successful strategy. In fact, this polarizing OS seems to be pushing people to tablets and smartphones.

This strategic shift in the market requires Microsoft to refocus like it did when it missed the Internet in the nineties – but this time, Google and Apple have precious few vulnerabilities to go after.

When Borland owned the desktop database market and could charge \$650 for its Paradox software some decades ago, Microsoft stunned the world by rolling out its Access competitor for only \$99. When Netscape owned the desktop browser market and charged for its software, Microsoft rolled out Internet Explorer for free.

This time, pricing isn't going to help the world's still-dominant OS provider attract massive amounts of new customers. Innovation is about the only thing left to try, and Microsoft is losing the innovation battle to Android and iOS. The scary thing is Adobe Flash for the moment is still a major reason to use PC products, but once HTML5 gets established, PC sales could slow even more.

Microsoft needs to do something to change this momentum, and it needs to do it fast. Not only are its customers signaling discontent, but financial analysts and investors are joining in.





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By Barlow Keener

#### 3.5GHz Spectrum Sharing: Playing Together in the Sandbox



Spectrum sharing is in; exclusive licensing is out.

On Dec. 19, 2012, the FCC issued a Notice of Proposed Rulemaking opening the gates for spectrum sharing for the 3.5gHz spectrum. The FCC proposed to use a database system, developed for unlicensed TV White Spaces, as the method for sharing. A total of 100mHz of spectrum will be available from 3550-3650mHz. The FCC called the new 3.5gHz sharing proposal "Citizens Broadband Service." The focus being on the use of the spectrum by citizens.

The FCC OET Chief Julius Knapp and FCC Chairman Julius Genachowski have been evangelical in their promotion of innovative spectrum sharing and encouraging sharing technology innova-

tion. The FCC's White Spaces 2008 and 2010 orders laid the groundwork for spectrum sharing, creating a new spectrum access system to help everyone play fairly with unlicensed spectrum. The spectrum sharing system is predicted by some to eventually be incorporated in all wireless networks, mobile and fixed. licensed and unlicensed consisting of a database that gives radios notice of spectrum ownership rights, and requirements that radios use information such as location and regular communica-

tion with the database.

White Space database providers iConectiv (formerly Telcordia), SpectrumBridge, and Google have an opportunity to provide sharing technology to mobile carriers – moving beyond White Spaces. Additionally, new receiver requirements with power limitations, strict masks to prevent interference spillover into other channels, were required for White Spaces. The FCC White Spaces methodology was copied by other regulators in Europe, Africa, and Asia. Then, the White House issued the 2012 PCAST spectrum sharing report, supported by the Department of Defense. PCAST strongly encouraged sharing of 1000mHz of federal spectrum using LSA, ASA, and unlicensed methods. With the December 2012 3.5gHz NRPM, the FCC took the White Spaces spectrum sharing concept upstream from the TV UHF channel to 3.5gHz.

The FCC 3.5gHz NPRM proposes three tiers of sharing: tier 1 for incumbents such as DOD (Department of Defense) radar and satellite ground station receivers; tier 2 is for protected access and includes critical use facilities, such as hospitals, utilities, government, and public safety; and tier 3 is for general authorized access for carriers using small cells and others.

The spectrum sharing system is predicted by some to eventually be incorporated in all wireless networks.

The FCC named small cells as the primary application for 3.5gHz spectrum sharing. Carriers are planning to deploy small cells, also known as femtocells. picocells, and microcells. in the mobile carriers' radio access networks. The 3.5gHz spectrum is ideal for high-capacity, short-range propagation. The small cells are lower powered than larger mobile macrocells and cover a smaller geographical area. LTE release standards have incorporated small cells and RAN cellco engineers have

named the combined use of small cells and macrocells, a hetrogenous network or hetnet. The hope is the small cells will more effectively handle the huge data demands of smartphones using LTE in the small cells at 3.5gHz. Most of the data is now being delivered using unlicensed 2.4gHz Wi-Fi. With LTE and small cells, the carriers can begin to meet this demand carried on Wi-Fi on their own networks rather than having the customers supplying Wi-Fi equipment and backhaul. The new small cell access can also eliminate or lower the restrictive cell phone data caps.

The 3550-3650mHz spectrum is currently used by DOD radars and fixed satellite service earth stations. The Navy radars cover 60 percent of the U.S. population. The radar is not used all of the time and therefore the concept is that when it is not in use, other private users can share the spectrum. DOD experts contend that in order to implement spectrum sharing, the radios will be required to perform spectrum sensing and the installed radars will need to be removed. Both of these requirements are technical hurdles that may be years away from feasibility. The FCC points out that small cells are short range and low powered and can effectively share spectrum with the radar. One proposal is to add 50mHz more, from 3650-3700mHz, currently used by fixed broadband wireless internet providers, thereby creating a contiguous 150mHz band for fixed wireless use.

Spectrum sharing was initially developed in 2008 by the FCC for White Spaces in the unused, cleared TV channels. The FCC's White Spaces spectrum sharing methodology has since spread to other countries including the U.K., Ofcom, and the E.U. Regulators in other countries have developed various methods of priority use spectrum sharing such as Authorized Shared Access and Licensed Shared Access. Now, for the first time, the FCC is going to wrestle through the new priority-based, second generation, spectrum sharing like ASA and LSA in the U.S.

The goal of spectrum sharing is to more efficiently use an increasingly valuable public asset. The 20-year-old method of allocating spectrum for mobile carriers is to auction exclusive licenses for the public's spectrum. The carriers argue that the primary reason they have invested \$10 billion annually in mobile RAN infrastructure over the past 10 years is that the exclusive spectrum license system gives carriers the assurance that mobile customers will experience a higher quality of service. Others argue that the exclusive licensed mobile spectrum is not used efficiently, that much of it is fallow and not built out, and that even at peak times in urban areas only 25 percent of the licensed spectrum is used. Spectrum sharing, they say, will solve the inefficient use problem.

Some advocates in the spectrum sharing debate support full unlicensed use of the spectrum just like 2.4gHz Wi-Fi. The proof of Wi-Fi success, they point out, is the large percentage of Wi-Fi data use by smartphones and the data cap limits required by carriers. Wi-Fi works for almost all businesses and home users. Each of these home or business locations installs and maintains a micro-RAN consisting of a Wi-Fi router connected to cable or DSL Internet using unlicensed spectrum without noticeable interference from neighbors. The argument is that if Wi-Fi, 2.4gHz and 5gHz unlicensed spectrum has been proven so effective, 3.5gHz spectrum should also remain very lightly licensed, or unlicensed.

LSA and ASA sharing allow for efficient use of spectrum somewhere on the spectrum between exclusive licensing and completely unlicensed. For example, with LSA, a carrier licensee may be authorized for a higher, licensed priority service than other carrier licensees. If the carrier is not using the LSA spectrum in a particular geography, then other carriers licensed for a lower priority use of the spectrum are authorized by the database, in that moment of time and place, to use the service. The database informs the carrier licensees which spectrum is available in a particular geography and when that spectrum is available. LSA achieves the goal of spectrum efficiency by ensuring that the spectrum is always in its fullest use by all the licensed carriers.

Mobile carriers, like Verizon, are contenting that a large portion of the 3.5gHz spectrum should be exclusively licensed through auctions to carriers for small cell LTE use. The mobile carriers concede, however, that a portion of the uncleared band now occupied by DOD radar and other incumbents should be shared using a database.

Everyone is weighing in on the spectrum sharing including NAB, National Public Radio, MIT professors, the Satellite Industry Association, Google, Verizon, AT&T, T-Mobile, New America, TIA, CTIA, and the White Spaces Alliance. The issues are complex. It does not look like there are simple answers. However, the outcome will be significant because the proceeding outcome should create a new foundational methodology for assigning or licensing spectrum for the next two decades. Exclusive licensing of blocks of spectrum for single carrier use, may, it seems, become a thing of the past.

The spectrum sharing questions are now open for resolution: Should auctions be used for exclusive licensing of spectrum? Should White Spaces database technology be used? What about spectrum sensing receivers, are they technically feasible in the near future in mobile phones? How should federal spectrum use be diminished or cleared for private users? Can the spectrum be shared effectively like Wi-Fi 2.4gHz /5gHz as unlicensed? And how can the new users of spectrum – whether exclusive, LSA, ASA, or unlicensed – prevent interference with the incumbent federal users like satellite ground stations?

The 3.5gHz spectrum sharing proceeding may take years before an order is implemented, but the spectrum sharing policy issues are new and exciting for the wireless innovators and regulators. **IT** 

Barlow Keener is the principal with Keener Law Group (www.keenerlawgroup.com) out of Boston.

#### **Beyond the Boom**

By Steven Heck



The thriving health care IT industry is no longer news. But, much like the real estate market, there's a crash coming, and soon.

The American health care industry is normally described in three distinct sectors: providers, insurers and life sciences. While all three sectors contribute to health care, they operate in very different ways, with periodic blurring of relative roles and responsibilities. Life sciences include multi-national pharmaceutical and biotech corporations that focus on research and manufacturing. The health care insurance industry has consolidated dramatically over the last 25 years and now less than half a dozen corporations provide the vast majority of private insurance in the United States. The insurance sector has periodically increased patient care-related interventions, but normally has just passed on ever increasing medical expenses to employers. The provider sector consists of a highly fragmented delivery system of primary, acute and post-acute caregivers. This sector is mostly non-profit and historically local and/or regional in nature. All of these sectors are dramatically impacted by government policy and reimbursement rates.

In 2009, Congress passed the Affordable Care Act. This legislation created a set of carrot and stick incentives that resulted in the health care information technology boom. Providers, armed with \$20 billion in incentives, were told to deploy electronic medical records and use them in a very prescriptive manner.

The activity level has been dramatic. Vendors, consultants and IT professionals have had the best bull market in their history. Virtually every health care provider across the country is automating and integrating. IT-related capital spending has garnered a disproportionate share for many years. IT operating expense has increased dramatically while internal governance struggles to identify and realize tangible offsets in overall operating costs. Given strict deadlines imposed by the ACA, most of these systems are being installed rather than implemented. As a result, most providers have deferred difficult workflow and operational decisions until the optimization phase currently anticipated to begin in 2014-2015.

Unfortunately, there is an undercurrent to this provider IT boom that does not indicate a soft landing. Health-related costs are increasing much faster than revenue. Elective procedures have started to decline in many areas of the country. Employers are pushing back on private insurance, and employees will pay more. Federal entitlements are under tremendous pressure and our public health care system is fundamentally broken. We are ranked 33rd in population health and spend 100 percent more (per capita) than other developed countries.

Consolidation of physicians and hospitals has started. Insurance companies are becoming providers and Wal-Mart/Walgreens have opened up clinics. As total health care expenditures approach 20 percent of GDP, there is little doubt that a major correction will be required. As the financial services market contracted post-2007, we all witnessed a dramatic reversal in how and where their IT investments were made. The financial sector merely reacted to a crisis. Hopefully, the re-structuring health care industry will better anticipate the inevitable and minimize their post-boom chaos.

We can see the train coming and have the opportunity to focus on the fundamentals. HCIT governance has been more form than function. Demand remains unfettered, and resource constraints are real and being felt every day. Alignment of interests remains complex, which confuses investment strategies and ongoing expense structures. Few organizations formally define the relationship between scope, service levels and cost. This lack of objective measurement makes it difficult to benchmark and/or improve specific areas of performance.

Finally, the provider industry has the incredible opportunity to drive immense value from the technology that has recently been deployed. We have the best clinicians, medical schools and hospitals in the world. To date, the complexity and layering of government policies has resulted in a dysfunctional public health care system. The ACA is compelling migration from increasing volume at lower rates to guality and more holistic care. We now must improve workflow, practice variation, quality and outcomes. The EMR's, HIE's and BI tools will allow us to accomplish these goals if we can overcome the historical roadblocks of fragmentation and unintended consequences. In 1969, we landed on the moon. By 2020, we should aspire to be ranked on the top 10 in population health and not be more than 17 percent of GDP expense. There's no doubt that a train is rushing toward health care IT. The question is: Will healthcare IT get hit, or will it figure out a way to get on board before the crash?

Steven Heck is group president of MedSys Group (www.medsysgroup.com).

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By Jim Freeze



#### **Customers are Asking for Multichannel Customer Service**

Are Companies Answering the Call?

Advancements in telecommunications and the rise of social media have enabled consumers to be vocal in ways that brands are still trying to understand. The relationship between customers and companies, for better or worse, is forever changed. Now, the customer has more control, and more power in choosing when, where and how they interact with brands.

In the business functions most concerned with the customer experience such as marketing and customer care, this relationship revolution is perhaps most apparent. But addressing this paradigm shift in a way that delivers positive, consistent social media provides the best customer experience and only 7 percent say that these social channels provided the fastest resolution and the best customer experience.

This gap is a likely indication that most organizations have not fully considered social media as a preferred channel for customer care. But clearly it is time they should. Customers want timely and empowered responses and will not hesitate to vent their dissatisfaction in the social sphere. In fact, 16 percent of consumers confess threatening to share their experience with others while 9 percent say they will push their frustration

# Companies are still struggling to address some of consumers' largest complaints such as like being directed to an automated response and having to repeat themselves.

company-customer interactions across channels and throughout every engagement is something that will impact the entire enterprise. Findings in a new Aspect survey compiled by TNS reveals some insights on consumer sentiments about customer service in the midst of this consumer change.

#### Multichannel Customer Service is Preferred

Customers have enthusiastically embraced every new channel even as the number of them continue to increase. And for organizations that have kept up with this, there is good news: 77 percent of consumers feel a company that has multiple channels, including phone, e-mail, chat and social media, as a means to contact that company's customer service are easier to do business with while 74 percent of those surveyed feel that they provide better service.

#### The Gap in Social Customer Service Continues

A clear disconnect remains between the expectations of consumers and companies' use of social media for customer care. In fact, 42 percent of respondents said that they'd prefer companies use social media for customer service rather than use it for product promotion. However, only 1 percent felt that through social media in an attempt to get their service issue resolved with customer care.

#### **Customers Want More**

Consumers are wanting more from brands, but the usual frustrations with customer service continue. Companies are still struggling to address some of consumers' largest complaints such as like being directed to an automated response (67 percent) and having to repeat themselves (65 percent). This could be in part why 64 percent do not feel they are treated like valued customers when they interact with customer service.

As the contact center is emerging as the new center of the customer experience, companies must begin addressing these trends as well as move toward the gold standard multi-channel experience, where interactions can begin in one channel and seamlessly move to another. Companies must be prepared to join the revolution, adapt and respond to today's customers, and meet their demands or risk losing them forever.

Jim Freeze is senior vice president and CMO of Aspect (www.aspect.com).

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Finally, you have to keep in mind that UC is new for the channels, and the business model is different from what they've been selling up until now. UC may not be as financially rewarding as legacy telephony, and that could impact your channel partner's enthusiasm for taking you down this path.

To sum up, unless you're planning to go it alone, your channel partner has a key role to play in having success with UC. If you're aiming high to achieve transformative results and position IT as a more strategic resource for the business, you need to candidly assess if your current partner can support this vision. Long-term relationships build trust, but also complacency, so you need to be certain that they're rethinking communications the same way you are – otherwise, it's time to change the channel. **IT** 

Jon Arnold is principal of J Arnold & Associates, an independent telecom analyst and marketing consultancy.

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#### Unified Communications in 2013 – Is it Time to **Change the Channel?**

The channel is an aspect of unified communications I've been meaning to write about for a while, and the time is now right.

In my last column, I provided a state-of-the-market update on UC, and touched on some of the challenges that are holding back adoption. There's a lot of rethinking opportunity with UC, but the line is very fine between it being a loose collection of applications and an integrated platform to enable transformative change. The line may be fine, but the gap is large – perhaps more so than with other technologies.

For technology to have a transformative impact it must be both easy to use and easy to diffuse. Nobody knows this better than Apple, as its products are built around creating a great user experience. You never hear people talk about Apple products being difficult to use, and aside from the first day of availability of a new product, they're generally easy to buy. Apple may be obsessive about secrecy and control, but diffusion is not a weakness.

This doesn't describe UC very well, does it? UC can be easy to use – but only when two conditions are in place. First, the underlying technology must be squeaky clean. In theory this may be true, but vendor interoperability and network capacity are common issues when businesses run UC pilots. The second condition is that end users have to actually know that UC is there and they don't have to learn much to make it work for them. Of course, this implies they need a reason to use UC, and just because it's good for IT, doesn't necessarily mean end users will feel the same way.

Making end users aware of UC speaks to the second driver of transformation: diffusion. IT has to find ways to get UC in the hands of end users, and increasingly that means all the endpoints and screens that touch our workflows - desk phones, PC screens, video monitors, tablets, smartphones and for some remote workers, their TV screens. Of course, this is when BYOD enters the picture and the need for a broader discussion about managing the marriage of mobility and broadband in the workplace. Again, in theory, diffusion should be easy, but in practice it most definitely is not.

Even from these high-level issues, it should be clear that IT has a lot of challenges they didn't sign up for when UC crossed their radar. Each specific issue adds a bit more risk, especially since the benefits of UC are difficult to measure and not nearly as clear cut as the payoff for using VoIP. In today's do-more-withless mentality that's choking IT, thinking big and trying to be transformative are daunting tasks that only the most visionary types are game to take on.

This brings us to the channel and the need for IT to think differently or simply expect more. Most INTERNET TELEPHONY readers deploying UC rely on a channel partner to some extent. Channel partners take the pressure off IT to stay on top of all the latest technologies, and can really put the value add in the VAR moniker by making UC deployments as seamless as possible. While this is what you should expect from your channel partner, the reality can be pretty hit and miss when it comes to UC.

By Jon Arnold

To be transformative with UC, you're going to need a lot from your channel partner – unless you have a really strong IT team, but that's not likely the case with this audience. As you may know, not all partners are created equal - some do data very well but not voice, and vice versa for others. You need both for UC, and that's just for covering the basics. Mobile integration will be needed to some extent, and if that's not your strong suit this will fall to the channel partner. The same holds for video, and when you have all these channels working together, network security is going to be more important than ever.

On top of this, your success with UC depends heavily on gaining end user adoption. This is where the ease of use piece comes into play, and you need to get it right first time around. IT may see UC as a great solution, but it usually isn't addressing a specific problem among end users, so if the experience is clunky, changing that first impression will take some work. While all the vendors will talk about their great end user experiences, UC is not usually out-of-the-box ready, and this is where the channel earns its keep.





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By Mike Gruszka

# **Considerations When Selecting a SIP Trunking Provider: Business Continuity and Add-On Features**

For companies wanting to make full use of their installed IP PBX, SIP trunking is the solution.

SIP trunks can offer significant cost savings for businesses, eliminating the need for local PSTN gateways, costly ISDN BRIs or PRIs. SIP trunking combines voice and data over a single broadband circuit, eliminating the need for a traditional phone service and saving customers up to 70 percent off their phone bills.

When selecting a SIP trunking provider, there are many factors to consider. Two factors you should fully evaluate before selecting a provider are the business continuity options and available add-on features.

When a natural disaster strikes, we are all reminded of the need for contingency plans

for data as well as voice communications. However, interrupted service can be caused by unexpected call spikes, power outages, PBX failures, loss of connectivity, as well as a natural disaster. When evaluating what procedures to implement in a failover/recovery plan for your business, keep in mind that the number of options is as varied. The technical sophistication of failover options is likely to correlate with the expertise of the service provider.

Failover options from most Internet telephony service providers are either call forwarding or IP address forwarding. Call forwarding is the most popular choice for small to medium-sized businesses, as it does not require a backup PBX in a different physical location. IP address forwarding generally appeals to larger companies with disaster recovery plans that choose

to implement services from more than one carrier, or who have multiple locations.

The final – yet very important – step in selecting a SIP trunking provider is to evaluate the available add-on features. Not all SIP solutions are created equal. When creating a customized SIP trunking solution, it's important to pay careful attention to the feature-sets. At Broadvox, for example, we offer unique add-on features that provide key advantages for optimizing your service one of these options is Call Bursting. Call Bursting is a secondary SIP trunk that allows your business to temporarily utilize more concurrent call sessions than the number you've purchased.

Mike Gruszka is director of product development at Broadvox (www. broadvox.com).



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By Lori MacVittie



#### The Rise of the Machine

Cisco calls it the Internet of things. Traditionalists are more likely to refer to it as machine-to-machine or M2M. Whatever you'd like to call it, the reality of inter-machine (or device, if you prefer) communication is here to stay. From the data center to your living room and into your car, the ways in which machines have begun to communicate with one another is exploding.

It's not just smartphones and televisions and cars, either. Sensors and meters around the globe are used by farmers to track cows, biologists to plot environmental conditions against plant growth, and utility providers to track water and electricity usage. And traffic conditions are delivered in real-time from a network of road-side sensors.

While many organizations are not involved in the sensory explosion, they will nevertheless be impacted by the growth of traffic across the Internet. Once the last mile problem was mostly (though admittedly not entirely) solved by increased consumer bandwidth availability and wireless caught up with demand on the client side, it was inevitable that broader use of M2M communication would evolve. Predic-

tions for traffic growth in general are astounding; the numbers boggle the mind. What that means for organizations and providers isn't that they necessarily need to rush out and bulk up their core pipes. For those intending on leveraging these new endpoints, that may be the case. but there's also a need to use the pipes available more efficiently and intelligently. That means understanding what type of traffic is coursing through the data

through the data center veins and from where it originates.

Only when the traffic – the data – flowing through the data center can be identified (or classified, if

With so many machines and people exchanging and consuming data, the business must put priorities on each of them so that IT can translate that into policies that reflect the business' needs.

you prefer old-school terminology) can you effectively manage it. Whether that's using traditional network-based QoS techniques or more advanced traffic and message steering capabilities included in modern delivery infrastructure, the ability to actively manage traffic will go a long way toward ensuring that the Internet of things does not overwhelm the Internet of people, and vice-versa. This is particularly true when considering that almost all future traffic predictions are really focused on inbound traffic, not outbound.

Depending on the business model, that may be problematic. After all, if your revenue model is based on how many bytes of video you deliver to subscribers, outbound quality is far more important than inbound. But if you're dependent on sensory data that may need to traverse the Internet, well, it's the inbound side you need to worry most about. That's an important distinction because in the past we leveraged traffic management without nearly so much attention on the direction – or the business case. With so many machines and people exchanging and consuming data, the business must put priorities on each of them so that IT can translate that into policies that reflect the business' needs.

> Familiarity, they say, breeds contempt and of the technologies in the data center we are most familiar with the network, because they have always been there. But the network and its infrastructure still provide significant value to the business by being able to translate business requirements - priorities - into actionable policies that manage businessspecific data in a way that better aligns with business goals.

Lori MacVittie is senior technical marketing manager at F5 Networks (www.f5.com).



# **Ingate E-SBC Solutions**



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By Hunter Newby

#### Internet Access Begins With an I – For Infrastructure



There seems to be some competition brewing in the great state of Texas. In April, Google announced that it would be bringing Google Fiber to Austin. Its intention is to provide a very similar level of service and pricing to that of its Kansas City offering.

"Communities that are connected to the Internet grow stronger because there's greater potential to create jobs, drive economic growth, and help businesses succeed," reads the Google announcement. "We believe the Internet's next chapter will be built on gigabit speeds, and we hope this new Google Fiber city will inspire communities across America to think about what ultrafast connectivity could mean for them."

The next day, AT&T announced that it too would offer a similar, competing service, but with a caveat.

"AT&T Inc. said today that it is pleased to see local communities and municipalities acknowledging the promise and power of economic development associated with telecommunications investment," read the AT&T announcement.

"Most encouraging is the recognition by government officials that policies which eliminate unnecessary regulation, lower costs and speed lic company – and remains committed to working with any metropolitan community to reach agreement on incentives to improve the climate and speed of overall telecommunications infrastructure investment – facilitating both wired and wireless broadband access. Our potential capital investment will depend on the extent we can reach satisfactory agreements."

Both companies speak of the reality of economic growth and job creation derived from an investment in network infrastructure, or simply being connected to the Internet. This is an affirmation that an investment in network infrastructure grows the economy, which is something the U.S. desperately needs. As seen in the AT&T quote, though, eliminating "unnecessary" regulation, lower costs and rights of way (basically getting the keys to the kingdom) are required by and for the company before the people and economy can be helped. That is the example of putting what is best for the shareholders of a corporation ahead of what is best for the citizens of a community, or country.

As AT&T attempts to slyly follow, or even preempt, Google Fiber in to Austin, it takes the opportunity to put every other metropolitan community in the U.S. on notice that AT&T will be willing to build out for them, but only on "Google Terms" and not on the old-school telecom franchise terms.

#### AT&T [has] put every other metropolitan community in the U.S. on notice that [it is] willing to build out for them, but only on "Google Terms".

infrastructure deployment, can be a meaningful catalyst to additional investment in advanced networks which drives employment and economic growth," said Randall Stephenson, AT&T chairman and CEO.

The AT&T press release went on to say: "Today, AT&T announced that in conjunction with its previously announced Project VIP expansion of broadband access, it is prepared to build an advanced fiber optic infrastructure in Austin, Texas, capable of delivering speeds up to 1 gigabit per second. AT&T's expanded fiber plans in Austin anticipate it will be granted the same terms and conditions as Google on issues such as geographic scope of offerings, rights of way, permitting, state licenses and any investment incentives. This expanded investment is not expected to materially alter AT&T's anticipated 2013 capital expenditures.

"AT&T consistently invests in U.S. communities – \$98 billion in capital in the past five years, more than any other pubThat could be a tough trade though for a community that may have a long history and list of reasons why not to trust an incumbent telecom company, or its intentions. Maybe the company needs to intend on "mutually" satisfactory agreements if it wishes to invest capital.

Google represents the new guard and is being given the spotlight, at least at this stage. This is the case most notably because it was the innovator of the 1 gigabit of Internet access for \$70 per month plan in the U.S. Google put its product and money where its mouth is. Is any community willing to trust that AT&T will do the same and honor it going forward?

They can, but only if there is competition and independent fiber infrastructure creates competition.

Hunter Newby is CEO of Allied Fiber (www.alliedfiber.com).

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I know I promised in my last article on DPI that I wasn't going to focus on acronyms in this column, but here I go again, leading off with the term SDN. By now it is as familiar as the term OTT when references are made to next-generation data networks. During our many press and analyst briefings at MWC 2013 everyone asked the same question, no matter their editorial or research focus: "What is your SDN play? Everyone else we spoke to at the show has mentioned it."

**Does SDN Need to Get More Intelligent?** 

So what is everyone getting so exited about in regards to software-defined networking, or SDN?

The promise of SDN is to separate out all network control functions in the control plane from data plane forwarding functions in network switches and routers. These network control functions can then be managed as a configurable resource running on off-the-shelf servers. A key component of the SDN architecture is the OpenFlow protocol that enables the network control functions to communicate with data plane network devices throughout the network. The Open Networking Foundation is an industry consortium that publishes the Open-Flow protocol as a standard to foster interoperability among vendors providing network technology in this new environment.

This need for SDN became more apparent as enterprises and cloud operators began looking for flexibility in configuring their networks. The second order need was to dynamically allocate computing resources to host the network control function in virtual machine environments, enabling racks of servers to be pre-positioned to handle varying network topologies and capacities.

SDN network intelligence is viewed as centralized in software-based SDN controllers that actively maintain state and control of the entire network. This could work well for most enterprise networks but may end up facing scaling issues in large-scale service provider networks. Moreover, in a service provider network, the access network presents special challenges since intelligent devices are already working mostly autonomously. So intelligence needs to be collected from these systems to ensure an accurate view of network usage to exercise precise control.

So where does DPI fit? Will public and private network operators using SDN still need to be able to identify, classify, and analyze in real-time

the applications and traffic running on their networks using DPI? The answer of course is yes. Without it, robust application-specific policy creation will be very difficult. Even though OpenFlow does enable programmatic southbound-facing control of device interfaces in Layer 2 from network control functions in OSI Layer 3, northbound APIs still need specification to introduce real-time application intelligence derived from OSI Layers 4 through 7 using DPI technologies. The DPI APIs will need to communicate application intelligence between Layer 4 and Layer 3 where SDN network policies are used. SDN protocol standardization is a key step in achieving network device interoperability; however, DPI intelligence APIs will sustain long-term innovation.

In my last article, I discussed shallow versus deep packet inspection. In fact what we have seen defined so far as SDN handling intelligence is what I would call shallow intelligence, since it is focused on dynamically configuring networks. What we need in service provider networks is deep intelligence in the SDN architecture that can leverage DPI-derived policies such as how subscribers are using various Internet applications. Both shallow and deep intelligence will be communicated among SDN network elements using network control functions in a distributed fashion. Both end user devices and core network elements will include DPI functions and communicate DPI intelligence.

This will bring a new level of intelligence to service provider networks so that they can monetize their network investments.

In the meantime, before SDN interfaces are created to address the incorporation of DPI intelligence, current intelligent policy enforcement platforms and embedded DPI software will perform these critical network functions. DPI everywhere will be a call to action for SDN networks as they get implemented. The more intelligence that is available from an application perspective, the better SDN will meet the needs of network subscribers, enabling innovation and generating new revenues as a result.

Regardless of the underlying approach to implementing next-generation data networks, it all boils down to creating better user and subscriber experiences. DPI-based policy platforms do just that by enabling new services that evolve the service paradigm from simple metered data plans to value-based, personalized subscriber services. IT

Ken Osowski is director of solutions marketing at Procera Networks (www.proceranetworks.com).

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The more intelligence that is available from an application perspective, the better SDN will meet the needs of

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By Michael Stanford



#### Android Malware

PC's are vulnerable to drive-by malware infections. These can work simply by you visiting an infected website. The malware downloads invisibly to you without you needing to click on anything or agree to anything.

Android devices are not vulnerable to such passive attacks. To get infected you must explicitly agree to install the malware. The two main ways you are tricked into victimhood are fake installs of legitimate software, and fake updates to legitimate software or to Android itself. Android has a line of defense against fake installs, in that by default you can only download applications from the Google Play store, which supposedly no longer hosts any malware-infected apps.

So hackers inject their code into legitimate apps like Skype or Instagram, and upload

them to third-party marketplaces. They then put links to download those apps on web pages and in SMS messages and spam.

At the beginning of 2012, BitDefender found that the commonest type of Android malware was adware. BitDefender found such adware in 26 percent of the Android apps it scanned, leading it to conclude that if you have an Android phone, at least one of your apps is probably infected.

By the end of 2012, McAfee found that the commonest (60 percent) infection was with malware that triggers your phone to send premium SMS messages (text messages that bear high charges). Since these charges are billed through your cellular service provider, one might think it should be easy to track down the malefactors. In addition to adware and premium SMS, malicious Android apps can perform an array of bad behavior, like transmitting your location, your phone's registration information, your contact list, your SMS traffic (including TAN bank codes), your keystrokes, your Wi-Fi traffic and so on. Your phone is more vulnerable if rooted.

So your best defense against Android malware is to not root your phone, and only to download software from the Google Play store or the website of the original developer of the app.

Michael Stanford has been an entrepreneur and strategist in VoIP for more than a decade. (Visit his blog at www.wirevolution.com.)

#### **Enterprise View**



#### Want to Become a Rainmaker? Seed the Baby Boomer Clouds

Today's global economy is creating information and new technologies at an ever-increasing rate and pushing us to our limits. However, we have always adapted and survived. The current adaption process is encouraging specialization and convincing companies to migrate to the cloud.

The logic is simple. Specialization minimizes the learning curve and allows individuals to maintain proficiency in their chosen fields without being overwhelmed. Hosted and managed solutions leverage the skills of outside IT specialists to quickly expand a company's capabilities at a reasonable cost. Initially, going virtual was relatively simple since the choices were limited, straightforward and the learning curve was short. Services such as hosted VoIP, e-mail or CRM were easy to understand and implement. Now, however, the choices are wide-ranging and some require specialized knowledge and skills just to make the right selections for your company's requirements. This scenario presents both opportunities and challenges for resellers.

For example, communications-as-a-service technology applications can function as stand-alone solutions or be combined with other cloud services beyond VoIP and UC. These include SaaS applications like hosted electronic medical records and cloud finance/ERP solutions. Each of these segments has some critical prerequisites with respect to security - very obvious for anything connected with finance but the EMR component must also comply with the Health Insurance Portability and Accountability Act. This adds on an additional layer of specialized requirements for companies engaged in the health care industry. Both market segments are exploding and will continue to do so. The aging population of

baby boomers is approaching retirement age and will require increasing amounts of health care and financial services.

Currently, financial and health care industry challenges tend to revolve around secure communications and secure data transfer. Resellers with CaaS technology experience can leverage their expertise to seed the baby boomer clouds and become true rainmakers.

Many have already formed relationships with providers of secure solutions like hosted fax services, which remain a critical component of the financial and health care industries.

Many other opportunities, such as those in the hospitality industry are also excellent targets.

Max Schroeder is the senior vice president of FaxCore Inc. (www.faxcore.com). Mandalay Bay | Las Vegas, Nevada | August 26, 2013

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# Why Sprint?

Emerging & Wholesale Solutions Group Tells Its Systems Integration Story

UESTION: What do King Tut's tomb, Johnny Appleseed, tomato sauce and Picasso all have in common? ANSWER: They're all analogies used by Matt Carter to explain the enablement strategy at Sprint's Emerging & Wholesale Solutions group.

Sprint has made a lot of changes to Emerging & Wholesale Solutions, says Carter, who is president of the group. Those efforts, he says, are disrupting the market and changing the game to enable Sprint to grow its business more rapidly – and to help Sprint customers do the same.

The Emerging & Wholesale Solutions group at Sprint cuts across a wide range of customer segments, including auto manufacturers, retailers and other industry verticals; MVNOs that want to provide wireless services to select affinity groups; and device manufacturers. These customers are be-

ing inundated with complexity, says Carter, and they need simplicity, yet no one company can provide the full range of capabilities they require.

To address all that, Sprint has launched a new strategy called Know, Innovate, Grow.

The strategy involves better understanding the needs of Sprint customers and then taking that information and building innovative, single-source solutions to address their needs.

#### Know

The Know piece is involves uncovering valuable information about customers' business.

"Know is all about being a good archeologist – uncovering King Tut's tomb and taking those riches back to our innovation center and then building solutions for our customers to meet their needs and help customers grow," says Carter. "It creates a different kind of cadence in how we go to market."

Sprint experts gather customer information by interacting with customers; talking with partners of those customers, as well as with analysts and media in their verticals; doing additional research; and thinking creatively.

"We're like Johnny Appleseed," he says. "We go out and are proactive."

Sprint leaders, some of them hired from the verticals they now serve, strive to understand the competitive dynamics of the industries in which customers and prospects do business. They identify how such companies make money, and learn about key factors that are impacting customers' businesses.

> "Having domain expertise is essential," he says. "We are making a concerted effort to bring in the best talent to help us grow our revenue and profit across these key strategic verticals."

> > Carter says key verticals on which his Sprint group is focused include connected transportation, financial services, insurance, and retail.

In addition to adding vertical-specific experts to its ranks, Sprint's Emerging & Wholesale Solutions group is focusing more heavily these days on marketing, says Carter, who has held executivelevel marketing and customer experience positions at BellSouth, Boost Mobile and Coca Cola. Part of

the new Sprint effort is a major push to develop and implement training and development for the sales staff.

Sprint has launched

a new strategy called

Know,

Innovate,

Grow.

"We have a syllabus of courses that everybody on staff goes through," says Carter. "Part of that addresses account planning – and what you need to know about the customer to create a partnership with that account. So we've developed good practice habits in how we do these things."

#### Innovate

The Innovate part happens when Sprint takes the information gleaned during its consultative selling process, other research and its own expertise, and puts that to work by creating solutions that present a single face to the customer while drawing from a broad ecosystem of partners, he says.

"We understand we need a broad range of partners," says Carter. "For example, we're working with Chrysler on M2M, and bringing a single-source solution to Chrysler, but under the hood it's 30 to 40 partners, and Sprint manages it all."

Sprint, adds Carter, is not operating as a dumb pipe. Instead, this group at Sprint is positioned as a systems integrator, he says.

#### Grow

That leads us to the grow part of the equation – and to the tomato sauce part of the conversation.

"We're not in the business of just selling garlic, we're more in the business of selling tomato sauce," says Carter. "The opportunity is to move from commodity selling to really value-added selling."

Because it is positioned as a systems integrator, Sprint's Emerging & Wholesale Solutions group is now selling platforms as opposed to just services like connectivity, says Carter. That adds up to larger customer spends and lengthier engagements for Sprint, in which as of press time Dish and SoftBank were competing to acquire a majority stake.

"Sales cycles are longer, but the relationship lasts longer," he says, adding that results in greater value for both Sprint and its customers.

Of course, Sprint has plenty of competition in the systems integration space. But Carter says what differentiates Sprint in this marketplace is its thorough understanding of the customer experience and knowing how to operationalize plans to meet their goals.

"Like Picasso we create a portrait of what the customer experience needs to look like," Carter says. "We are a systems integrator, and we are bringing a competency to the market that is unparalleled among carriers."

"Like Picasso we create a portrait of what the customer experience needs to look like." - Sprint's Matt Carter

#### By Paula Bernier & Dana Jaffe

# Momentum Telecom Emphasizes the Benefits of Telecommuting

MOMENTUM

Momentum's Sarah Brown

anaging a team that is nearly 3,000 miles away was viewed as impractical before the Millennial generation. Modern day technology has changed that mindset.

Editorial

Telecommuting has evolved into a fully sustainable work model, leaving the days of water cooler conversations and punching the time clock in the past. Organizations debating the benefits of on-site vs. off-site work most recently sparked by Yahoo!'s and Best Buy's new remote work policies are wasting energy, because the home-based workforce is part of the now, and an even bigger part of the future.

The real discussion management should be having is how to create or expand their company's telecommuting policy. It takes planning and careful execution to implement a mobile work program and the proper communication tools to make it successful.

INTERNET TELEPHONY recently spoke with Sarah Brown, director of sales and marketing for Momentum, about how to manage an entire sales and marketing team remotely. Working from her Seattle home and managing a team of 10 employees in Alabama, Brown has learned the benefits and challenges of telework first hand. Here she shares her management mantra.

You say that flexible work schedules can help drive team motivation and self-starter attitudes. Describe how. Brown: Up-and-coming professionals don't understand the 8 to 5 set schedule – especially creative types, who develop some of their best ideas outside of the office and after business hours. The bottom line is that a structured and social professional environment is not the way everyone thrives. Without the constraints of office hours, people stop watching the clock, get more accomplished and take greater responsibility for the work they deliver.

You say even the definition of work has changed. Explain. Brown: Work is no longer a place; it is an activity. Work is work and should be done when and where an employee can do it best. Clearly defining workload expectations, responsibilities, deadlines and quotas is key to an efficient workflow. Every day should start with identifying priorities for individual



and team assignments and making a to-do list of action items that need to be finished by the end of the business day. What really matters is the final product. Managerial success can then be measured in terms of the output and innovation the team delivers. It is critical to find dependable employees who will perform well and can be trusted to complete assignments without being monitored, even when management is halfway across the country.

#### How can remote work maximize efficiency and improve productivity?

Brown: The office environment is just as often the culprit of breaking concentration as it is the source of generating the next big idea. Many executives cite impromptu office visits from colleagues as the biggest distraction to their workdays. From a home office, the diversion of co-workers stopping by to chat is avoided, enabling teleworkers to stay focused on their own responsibilities. Additionally, it eliminates commute time, carbon emissions and wasted money on fuel and business attire.

#### What are some of the other benefits of telecommuting for both employee and employer?

Brown: The truth is that those who have the privilege to work from home are willing to work longer hours in exchange for the freedom and convenience of this job perk. This privilege increases personal investment and loyalty to the company and works in everyone's best interest. Some weeks I work 50-plus hours, but the agile time schedule enables me the convenience to work full-time, raise two kids, oversee construction projects for my current and future home and to eat lunch with my husband on his off days. The telecommuting model is a true win-win situation.

#### So building a collaborative culture doesn't hinge on sideby-side cubicle communications.

Brown: Right. Technology makes it easy to foster an interactive remote workforce and helps remote directors to be more accessible. Because I work for a cloud-based communications company, my employees and I have access to and leverage a full suite of innovative tools that keep us connected to the rest of the business world and enable the quick exchange of information on a day-to-day basis.

#### Which applications do you depend on the most?

Brown: **IM with Presence**: Chat helps me communicate with my team and other Momentum employees the most. Momentum Messenger is a UC tool that also allows me to see when someone is on a call so I do not interrupt. I am

able to get the quickest answers to timesensitive questions using a casual communication style that is more in-line with my personality.

#### Web Collaboration:

Web conferencing is used weekly for our senior management meeting. I am not the only senior manager working remotely. Momentum has team leaders in Atlanta, Cape Cod, Denver, Los Angeles and New York. Screen share features enable Momentum's dispersed staff to bring presentations to the central location of the conference room at our headquarters.

Video Conferencing: Face-to-face virtual brainstorming sessions are great for project development and bouncing ideas off one another. The challenge here is making sure I am dressed in office attire (think Zuckerberg vs. Gates), so these are few and far between. I'm still working on getting that office attire thing changed once and for all.

**Google Drive**: Documents can be accessed from anywhere, shared for multiple users to work together on the same file in real time and will sync automatically. Navigating through an already cluttered e-mail box and trying to find the latest version of a document is a complete waste of time that is no longer necessary thanks to Drive.

**Business Phone**: VoIP service is more reliable and higher quality than a cell, so when I am making or expecting calls I get situated in my home office space and put my enterprisegrade Polycom on speakerphone.

Momentum invites you to join the Better Enterprise, Better Earth initiative and make the pledge to work from home at least 1 day this year. Learn more about the telecommuting challenge and remote worker solutions at gomomentum.com.



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By Peter Radizeski

#### The VAR Business Model Gets Cloudy

The telecom channels are searching for the keys to the fastest sales vehicle. Right now, it is about recruiting as many feet on the street to hawk product as possible. Many people in the industry will tell you

that cloud communications sells either on price or relationship. However, it is difficult to scale that kind of sales force. It requires channel managers, sales engineers, and other support to handle hundreds of partners.

Something that many miss is that it isn't simply about numbers. It is about the right partner. Very few channel programs have strict criteria or have an application process.

Another thing that gets missed is that the business model of the average VAR may not sync with cloud services. Cloud services are about monthly recurring revenue. Most VAR business models are based on upfront cash via hardware purchases. A VAR with \$2 million in revenue probably pays much of that to its distributor for hardware and software. The transition of a cash flow model to a recurring revenue model is a challenge. It is a challenge due to payroll and other expenses that have to be met without the upfront cash.

One thing to consider is if the services are adjacent to the main line of business of the VAR. Without too much marketing or selling, can the services be sold to the VAR's existing customers and will that be enough business for the vendor. Typically, a new service will get 15 percent penetration in a year, so a VAR with 200 customers will result in about 30 sales. Is that enough?

Scaling up your channel with as many VARs as possible will produce channel managers who are quoting machine and sales assistants. There are realities about how much sales volume will result. This isn't something that channel executives want to hear. Yet the thinking that channel partners are just a simple and less expensive answer to sales isn't quite right either.

Peter Radizeski is head of telecom consulting agency RAD-INFO Inc. (http://rad-info.net/).

#### VMTurbo Partners with Net One Systems

Software-defined control outfit VMTurbo has partnered with Net One Systems, a network services reseller in Japan, to distribute VMTurbo Operations Manager. With the partnership, IDC Frontier, a provider of data center solutions, selected VMTurbo to address the challenges associated with operating, optimizing and controlling its virtualized infrastructure. "Adding VMTurbo to our portfolio of competitive and innovative IT solutions caters directly to our customers' business needs," said Fumihiko Shinoura, executive officer of Net One Systems. "We are seeing the demand for advanced virtualization and cloud solutions escalate. and bringing VMTurbo on board enables us to offer a transformative, automated IT operations solution that ensures cloud and virtualized environments are operating in the most optimized state."

#### **ProSource Joins Forces with Jabra**

Jabra, which offers wireless audio solutions, has partnered with PRO Group, a division of ProSource. The partnership designates Jabra as an approved Authorized Vendor for the ProSource consortium of retailers in North America. "In partnering with the PRO Group, we are excited to widen the Jabra brand's footprint in North America with this highly-respected group of retailers that will now be able to sell our industryleading products to brick and mortar and online retailers," says Bruce Tripido, general manager of Jabra North America.

#### **Epicom Leverages Easy Solutions**

SugarCRM Gold Partner Epicom, which is focused on consulting, customizing, and integrating CRM systems, has announced the release of its new SugarCRM hosting platform and partnership with Easy Solutions. Easy Solutions' DetectID Cloud for SugarCRM is a multi-factor authentication solution designed for integration with SugarCRM that protects clients' sensitive data in the cloud. "Epicom has been hosting SugarCRM systems for more than seven years. We've greatly enhanced the performance of our hosting environment, and have increased our security measures with all of our hosting packages," says Eric Wikman, vice president of operations for Epicom.

#### Integra Addresses Indirect Channel Partners

Integra has announced that it has implemented new agreements for its indirect channel partner program. That includes a flexible commission structure that includes tiered levels of commitment in an effort to foster support and reward sales growth within its agent community. Tom Weaver, vice president of indirect channel for Integra, says: "Through a robust Ethernet portfolio and a vast fiber network, Integra's indirect channel partners have the opportunity to approach their customers with a comprehensive and highly competitive suite of technology and communications solutions. With our local channel sales managers and now, a more flexible partner agreement, agents have a range of resources to enable their business growth as well as a slate of rewards that recognize and further support their continued success."

#### **SBS Gets Accolades**

Microsoft Dynamics Partner SBS Group was recently recognized as one of the 11 Top Performing Microsoft Dynamics U.S. Partners at Microsoft's Convergence Conference. Attended by more than 12,000 people, Microsoft's Convergence Conference is the largest gathering of Microsoft Dynamics ERP and CRM users in the world. SBS Group provides business technology solutions to mid-sized companies through a network of regional offices across the United States.

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#### Cloud & Data Center

#### **Carrier Voice: Ditching Boxes for Clouds**

hile the overall ARPU and usage trends are making data services heir apparent, voice is still king. Chetan Sharma Consulting recently reported that 56 percent of the U.S. wireless revenue is derived from voice services. While that voice-data share flip has occurred in some countries (Japan for example), the GSMA is projecting that voice will remain the majority of mobile service revenue globally until 2018.

This fact contrasts with the primary focus today: Given the demand for broadband speed and ubiquity, service provider investments are aimed at upgrading data networks. Yet service providers are still getting paid for delivering voice.

Voice service revenue is in decline as price competition intensifies with overthe-top providers, and usage patterns change as consumers use multiple modes – e-mail, messaging and social networking – to communicate. Multi-modal and multimedia communications have become prevalent, but voice is still expected and essential – do you want to ask your sales person to go data-only and rely on OTT to close business? There is money to be made in voice, but the way providers manage and deliver it needs to change.

Today's fixed and mobile broadband networks are more efficient than legacy circuitswitched ones. Yet that migration to IP does not directly lead to efficiency in nextgeneration voice over IP networks. There is a reason why IMS is always on the horizon: The infrastructure required is expensive (net new capex needed) and, more problematic, it is complex to manage. The requirements for technical staff, ongoing training and maintenance costs for the vendor gear plus back-office integration add significant cost over the life of the network. The upfront and ongoing costs do little to justify the business case and often lead to a return on investment numbering in years as service providers transition or acquire subscribers on the new VoIP platform. Some greenfield broadband operators (e.g., satellite or LTE) do not have the VoIP/IMS expertise or staff to begin with, further impeding the prospects of offering triple play service.

Vendor offerings are primarily architected based on the largest of the large providers. And yet, one size infrastructure does not fit all service providers. Replicating these tier 1 architectures and using those blueprints for implementing next-generation voice networks is risky. Some service providers simply do not have the same scale – in terms of subscribers, footprint, budget or technical resources – so the same dynamics may not apply.

For example, a small, island-based service provider with fewer than 20,000 subscribers was recently presented with a bill to add voice over LTE to its 4G network totaling \$2 million just for the IMS core. They will be faced with a daunting business case: a lengthy design, test and deployment schedule (likely exceeding a year, which elevates risk of lost voice business to OTTs), voice infrastructure cost of more than \$100 per subscriber (plus other capex and associated opex), coupled with an inability to charge its subscribers more for VoLTE services.

New paradigms are being set by OTT providers. Yet in most cases traditional service providers have yet to find ways to more effectively deploy and manage voice. Managed solutions by the big vendors are not an answer; they address the expertise requirements, but do not deliver breakthrough savings. This managed model still requires the service provider to buy the equipment and then pay the outsourced opex. Now is the perfect time to exploit the convergence of mobile broadband, cloud and VoIP and adopt a cloud-based voice platform.

First, a word about cloud: by this I mean an end-to-end hosted/SaaS solution that

is multi-tenant, turnkey and lives in a fully managed private cloud. The industry focus has been on this model for computing, communications and other services direct to consumers and businesses. However, this SaaS model can also be used by broadband providers to deliver voice to their customers. The wholesale solution uses a cloud-based voice platform that eliminates on-site hardware requirements, trained staff and ongoing management, resulting in a pure pay-as-you-grow opex model with a much clearer business case. It is also tightly integrated into the business processes so service providers can scale and monetize the service.

This approach allows fixed, mobile service providers to focus on core business and leverage their strengths, be it the best broadband network or slickest marketing and customer acquisition programs. It means the latest features and upgrades are delivered on a regular basis. This model maximizes net margin contribution starting with customer number one. With integration into the network significantly streamlined, a cloud-based voice platform accelerates time to revenue; progression from concept to commercial service launch can be as little as 60 days.

That island-based service provider that choses to deliver voice via a cloud-based solution can reduce capex by approximately 95 percent and can realize 20-30 percent savings on opex. And the time to market is two to four months, rather than 12 to 18 months. Now the shift to VoLTE and the shutdown of the legacy network looks more attractive.

Even in the face of price pressure and maturation, voice service profitability is possible and sustainable. Service providers need to ditch the vendor boxes and look to the cloud.

Kevin Mitchell is vice president of marketing of Alianza (www.alianza.com).

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#### The Search for Value A Short History of Charging Evolution

There was a time, before mobile, when things seemed stark and simple. Your telephone, if you had one, lived in the hall, or at the foot of the stairs. It did not ring very often. There were waiting lists for telephones and there were complaints departments. It was a time of monopolies, a time when, in many countries, the government owned the telephone company. Customers were called subscribers, and they paid their bills. That seems stark in today's context, but owning a telephone, like a TV, was a status symbol and something of great value.

Pricing was designed to control subscribers, to stop them from overloading the network in busy times. As a result, in the U.K. for example, it was more expensive to use the telephone in the morning. It cost money to make local calls and much more to make long-distance calls. International calls were prohibitively expensive, but in an emergency or on an important occasion invaluable.

#### Competition, Liberation and Some Problems for IT

In the 1980s there were rumblings of competition. The sale of telephone companies or the de-regulation of the phone market raised huge sums of money and opened the door to competition – and opportunity.

Competition arrived at different speeds, depending on where you were. In the U.K., it arrived with a polite, Jeeves-like cough. Mercury Communications wondered if "Sir" might like to consider saving some money on long-distance calls. "Sir" said thank you, but he was quite happy with the established phone company. In the U.S, competition arrived overnight, with a range of exciting and enticing offers of cheap long-distance calls. In Sweden, the introduction of competition was so successful that the incumbent lost half its customers in a week.

Competition brought price wars, opportunity and benefits for all. Operators and customers — liberated by not being called subscribers anymore — realized that it actually cost about the same to deliver a phone call 1,000 miles as it did five. Prices plummeted. With the price wars came a stark truth for incumbents. The systems that were running pricing were largely mainframes. They were no match for the new breed of Unix-based billing systems of the mid 1990s. In these, prices could be changed within weeks. In the mainframe world a price change might take up to six months, and such a change could cost as much as one of the new-fangled systems. The result was that competitors and startups had the advantage of innovating on price. Flexible pricing plans emerged and with them a new era of marketing lead pricing.

The price of the new billing systems was in the hundreds of thousands at the entry level, but this did not stop companies from buying them every time they wanted to launch a new product or service. The fear that a new product would bring chaos to existing systems was not worth the risk of building it into an old system.

#### The Mobile Revolution

While competition was shaking up the fixed line world, the mobile phenomenon was just taking off. Early brick phones gave way to car phones, and these gave way to handsets. In an office in a grey building just outside Nice, a small group of engineers were designing a standard for a new generation of mobiles. It was called groupe speciale mobile, or GSM for short. It was the early 1990s. After an initial, slightly nervous, launch period the new standard began to take off in Europe. The brainchild of this small group, GSM was to be the standard that took on CDMA, prevalent in the U.S. and Japan, and ultimately catapulted digital mobile into global ubiguity.

#### The Convergence Conundrum

The rise of mobile brought with it the concept of convergence, as operators began to converge fixed and mobile networks and back office systems. Convergence began to mean many things – including divergence. Companies experimented with offering one billing and pricing experience for a host of different services, from telecom to water, gas and electricity. Utility companies played with the idea of offering telecom services, and telecom companies, briefly, toyed with the idea of offering utility services.

Having launched hundreds of products and invested in hundreds of systems and having lost sight of the customer, the 2000s ushered in a period of consolidation. This was driven as much by the need to regain a single view of a customer as by the pressures of the worst recession in the industry's history. The cover of Time magazine declared that the telecom industry had "flushed" \$6 trillion on the basis that "if we build it they will come".

A year before the recession, the telecom industry had begun to talk about an interesting development, the possibility of offering content, data, stuff, to customers. Still rich and solid institutions, telcos began to eye other industries, particularly finance and media. They began to wonder if they could deliver content and charge for it too. At the same time, another phenomenon was adding to the huge growth in mobile – prepaid. Initially launched as a way of making mobile available to all, it introduced a concept that the industry had been debating for a decade - real time. It would, however, be some time before real time, post paid and content would converge to create the environment that would usher in value-based charging.

#### **Billing for Stuff**

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Conferences sprang up around value-added services. The mobile Internet became more

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than a distant dream, and terms such as 3G and UMTS arrived in our dictionaries. How to charge for content became a focus of discussion during the early and mid 2000s. Sadly, the straitened times for telcos showed no signs of improvement, and no one was able to launch innovative new content-based services.

The mid 2000s saw the first tentative investments in 2.5G and the first BlackBerry devices meant that e-mail became available on a phone. Sadly, the discussions on value-based charging were too far ahead of the technology, and operators went for a flat-rate approach. There was skepticism in the industry about charging for packets or bytes. Some joked that even if they could charge for them, their grandmother would not understand that the phone company had lost her packets and instead of accepting more she would probably demand them back.

#### A Smorgasbord

For a single price you could have anything you wanted. Operators tried to control the initial riot of usage by keeping customers in a walled garden so that they would only use their content. They failed. Give a customer – say, a teenager – a glimpse of greener grass, and he is over the wall before you can say "What if I gave you some free texts too".

The advent of data and the surge of SMS allowed phone companies to experiment with bundles. Offering customers a mix and match of services seemed to work for a while and seemed to help with the problem of customer churn, the only back office issue that made it to the desk of the CEO. The advent of data also brought back to the conversation the concept of real-time advice of charge. If operators could deliver real-time charging to customers it would enable an altogether better service, providing control over usage for operators, and control over spending for customers.

Mobile broadband rolled out and mobile data became increasingly popular. Enter Apple's iPhone, and usage went crazy. Networks were overloaded within months. So the phone companies decided that they should charge for usage. They would cap customers' capacity. They would charge for over-using the network. That would, they thought, fix the problem. But companies such as Google, Apple, Facebook, Skype and a host of other over-the-top players were using huge amounts of network capacity, offering compelling products and pushing phone companies into a dangerous corner where margins were razor thin and competition was intense. Phone companies were being forced out of the value chain.

#### The Impact of Bill Shock

The rise of data, especially mobile, the phone companies' dropping voice revenues and the need to charge for volume produced a reaction. Bill shock became an epidemic. Roaming has always induced bill shock, but finding data roaming horror stories, or tales of children accidentally racking up tens of thousands of dollars in data charges, became a new game for journalists. Telcos were, briefly, implementing policies that were more network focused than customer focused.

On the face of it, this Policy Management 2.0 looked a lot like Policy Management 1.0. Then something changed. Operators realized that they had the tools to work with customers, while at the same time managing what was happening on the network.

#### Policy Management + Customer Care = Value

Value-based charging is finally gaining traction. Fewer operators are imposing curbs, bans and hard limits on data consumption. The number of operators charging a fee for overage has dropped from 70 percent to 61 percent in the last few months. Using the tools that are available allows operators to make offers that benefit both them and their customers. Happy hours – an incentive to get customers to use network capacity at off-peak times – are now offered by 11 percent of operators. The culture is now very different, and there is a partnership, a trust, developing between operators and customers. This is producing a win-win situation.

Many have seen that fighting against Skype or Facebook makes no sense. That is where their customers want to go. As a result, over a third of operators are now offering zero-rated Facebook plans and over a quarter are putting revenue sharing models in place. As the tools for operators become more sophisticated and, more importantly, their use spreads across the business and away from IT, we see real innovation in

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value-based charging. With video already accounting for 42 percent of mobile traffic, the networks will always now be under pressure, and there will be a continual investment needed to cope with the capacity problem. But the customer is king again. Operators are moving to offer them things that they really want. The recent shared data plans from Verizon and AT&T are just the beginning. Toll-free data is becoming possible and real-time help, advice and guidance online is now a distinct possibility.

Until toll-free data arrives, there is a growing sophistication in the help that operators are able to provide their customers. "I see you are almost at your limit, need a boost for an hour?" "An extra gigabyte until Thursday? No problem, just click here." Direct operator billing is now emerging as the most intuitive way for customers to pay, and it puts the operators right back in the game. The possibilities for communications networks to become the platform for a smarter world are now real.

Operators are in a unique position with their customers. They can be trusted partners online. Trusted access, trusted payment options, trusted and timely management of preferences and limits are all valuable. No OTT player has this ability or knowledge – and they know it. Many are turning to operators to help them improve relationships with their customers. And they are prepared to pay.

If direct operator billing is the simplest and most intuitive option, Facebook will go for it. If SMS provides the ideal vehicle for precision, location-based marketing, Coca Cola will pay for it. If customers of an online travel agency are complaining about data roaming issues, the site will work with the operator and fund it.

New models, ideas and collaboration will render toothless the current perceived threat from OTT players. Now everyone can applaud OTT player WhatsApp as it passes the 10 billion messages in a day mark. The fact that messaging is still growing exponentially means everyone wins. In short, operators are now able to leverage their unique relationships, customer knowledge and billing abilities.

Jonathon Gordon is the director of marketing at Allot Communications (www.allot.com).



## **Redefining the Possible**

WebRTC's impact on app development

ou may have assumed that the battle for Internet browser market share was fought and won a decade ago. But with the growing interest in Web Real-Time Communications, or WebRTC, as an HTML5 value-added capability, the browser wars just may be back on. The good news for application developers and end users alike is that, as browser vendors line up behind Mozilla Firefox and Google Chrome to enable their browsers with WebRTC, there will be an increasing economy of scale issuing developers a call to meet the demand behind a growing supply of innovative use cases.

The last browser war was driven by the concept of Web 2.0 around 2004. The term Web 2.0 began to rise in popularity when O'Reilly Media and MediaLive hosted the first Web 2.0 conference where it was defined as "The Web as Platform." in which software applications are built upon the web as opposed to upon the desktop, aided by new interactive browser features. The unique aspect of this migration was the introduction of user-generated content in the form of ideas, text, videos or pictures, which could be harnessed to create higher value and application functionality. Clearly Web 2.0 spawned a web developer boom, which lead to many of the leading web services we use today, and added untold value to global economies. It's possible that the same can be said about the coming developer and economic impact of WebRTC. The use cases and possibilities afforded by this open systems, browser-tobrowser communication form can generate innovation and once again ignite competition in the browser feature business.

#### Redefining Web 3.0, with WebRTC

Nearly 10 years after the launch of Web 2.0, Web 3.0 has been defined, according to a special report by Lifeboat Research, as "a third generation of Internet-based services that collectively comprise what might be called 'the intelligent Web' — such as those using semantic web, micro-formats, natural language search, data-mining, machine learning, recommendation agents, and artificial intelligence technologies which emphasize machine-facilitated understanding of information in order to provide a more productive and intuitive user experience." Perhaps Web 3.0 could be further defined as the Internet phase when web app developers move to embrace real-time, multimedia communications by leveraging WebRTC.

Is the WebRTC capability in HTML5 a significant enough breakthrough for application and web developers to justify the declaration and redefinition of Web 3.0? Certainly, the hype cycle on the communications developer side of the issue could justify that declaration. But will the larger web and mobile app development community feel the same? Much of that depends on how quickly HTML5 developers embrace WebRTC.

#### WebRTC: Removing Barriers to Rich Communication Features

Compelling as WebRTC is as a means to simplify the use of rich communications across the web application space, there is no clear evidence that web developers are moving quickly to embrace it just yet. As Dean Bubley reported in his recent in-depth report, WebRTC Market Status & Forecasts, "The problem is that at present, relatively few general Web developers are seriously thinking about embedding communications, and neither are many mobile app-developers. Some will have been put off by previous experiments with SIP, Flash, network APIs and other clunky approaches to embedding voice or video. Others will be concerned with fragmentation, uncertain iOS support, or the current 'draft' status of WebRTC."

In addition, beyond WebRTC, there are limitless functionalities and features of HTML5 that developers can explore. Developers have a number of different ways to add value to their sites or apps besides building communications features into them. It is quite difficult for an e-commerce site to quantify and gauge the relative benefits of WebRTC when compared to 3G graphics or embedded payment systems, for example.



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With developers, WebRTC essentially has to compete for attention against all the other great plug-in features that developers could be doing, if they had enough time.

Yet it is expected that WebRTC as a technology will prove itself within the web development community over time as each browser vendor integrates the capability to meet or pull ahead of its competitors. And as WebRTC use cases in the traditional communications space continue to proliferate and services begin to penetrate the market, awareness and spillover in the web services space is inevitable.

WebRTC offers application developers the ability to create multimedia applications with interactive video and HD voice communication features using Javascript APIs, without the need for a proprietary client, codec or other cumbersome interoperability requirements. Already the breadth of application and service concepts and attachments for WebRTC in the communication developer world is quite extensive and growing rapidly, and that's where the first wave of application development will be in the very near term. There are many examples of where WebRTC is considered applicable, and within each are multiple layers of nuanced use cases, from the practical, ROI-driven to the sublime.

Potential enterprise uses for WebRTC include unified communications and customer service, such as voice and video collaboration in the contact center, as well as the next generation of simplified conference and collaboration services. Vertical applications in education, health care, finance, and even emergency services are emerging, as are network APIs with WebRTC support for inclusion of voice and video chat in virtually any website. Social networking sites have the obvious advantage of massive user directories, which facilitate Skype-less use cases for voice and video communications through WebRTC enabled browsers. Network operators view WebRTC as a vehicle to extend the reach of their on-net services with a new subscriber behind any browser-based, Internetconnected device. Pick a communications segment, a few smart industry folks, and you will undoubtedly discover a more efficient way to a solution or service by leveraging WebRTC. Ultimately, WebRTC will prove to be a disruptor that will force the Internet browser, along with the developers supporting these browsers, to be more innovative in the design approach. WebRTC-focused startups are already popping up around the world. In a second wave of embrace by the web developer communities, rich communications could be integrated into web services apps by millions developers worldwide. And once there, we will undoubtedly see innovative use cases in the market that we can't even dream about now.

#### WebRTC: Driving Rich Media Sessions in the Network

As the communication developer community hits overdrive behind WebRTC-driven concepts and service models, developer interest in supporting technology is beginning to spike as well. Demand is growing for WebRTC enablers in the network such as interworking gateways and border elements, audio and video transcoders, and rich media mixing delivered by multimedia servers and IMS MRFs. Not only does WebRTC have the potential to redefine Web 3.0 for developers, it is clearly a driver for growth and an economic engine for these enabling technologies as well. WebRTC lowers the barriers to communicating via rich media sessions, which will place much greater demands on the elements in the network that can support the creative use of multimedia processes such as interactive video and HD audio and the requisite network interconnection and transport.

In the end, WebRTC may or may not come to redefine Web 3.0, but it is very likely to have a broad impact on web services and application development. In the communications app development world, it has already stirred an intense level of excitement in terms of the limitless use cases, and as web developers join the party, the reignition of the browser wars may begin on an entirely new level. In any event, whether it comes to browser wars or just a major new wave of application development and economic growth, WebRTC means it's game on.

Jim Machi is vice president of product management for Dialogic (www.dialogic.com).





#### Harnessing Technology to Enable **Real-Time Crime Centers**

overnment agencies ultimately align to one clear focus: to help our cities become places where people and businesses want to establish themselves. Government leaders understand the need to improve public safety performance continually for our cities to thrive. However, these leaders contend with the fact that taxpayers want to pay less, but still expect improvements and advancements in protection, safety and service - resulting in the economic challenge of doing more with less.

With the growing ability for the public to view performance metrics, citizens are now paying more attention and government leaders are facing increased scrutiny and added pressure to meet their expectations. The public can capture images, send text, record video – creating data that government needs, and they expect government to be able to use what they provide. Just about every incident has someone there with a cell phone, ready to document it and share it with first responders.

Data is streaming into government from virtually unlimited sources. Smartphones, social media, video cameras, sensors and alarms are giving public safety agencies the ability to see, hear and do more with less. Yet this abundance of information comes with an enormous challenge: How do agencies operationalize all the data that surrounds them?

Whether citizen multimedia messages or 911 calls, radio traffic or video feeds, police departments across the country are seeking smarter ways to capture, correlate and share all this information – and turn it into usable and actionable intelligence.

Rather than relying on paper reports and dispersed databases, real-time technology is helping law enforcement see a wealth of integrated information with just a few clicks. Instead of spending days or weeks combing through files, police can access the information they need instantly. What's more, advanced video analytics and sensors that anticipate crowd formations and detect gunshots deliver an additional layer of intelligence. Now when a crowd forms in a high crime area or a gun is fired in a sprawling city park, advanced analytics equip police with the relevant intelligence they need to be more proactive.

The key for public safety agencies is to have a solution in place that brings together information from all the different sources: video, sensors, alarms, computer-aided dispatch and records processed

with analytics to deliver a single, real-time operational view. In addition, incident and criminal complaints, arrest records and photographs, national crime databases, and 911 call records can also be utilized. All this data - which resides in separate databases – can be integrated for law enforcement in seconds instead of hours or even days. By integrating multiple streams of multimedia into one unified view, a badged officer in front of monitors can support first responders in the field as an incident develops. Both the technology and applications are giving that officer timely access to information from myriad sources to help the responder confront the situation and solve the crime quickly.

A number of public safety agencies have begun making investments in real-time crime center initiatives to put all the data to work for them. If proper planning is done upfront, they can be designed to receive information from multiple data sources, process them with real-time analytics and deliver that one critical operational view.

As they weigh options and investment strategies, agencies are turning to standards-based private long-term evolution networks to help achieve their future plans for mobile data applications. With the increased bandwidth delivered by LTE, first responders will have access to high-speed connectivity and the ability to securely transmit large amounts of data and video to and from the real-time crime center. Secure dedicated networks are preferred. A recent Motorola Solutions' survey of 250 U.S. county, city and state level decision makers found that 87 percent of respondents are worried about the threat of criminals hacking government information over a public network that they don't control.

Proactive and predictive policing is the wave of the future. Seventy percent of police departments are already using some form of predictive policing. Ninety percent plan to increase their use over the next five years. As they do, they must operationalize all the information streaming in. By looking at a real-time crime center concept that builds on current infrastructure, law enforcement can move from reacting at a moment's notice to responding based on intelligent predictions with targeted enforcement activities. When they shift their focus to information-based prevention and better optimization of resources, departments are able to do more with less – without compromising the safety of their citizens or personnel.

Tom Miller is the director of government & public safety markets for the North America customer solutions division of Motorola Solutions (www.motorolasolutions. com). Prior to joining Motorola, Miller spent 25 years with the Michigan State Police Department and retired as the deputy director.

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### **Corporate, Governmental Responses to Cyber Attacks Are Making Strides**

or eight years, Arbor Networks has been tracking the cyber threat landscape through our annual Worldwide Infrastructure Security Report. Of course, much has changed over that time period. The peak DDoS attack size rising from 400mbps to well over 100gbps is just the start. The rise of stealthy application-layer attacks and the rise of hacktivism have dramatically changed the game for network operators and enterprises alike.

One thing that has remained remarkably consistent over the years, however, has been the hesitance about reporting network security incidents to law enforcement, and a lack of confidence that anything can be done.

Arbor's 8th annual report shows that the reasons most cited for not reporting attacks include a lack of resources and time, low confidence in law enforcement investigative efficacy, and corporate policy. of getting caught vs. attempting to commit crimes in the physical world.

The federal government is playing an increasing role in cyber security as the potential implications to national security become clearer. With the rise in statesponsored cyber activity, and the fragility of the nation's critical infrastructure, the Department of Defense has made improving attribution capabilities a top priority. A sign of just how invested the government



Source: Arbor Networks, Inc.

Here are a couple comments from respondents who do not currently make law enforcement referrals:

 from an enterprise, "concerns regarding seized equipment"; and

• from a service provider, "that is the customer's decision".

Attribution of cyber attacks can be incredibly difficult, costly and time consuming. These dynamics naturally discourage reporting and make hacking an attractive vector for criminals, as they have a relatively low chance is in improving its attribution capabilities came last fall when then Department of Defense Secretary Panetta warned cyber attackers that, "[p]otential aggressors should be aware that the United States has the capacity to locate them and to hold them accountable for their actions that may try to harm America."

Of course, the better our attribution capabilities, the more law enforcement can do. At the FBI, Director Robert Mueller recently testified before Congress that, "We are working with our partners, both foreign and domestic, to develop innovative ways to identify and confront the threat as well as mitigate the damage.... Just as the FBI has transformed its counterterrorism and intelligence programs to deal with an evolving and adapting threat, the bureau is strengthening its cyber program and capabilities. Computer intrusions and network attacks are the greatest cyber threat to our national security."

Government interest in cyber security isn't limited to law enforcement; it extends to the halls of Congress as well. There are multiple pieces of cyber security legislation currently, and many analysts expect that some form of incident disclosure will be an eventual outcome.

Ironically, another change factor is the sheer number of organizations that have been successfully hacked.

Because of the success that hackers have had in recent years, the stigma of being a victim has been dramatically minimized. This is leading some of America's largest companies to voluntarily disclose cyber attacks today as part of their fiduciary responsibility to shareholders. According to Bloomberg News, of the top largest 100 companies in the United States, 27 have reported cyber crime incidents in 10-K filings to the Securities and Exchange Commission.

Until very recently, the decision to report cyber crimes seemed liked a thankless task, with far more downside than upside. There are multiple reasons for optimism that one of the basic advantages of the hackers – the absence of fear of getting caught – may be eroding. Government and law enforcement continue to make cyber crimes a top priority, more high profile arrests continue to take place, and the stigma of reporting attacks is beginning to fade away.

Gary Sockrider is solutions architect at Arbor Networks (www.arbornetworks.com).



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#### **Security**

#### **How to Attack IT Security Threats**

n Aug.15, 2012, Saudi Arabia's national oil and gas company, Aramco, suffered a debilitating cyberattack. More than 30,000 computers were rendered inoperable by the Shamoon virus. U.S. Secretary of Defense Leon Panetta described this virus as the most destructive weapon ever used against the business sector.

Network security is a growing problem in the IT industry today. The very trends that have revolutionized users' access to data are the same ones that are leaving networks vulnerable to attacks by cybercriminals. No single security product can fully defend against all network intrusions, but a smart combination of existing products can provide a more flexible solution.

Three recent trends in the IT industry have improved the efficiency and effectiveness of digital services: cloud computing, big data analysis and mobility. Cloud computing centralizes data and makes it

accessible anytime, anywhere. Unfortunately, it also provides cybercriminals with fewer, and more valuable, targets. Big data analysis offers a sophisticated overview of complex information; however, such a wealth of sensitive information in a centralized location provides an irresistible target for cybercriminals.

Mobility allows convenience; it permits users to access data on the network with different devices, such as mobile phones and iPads. But this severely compromises security as these devices do not have the same protections as the typical corporate laptop.

With increasing data availability, cyberattacks are becoming more common every year. The cost of these attacks to

business, though declining from 2010 to 2011, is still high. According to the Ponemon Institute and Symantec Research, the average cost of a security breach in the United States was \$5.5 million in 2011.

Cybercriminals are becoming smarter, innovating new methods to penetrate defenses and often using several different kinds of attacks in combination. For example, a hacker can utilize a distributed denial of service attack as a diversion for introducing malware into a network. In the case of the attack in Saudi Arabia, cyberterrorists utilized a virus in a spear phishing attack in an attempt to disrupt international oil and gas markets. There are many types of security appliances and solutions deployed in networks, each with its own specific focus. However, these solutions are rarely coordinated, which hackers exploit using a combination of attacks.

To successfully defend against this, some kind of coordination is required between the various security solutions so a complete overview can be provided. But, even this is not enough, as detecting zero-day threats (new attacks that have never been seen before) is very difficult. It is therefore necessary to also monitor how the network is behaving to make sure that no attacks have penetrated the security solutions in place. To do this successfully requires that all these solutions are capable of monitoring and reacting in real time.

Most networks already have monitoring appliances in place, such as a firewall, an intrusion detection or prevention system or data loss prevention application. Some products that consolidate these methods into one appliance include universal threat management

> and next-generation firewalls. But single point solutions can only ever address a part of the problem.

The average cost of a security breach in the United States was \$5.5 million in 2011.

Another solution to network security uses the concept of security information and event management, which is based on the centralization of information from both network and security appliances to provide a holistic view of security. This is a real-time solution, constantly monitoring the network to detect any anomalies that might arise. That means that both the network and security appliances need to be able to provide data on a real-time basis to ensure that anomalies are detected the moment they

occur. This, in turn, means that each of the appliances must be capable of keeping up with growing data loads and speeds.

One of the easiest ways of disrupting the security of the network is to overload the security and network monitoring appliances using a DDoS attack rendering the centralized SIEM system blind. This is a real threat if these appliances are not capable of operating at full throughput. By assuring that they can, you have just removed another potential attack vector.

Dan Joe Barry is vice president of Napatech (www.napatech.com).

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# **Unified Communications**

By Wain Kellum

### Why Businesses Should Throw Out Their Old POTS

any of my friends that own businesses consider me a geek because I have an intense fascination for how businesses can gain a competitive advantage by leveraging the latest technologies. I'm always excited to hear stories about companies, especially my customers, taking the latest technology and morphing it to fit their business needs.

For businesses to maximize growth, they absolutely need to embrace the latest business tools and technology. One of the easiest and most fun things a business can do today to improve its image and services is to throw out its old POTS, otherwise known as plain old telephone service, and replace it with a far more flexible and affordable communications option: cloud or hosted VoIP services.

Cloud computing is simply another way of describing the use of the Internet to deliver all types of services, and the concept is changing the business and consumer worlds at an incredible rate. As consumers, we've become used to getting our news, music and video content delivered through the cloud. And now many businesses are discovering the advantages that cloud-based services provide.

Here are my top six reasons why businesses should throw out their POTS.

#### Because Your Business Needs the Money

The cloud has gained such tremendous momentum because business systems, and even entire businesses, can be launched with significantly reduced up-front expenses and minimal maintenance and upgrade costs. POTS requires businesses to use space and costconsuming hardware that necessitate having personnel with specific skills to maintain and update it. Many projects that would have required the purchase and maintenance of expensive hardware now have a fundamentally different starting point because of the cloud. With hosted VoIP services, for example, a business can save 50 to 80 percent on telecommunications costs.

#### Because Customer Satisfaction is Still the Key to Business Growth

Hosted VoIP solutions can be tied directly to other business systems like Salesforce.com or QuickBooks. These connections allow businesses to use tools like dashboards or desktop applications to automatically look up and display information such as customer notes, balances owed, case histories and other details stored in a customer relationship management database or accounting system before a call is even answered. Having this information immediately available means customers who call your company won't have to answer all of those routine guestions that reps usually need to ask to pull up an account, making for a better experience for everyone.

Additionally, VoIP solutions provide sales and marketing teams with a distinct advantage in their efforts to generate new business for the company. Features such as unique phone numbers, customized caller IDs and enhanced call routing can ensure sales teams have all the information they need before making a call and provide marketing teams with details on which programs are performing best.



#### Because Your Business Can't Go Dark

The cloud-based architecture behind hosted VoIP solutions lets businesses enjoy a tremendous level of reliability and redundancy because of the geographically distributed nature of the cloud. For example, when Hurricane Sandy struck the Northeast, customers calling businesses that had communications services hosted in the cloud didn't get a busy signal. Intelligent cloud services rerouted customers from data centers that were impacted to other locations that weren't affected.

#### Because Your Business Doesn't Go On Vacation When You Do

Unlike POTS connections, hosted VoIP solutions also provide a high level of mobility through the use of mobile applications and features. When I am out of the office or in meetings, I still have control and visibility of my business through my mobile phone. I can look at things like



our call queue times to make sure the team continues to do what is expected. I love that I get a text translation of every voicemail on my smartphone so I can see if I need to respond to a call before I have time to listen to the recording.

#### **Because You Plan for Your Business to Grow**

Cloud solutions allow for businesses to easily expand their telecommunication capabilities and breadth of services by simply acquiring new Internet-capable handsets and plugging them into an Internet connection. This enables VoIP users to expand their service as rapidly as needed, in either a single location or locations spread throughout the world. Even better, through the use of mobile applications and/or softphones and depending on the company's needs, businesses can accomplish the same expansion without needing to purchase additional hardware.

#### **Because Top Talent Wants the Amenities**

Teleworkers and geographically distributed workforces have become more common and are increasingly becoming a key component in attracting and retaining the most talented employees. Whether they're in Boston or San Francisco, VoIP solutions delivered through the cloud provide companies with all of the connectivity needed to effectively collaborate from any office or location.

POTS solutions will continue to be squeezed by the incredible pressure applied by the cloud because of the ease with which cloud telephone services can be deployed. The ability to add new features across the entire company by simply changing the software hosted in the cloud and the flexibility to expand capacity to accommodate tremendous demand are areas where a POTS-based system falls short.

Companies have always had the need and desire to find the most efficient, cost-effective means for meeting the needs of customers. The mainstream acceptance of cloud-based solutions, combined with ever expanding access to high-speed connectivity, will place hosted VoIP at the forefront of communications options and continue to push POTS from the market. IT

Wain Kellum is CEO of Vocalocity (www.vocalocity.com).



# Will Enterprises Miss Out on WebRTC Innovation?

t is hard to find a communications technology more talked about these days than WebRTC. Beyond its ability to embed voice and video into websites and applications flexibly without the need for a plugin or client download, what is arguably most intriguing about WebRTC is its rapid pace of innovation, with new prototypes and commercial offers emerging in months instead of years. Recent market reports estimate more than 3 billion devices and 1 billion users to be WebRTC capable by the end of 2016. Thanks to strong traction with application developers, WebRTC's short-term impact will likely be most strongly felt in the consumer web market, with real-time collaboration being added easily to e-commerce sites, gaming, social media and other online services.

As WebRTC gathers steam in the consumer world, a growing question is whether or not enterprises will be able to take advantage of the many innovative use cases that are emerging. Sure, companies see the potential of WebRTC to deliver rich businessto-business and business-to-consumer collaboration across a range of devices and applications. And WebRTC's avoidance of often bothersome plugins can help eliminate cost and complexity.

But the reality is that most companies have already made significant investments in collaboration technologies that do not conform to WebRTC's advanced standards. These existing communications infrastructures are not likely to be replaced anytime soon, and most major enterprise UC vendors have yet to announce any commercially available interworking solutions. Similarly, large investments have been made in corporate devices that people use for voice, video and conference calls, so the question of SIP endpoint compatibility with WebRTC is key. A further consideration is the fact that companies already have applications in place for their employees and customers, potentially hampering uptake of new WebRTC-based applications. But perhaps the greatest impediment to WebRTC adoption by the enterprise is the added risk from a security, corporate policy and regulatory compliance perspective, since users in the public domain will be given access to the corporate network in new and expanded ways.

To address these concerns, cost-effective solutions are required that avoid the need for upgrades of SIP-based devices, gateways, bridges, voicemail, IVR systems, and recording systems. Such solutions would include a number of key components.

#### **UC Client SDKs**

Easy-to-use software development kits are needed so that application developers can embed real-time collaboration func-

tions seamlessly into existing applications in a consistent way across various platforms, whether that be a desktop application in JavaScript or a mobile application on an iOS or Android device. APIs for other UC capabilities, such as messaging and presence, should also be made available to developers within the SDK to enable a rich collaboration experience for end users.

#### **HTTP-to-SIP Gateway**

While the WebRTC standard doesn't dictate the signaling platform, extending it to the enterprise typically requires SIP interoperability for WebRTC endpoints to establish calls with corporate devices. A gateway function is needed to convert HTTP to SIP and translate the session description protocol for enterprise consumption.

#### **Media Broker**

An important requirement is to convert and adapt external media for enterprise use so that voice and video traffic from WebRTC endpoints can be handled correctly by corporate devices. WebRTC stipulates VP8 for video; whereas most enterprise devices use H.264, so video transcoding will likely be required. Most enterprises utilize RTP for media streams, whereas WebRTC uses SRTP along with ICE/STUN/TURN to traverse firewalls, so RTP normalization may be necessary.

#### **Policy Engine & Multi-Vendor Interoperability**

Enterprises often have corporate- or user-based security and compliance policies in place for B2X collaboration, such as call recording or white listing/black listing. It may be necessary for enterprises to invoke such policies by way of an advanced session management platform that orchestrates appropriate services for calls involving WebRTC endpoints. This platform also acts as a central point of integration for mixed vendor environments often typical of enterprise networks, enabling WebRTC interoperability to be performed once with SIP normalization across all elements.

WebRTC is a disruptive technology that allows enterprises to touch their customers in new and innovative ways, driving business results that other collaboration technologies have promised but failed to deliver. However, UC vendor support may be still months away and will likely require companies to incur costly and time-consuming upgrades that could take years to complete. Unless new approaches are taken quickly to address these concerns as well as address security and compliance requirements, neither enterprises nor vendors may capitalize on the full potential of WebRTC. **IT** 

Sajeel Hussain is vice president of product management and marketing at Thrupoint (www.thrupoint.com).

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#### Convergence of Web, Video and Mobile Fuel Cloud Videoconferencing Growth

ideoconferencing is moving from a high-end luxury to a must-have business feature. End users expect a videoconferencing experience that is ubiquitous, cost effective and can be delivered with high quality and a guaranteed service level. There are a variety of videoconferencing solution alternatives to fulfill this growing demand, but a confluence of trends in web, video and mobile technologies is expected to specifically boost demand for cloud videoconferencing.

#### Interoperability

Interoperability is arguably the largest barrier to the widespread adoption of videoconferencing. Traditional videoconferencing solutions from a single vendor work well, but often lack interoperability with other vendors or past technologies. Business videoconference calls with third-party participants outside the organization rarely work without some sort of hiccup. Moving videoconferencing to the cloud enables enterprises to hand these interoperability worries off to their cloud vendors.

#### **Bring Your Own Device**

The growing trend around BYOD will also accelerate videoconferencing. With the surge of BYOD in the enterprise, videoconferencing systems need to support a wide range of end user devices. It can be difficult for enterprise IT departments to stay current on all devices and fast-occurring upgrades, so enterprises are likely to hand the responsibility to a cloud provider that can then handle integration and support.

#### WebRTC

WebRTC is perhaps one of the biggest disruptive technologies in videoconferencing today. Anyone with a PC, tablet or smartphone will be increasingly participating in videoconference calls through a browser interface, without the need for special client hardware or software. The cloud is a natural choice for best delivering and supporting videoconferencing services with WebRTC endpoints.

Today, about 80 percent of the web conferencing market is hosted, while hosting accounts for less than 15 percent of the videoconferencing market. WebRTC could easily change that.

#### Video Codec Advances

New codecs like H.265 and VP9 can reduce the bandwidth required for the same level of quality of video by up to 50 percent. These codecs have the potential to cut the cost of videoconferencing since bandwidth cost is a key component in overall price. Video quality should generally increase since many video calls are currently limited to a specific bandwidth. As these codecs get silicon implementations, they will provide greater impetus to real-time mobile video. Higher use of mobile video will lead to more demand for video services in the cloud. However the switch to these new codecs will not be immediate, hence transcoding functions will be required to interoperate with existing solutions using codecs like H.264 and VP8.

#### Voice/Video over LTE

LTE networks can deliver mobile broadband and communication services with greater capacity and lower latency. This allows operators to develop all IP-based infrastructure to enable voice/ video over LTE solutions based on IMS architecture. Just like in the enterprise where IP conferencing soon followed IP telephony, one can expect mobile IP telephony to be followed by IP collaboration services based on IMS by mobile operators. Many mobile operators already are and will increasingly become conferencing service providers, or CSPs.

#### Making the Case

Leading CSPs already offer collaboration services using audio, video and web technology today. Audio conferencing remains the dominant revenue generator for CSPs, and will continue to grow over the next five years. Meanwhile revenues from videoconferencing services are growing much faster, driven by user acceptance of video calling and conferencing, improved mobile broadband, cost reductions, and the ability to participate in video sessions outside of the enterprise videoconferencing meeting room.

While businesses find videoconferencing valuable, managing on-premises equipment, keeping up with the latest video technology developments, and delivering flexible and scalable deployments make cloud videoconferencing services more appealing than in-house rollouts. Enterprises are increasingly turning to CSPs as trusted service suppliers that can help reduce video complexity and de-risk their video implementations.

#### **IMS-based Solutions**

The IMS architecture was explicitly developed to address

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the needs of telecommunications service providers offering multiple services on a large scale to many enterprise customers and consumers. IMS videoconferencing is optimized for service provider needs, providing technical and economic benefits over alternative videoconferencing approaches. IMS also delivers the interworking between the islands of videoconferencing capabilities across today's MCU, enterprise UC or OTT offerings. By service providers offering cloud videoconferencing services based on IMS, their enterprise customers can reduce costs, while improving ubiguitous video collaboration with third-party participants and remote workers.

Mobile operators and CSPs understand the need to deliver high guality audio with high guality video to their conferencing and collaboration solution users. They also understand that the application and the media processing functions should be able to run on telco-grade platforms, as well as on commodity virtualized platforms enabling hybrid (public/private) cloud deployment.

The IMS architecture is the best approach to position CSPs to generate revenues through cloud-based multimedia conferencing service offerings to enterprise customers and consumers. IMS compliant elements like Radisys' Media Resource Function are already supporting millions of VoIP audio conferencing endpoints in hosted and cloud networks today. Multimedia MRFs like the Radisys MPX-12000 build on this audio conferencing pedigree, by adding scalable HD video conference mixing, video codec transcoding and transrating, along with interconnection of the various islands of videoconferencing technologies.

Addressing user expectations and responding to industry trends is vital for CSPs looking to increase videoconferencing minutes and revenue growth. A cloud video conferencing solution based on the IMS architecture is the best approach to seizing these growth opportunities.

Rajat Gopal is a senior product manager Ray Adensamer is senior product marketing manager at Radisys (www.radisys.com).



#### The IMS architecture delivers interoperability, scalability, and economics for cloud video conferencing.

#### How to Identify Likely Hazards During LTE **Network Deployments**

n irony of the digital world is that the biggest of big data is being generated by the smallest of devices: smartphones, tablets and other handhelds. Photos, videos, social media posts, Internet browsing, e-commerce – just about every aspect of online activity starts with or funnels through mobile devices and networks; all this on top of voice calls and SMS messages. With the rollout of 4G LTE, data loads will only get larger and faster, potentially placing severe strains on mobile networks during the transition from 2G and 3G systems.

Smart technology is ready to respond to the challenges associated with the introduction of LTE, but the potential trouble spots must first be identified and recognized by operators so they can make appropriate decisions regarding the monitoring and automation technology they choose and the way they structure their operations. Among those challenges are five that can be particularly complex but which can be resolved with the appropriate technology solutions.

#### **Eliminating blind spots**

When a network service problem occurs during LTE implementation, the customer is likely to have no idea as to its cause. He's just unhappy and frustrated. It's up to the operator to match network activity to a specific subscriber and thereby enable a rapid resolution of the issue. Usually the operator relies on temporary IDs that, in the 3G world, change frequently and therefore can be captured periodically throughout the day to identify the user. With LTE, however, ID updates are less frequent, and the operator may be unable to connect the activity with the subscriber for an entire day. New solutions are available to offer continuous real-time capture of this information across the network, replacing the need to look back to find problems with a current, timely troubleshooting view of the network.

#### **Clearing administrative hurdles**

As a result of rapidly expanding LTE coverage, operators may encounter a growing backlog of node assignments and configuration tasks that interfere with accurate performance tracking of the newest nodes. Additionally, seemingly small errors from manual processes can grow into significant blind spots in the network. The latest solutions can identify new entities by analyzing the messages exchanged and then automatically configure them to monitor and protect the network immediately.

#### Finding the needle in the haystack

Since LTE runs all data on an IP network – phone calls, Internet traffic and routing information alike - the most important information can be lost in a flood of web and user DNS traffic. Operators must find a way to filter out non-essential DNS data to avoid yet another blind spot that could generate a widespread outage. Available solutions now can tag and discriminate between user and infrastructure DNS messages, pre-empting possible outages through proactive alarm functionality.

#### Preventing an outage avalanche

Indicative of its IT heritage, the LTE network is never finished; it is constantly being updated and re-tuned to meet expanded demand. Because LTE upgrades must be carried out over wide geographies by multiple parties, and implementations often are carried out on the fly, configuration errors can develop. Key performance indicators that display network elements every hour are not enough. Operators must monitor the behaviors of individual nodes carefully before, during and after a change is made. Advanced solutions can enable minute-by-minute analysis of procedure failures to uncover risks at the moment they occur. With this access, network operators can take timely corrective actions to forestall a massive outage.

#### Bridging the knowledge gap

LTE is still an emerging technology, and with its speed and capacity comes a fairly steep learning curve for network operators. They can benefit from guided workflows that fill the knowledge gaps with drill-through analysis paths that help the user probe from top-level node and service violations down to troubleshooting at the packet level. These workflows help teams learn more about the way their new network elements interact so they can identify and fix issues faster. The same technology furnishes real-time alarms that identify key areas that require prioritization for attention.

Deployment of an LTE network is no simple undertaking for a mobile operator. By capitalizing on the right solutions to avoid the most difficult setbacks, network operators will be wellequipped to manage the complex interoperability requirements, pressing commercial deadlines and totally new architecture that LTE entails, ultimately exceeding subscriber expectations with a high-performing mobile infrastructure.

Lyn Cantor is president of Tektronix Communications (www.tekcomms.com).

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#### TMC Labs Innovation Awards UC 2013

raditional unified communications is viewed as the unification of voice, video, desktop sharing, instant messaging and other communications technologies to improve employee productivity and lower the total cost of ownership. However, UC isn't simply about unifying your own internal communications, though that plays a very important role. UC also encompasses integrating and communicating with partners' databases and systems. For instance, one of our winners, Telarix, enables a business-to-business information exchange platform for carriers to automate business processes as well as quickly and efficiently access and share business documents, such as price lists, contracts, and bills among their trading partners in near real time.



It's rare that we have back-to-back year winners, so we were surprised to see two innovative high-end video telepresence systems from ClearOne and LifeSize win again this year with completely new products from the ones that won last year. This year marks the 14th annual TMC Labs Innovation Awards where we honor products and services that have unique and innovative features that often differentiate them from their competitors. For 2013 we have 20 TMC Labs Innovation Awards winners.

#### 8x8 Inc. 8x8 Virtual Office Desktop www.8x8.com

8x8 has been in the VoIP market longer than most and is probably best known for its Packet8 service, which was one of the first residential broadband VoIP offers in the same league as Vonage. Unlike Vonage however, 8x8 has focused more on business VoIP than residential, offering a suite of products suited for the enterprise. One innovative product it offers is Virtual Office Desktop, a Windows and Mac all-in-one UC application that provides full business softphone functionality, visual voicemail, IM and presence with Google and Facebook federation, and video calling. It also features fax sending and receiving, archive access to Call Recordings, Chat History, and Twitter and Facebook feed integration.

Unlike competitors, 8x8's solution also includes web conferencing functionality, giving you a WebEx / GoToMeeting experience. It's able to host all of this UC and social media functionality since it's a hosted unified communications service provider

with IP PBX servers running in its data centers. Besides the softphone app, 8x8 provides physical IP deskphones as well as Virtual Office Online, a browser app.

Lastly, this is the first business application that improves the audio capabilities of the Adobe Air platform with native Windows advanced audio signal processing. This 8x8 advanced audio module provides iLBC, G729A, G711u/A codec support optimized for 8x8's proprietary DSP. It features acoustic echo cancellation and speaker feedback supression, dynamic jitter handling and packet loss resilience for better call quality on constrained bandwidth.

#### Acrobits S.r.o **Cloud Softphone** www.cloudsoftphone.com

Cloud Softphone is a mobile app for VoIP providers and businesses that want their own mobile SIP VoIP client without the cost and hassle of development. They can add the settings for their service, customize the theme to fit their corporate branding, and even test it for free. The app is available on both iOS and Android immediately and can be quickly provisioned via its support for QR codes for one-touch provisioning. The app centralizes your SIP account settings in one app, minimizes issues caused by incorrect configuration, and makes updating settings a breeze.

Acrobits S.r.o created Cloud Softphone to help systems integrators and VoIP providers build and customize their own app very quickly. Along with its own Mvoip products, Acrobits has

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successfully deployed more than 200 white labels. Moreover, its proprietary SDK helps major telcos and app developers add video and voice capabilities to their own products. Cloud Softphone helps the systems integrators and VoIP providers to control over the air all changes made in the configuration without the need for the user to perform a manual app update on the mobile device. For instance, the online designer can configure the look and field of the app and the changes are immediately sent to the customer devices. Other features include call back, call through, and web call back, as well as a powerful number rewriting engine.

Acrobits tells TMC Labs, "One of the biggest challenges of the MVOIP industry is to preserve the battery smartphones, Cloud Softphone uses push notifications to wake up the app. Push notification for incoming calls is a unique service and works behind firewalls. The service can be installed on premises, or the users can choose to use our own hosted push notifications servers."

#### ADTRAN Inc. ADTRAN's NetVanta 7100 with Voice Migration www.adtran.com

ADTRAN's NetVanta 7100 with Voice Migration solution is an innovative platform offering an all-in-one, Office in a Box, featuring both voice and data capabilities on a single platform. Businesses can take the NetVanta 7100 and utilize it as either a premises-based unified communications platform for business needs, or take the same hardware platform and utilize it as a gateway for hosted UC services. Features include the ability to support up to 100 users at a single site, least cost routing, 3-4 digit dialing between sites, integrating messaging, wireless access control, ring groups, zone paging, and very fast deployment.

ADTRAN espoused its platform to TMC Labs by saying, "With a single SKU for either premises PBX or hosted VoIP UC, resellers are able to carry less inventory and reduce costs. Channel partners focusing on pure play cloud-based and hosted or premises-based UC can now offer a migratory platform which supports both types of deployments." The company adds, "The NetVanta 7000 series has been on the market before. However, the NetVanta 7100 with Voice Migration contains a new software configuration that provides service providers and enterprises with more flexibility for enabling either type of voice service deployments."

The all-in-one solution is very innovative in that it combines multiple network functions into a single platform, including IP router, 24 port PoE switch, IP PBX, firewall and VPN, ACD, auto attendants and voicemail. This is equivalent for instance of eliminating a SonicWall firewall and VPN, Cisco router, and Cisco PoE 24-port switch. The lowered TCO of having a single box providing both voice and data functionality, including data security, is obvious. From a single admin you can manage the entire IT infrastructure, plus it's a single vendor point of contact for support should something fail.

#### AudioCodes AudioCodes One Voice for Microsoft Lync www.audiocodes.com

AudioCodes core strength has always been in media gateways, SBCs, and more recently strong support for Microsoft Lync, a popular UC platform, as well as SIP phones and Lync-compatible phones. This year the company announced AudioCodes One Voice for Microsoft Lync, a new unified product and service program intended to simplify and accelerate voice enablement of Lync implementations with a complete portfolio of AudioCodes' own IP phones, media gateways, enterprise session border controllers, Survivable Branch Appliances, Session Experience Manager and complete network management tools, as well as support and professional services. The platform supports easy migration to Microsoft Lync and co-existence with current telephony systems in multi-site deployments.

Audiocodes tells TMC Labs, "We believe AudioCodes is the first to offer a complete suite of voice network elements (IP phones, gateways, E-SBCs, SBAs) and associated services for Microsoft Lync. Until now, businesses that wanted to deploy Microsoft Lync needed to buy products from a number of different suppliers, take training from each and separate support contracts for each – a major headache. With AudioCodes One Voice for Microsoft Lync, a business can have one supplier and one support contract for all the voice network elements."

The common software platform for all the various elements significantly reduces complexity and the training required to implement a voice-enabled Microsoft Lync deployment. Audio-Codes has also successfully embedded Microsoft Lync's RTA codec in all of its products. AudioCodes' one stop shop for all things needed to support and maintain Microsoft Lync gives it a competitive advantage and our respect.

#### Avaya Avaya IP Office Server Edition www.avaya.com

IP Office Server Edition delivers superb unified communications with scalable growth, centralized management, and resilience built-in. A Linux server is the heart of Server Edition, running IP Office software, featuring voice messaging, call recording, and unified communications features. The Server Edition offers centralized management and licensing for all users, across all locations using a single easy-to-use management interface. Administrators have a view of all users on a single site or across up to 32 locations with the ability to see system status at a glance, so administrators are aware of potential issues that could affect system performance such as over utilized trunk lines, voice ports, and bandwidth utilization.

The platform scales very well, improving from 384 users to 1,200 per site in the latest version, and now improving from 40 voice messaging ports to 100 with any mix of IP, digital, analog or SIP phone devices. It has fault tolerance built-in. Within a multi-site network where Server Edition is deployed across remote locations, in the event of a system outage, the IP phones on that location simply re-register to an alternate location. Further, critical voice messaging including messages and greetings are backed up to an alternate Linux server.

It also features up to 250 SIP trunks per server, 128 audio conferencing ports per server, including IP Office 500v2 (64 parties per conference), and up to 200 Avaya one-X Portal users on primary or secondary server and up to 500 Avaya one-X Portal users on dedicated server. Also, it has SSL-VPN capabilities embedded helping ensure secure delivery of upgrades and patches. Mobility features are very strong with support for Android and iOS devices. Features include simplified call control – tap to call, tap to conference, visual voice mail, IM, presence, and central directory access.

IP Office also features integration with Salesforce.com for enhanced screen pop. IP Office also integrates with Lync to provide call control, IM, and presence from within the Lync client. The Avaya Microsoft Lync Integration is a plug-in that integrates with the Microsoft Lync client to provide telephony capabilities via IP Office. The client-side integration gives IP Office customers the advantage that it will work with both Lync server-side infrastructures – on premises and hosted (Office 365), and customers do not need to purchase Microsoft voice CAL licenses.

#### **ClearOne COLLABORATE** Room www.clearone.com

ClearOne made its mark with some of the best audio conferencing equipment you can buy. Not content to rest on its laurels, ClearOne has branched out into videoconferencing. ClearOne's COLLABORATE Room solutions provide excellent videoconferencing and collaboration with a price point and feature set that is often better than competing room conferencing solutions. ClearOne espoused its platform saying, "Our software-based videoconferencing products are a complete portfolio featuring complete desktop video applications, room systems, infrastructure and management solutions. COLLABORATE Room offers more flexibility, scalability and upgradability at a significantly lower price point than competing hardware-based solutions."

To target its customers feature needs and budget needs effectively, it offers multiple tiered COLLABORATE solutions: Room SD (4CIF), Room HD (720p), Room FHD (1080p, 30fps) and Room PHD(1080p, 60fps). COLLOBORATE Room SD is for budgetconscious SMBs offering high-quality video with smooth motion capture, recording, streaming, and data sharing. Room FHD adds HD video support, including 720p outgoing video resolution, full HD 1080p incoming. Room PHD adds 1080p incoming/outgoing resolution at 60fps for ultra-smooth video. All of these products are easily upgradeable to support future requirements.

All COLLABORATE Room Systems include recording on internal or external hard drive, streaming, and an embedded MCU - 4, 6, 9 port (License Activated), USB Data Share, collaboration and presentation, dual display, 18x PTZ Camera, H.264, and daisy chainable microphone array offering 360-degree coverage. It is also compatible with Collaborate Central management software and features control API's for AMX / Crestron control or any 3rd party control.

#### **ConnectSolutions NextUC - Enterprise** www.connectsolutions.com

ConnectSolutions NextUC Enterprise is a cloud-based instance of Microsoft Lync with a deployment process that is fully automated and instant on including PSTN telephone calling. It offers a 60-day free trial with a simple web form, enabling you to try it out and start collaborating immediately. NextUC claims, "This is the fastest, easiest way to deploy and run Microsoft Lync with the full feature set and functionality." The company adds that it is "first to market with a simple/instant on Microsoft Office365 integration for Full Exchange Unified Messaging."

NextUC Enterprise features telephone calling, web conferencing, audio conferencing (internal and outside parties), videoconferencing, unified messaging, instant messaging (secure chat), and presence management (integrated into all key applications like Outlook, Sharepoint, Lync, etc.) It also has strong mobile features with NextUC services available on iPads, iPhones, PCs, Macs, Android, and Windows Phone. The solution can also work with stand-alone Ethernet phones.

NextUC provides the Lync related services chat, presence, videoconferencing, web conferencing, inbound calling, outbound calling and audio conference calling and fully extended and integrates that experience into the Office365 product suite. The combined communications and collaboration experience is offered with no up-front cost, low recurring costs and no extended contracts, making this solution one of the lowest barriers to entry for companies looking to deploy powerful UC functionality.

#### Datapipe **Stratosphere** www.datapipe.com

Stratosphere is Datapipe's high-performance managed cloud computing platform. It enables self-service cloud environments, cloud diversity in conjunction with the Amazon AWS

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ecosystem, and hybrid cloud options featuring Datapipe's managed hosting, compliance and security services. The Stratosphere platform is fully managed up to the application layer. Stratosphere cloud regions include Silicon Valley, New York Metro, London, Hong Kong, and Shanghai. Stratosphere was the first Global Apache CloudStack Cloud Service. According to Datapipe, it launched the largest international public cloud to be built on CloudStack, which included six data centers in the U.S., Britain, and Asia.

Datapipe's Stratosphere enables self-service cloud environments and cloud diversity, in conjunction with AWS ecosystems, as well as hybrid cloud options featuring Datapipe's managed hosting, compliance and security services. Features include the ability to pause VMs and maintain machine state without compute charges, scale storage independent of compute, and have a single security zone across all regions.

Datapipe has also simplified the cloud billing process by including managed services within the base price – offering what it claims is the best price-to-value ratio in the cloud market. In addition, the company offers up-to-the-minute reporting, enabling customers to accurately budget for their cloud-based services. The platform also sports the Datapipe Stratosphere API, loosely based on the REST architecture and allows developers to create new resources and integrate existing systems with Stratosphere. It supports POST/GET requests and returns both XML and JSON response formats.

Datapipe tells TMC Labs, "While the Stratosphere platform can be provisioned from a self-service portal, Datapipe's managed services and support are included for all clients. Our competitors all charge a premium for support, either based on a per instance support request, or costly monthly fees for a support package." The company adds, "As a single solution provider, Datapipe enables cloud diversity: meaning we can manage your AWS deployments as well as our Stratosphere Cloud platform. We frequently deploy solutions architected in the manner to deliver uptime SLAs that exceed AWS's SLA alone."

#### Digium Switchvox www.digium.com

When you think unified communications, Digium's Switchvox should be top of mind. Digium's Switchvox leverages the open source Asterisk at its core while adding feature-rich UC capabilities. Switchvox Unified Communications integrates all of your office communications, including phone, fax, chat and web mashups. You can customize your communications experience right down to the phone with access to call queues, your presence, and the applications you need – all from your desk phone.

Digium this year introduced Switchvox Cloud, a hosted VoIP service that provides the powerful features of Switchvox



5.7 in a private cloud/hosted service. The UC solution as well as the service is completely hosted off-site allowing the customer to have a completely managed IP telephony solution that you can have up and running very quickly. Also, customers can easily migrate between an on-site to a cloud deployment and vice versa all the while maintaining their configuration and settings. This is a benefit as customers do not lose their initial investments and the switch is transparent to their employees.

Switchvox version 5.7 offers SMB and mid-sized enterprise customers some innovative features. One is the ability to customize applications directly on the Digium phones. That means using JavaScripting developers can easily create custom applications on their Digium phones that tie in directly with core phone features and key state information. Switchvox features Digium phone integration with auto-discovery, auto-provisioning of the Digium phones as well as simple installation; complete control of the IP endpoint (tighter than Polycom or snom). Also, changes can occur in real time, saving the customer time alleviating time-intensive phone reboots and disruption to service. Application integration with Digium phones enhances productivity with access to call queue statistics, access to parked calls, the ability see real-time status/ presence information about callers, and manage voicemail messages with visual voicemail. You can also update your status and affect call rules from the phones.

TMC Labs has always been impressed with the web-based Switchboard in Switchvox. It enables users access to real-time presence, drag-and-drop transfer, mobile phone numbers, call queues, call recording, monitor, whisper, barge as well as the personalized phonebooks, the internal directory and call parking. You can also easily create web mashups, such as CRM integration to pull information.

#### Esna Esna Cloudlink 3.0 www.esna.com

Esna Cloudlink is the first cloud-enabled unified communications and collaboration solution that seamlessly integrates



Cisco Collaboration solutions with cloud-based productivity applications such as Google Apps, VMware Zimbra and Jive. With Cloudlink, information and knowledge workers can schedule WebEx meetings, check others' availability, make phone calls, and manage voicemail and faxes right from their company e-mail solution.

Cloudlink transforms Google Gmail into a live communication hub and delivers Cisco's unified communications as pure web services with no software installed on the users machine. In a nutshell, Esna Cloudlink leverages a customer's existing Cisco communications infrastructure and collaboration applications such Unity Connection, Unified Communications Manager (Call-Manager) and WebEx and integrates them with cloud-based business applications.

Cloudlink has many innovative features. Unified messaging is one such feature. It can transcribe voice messages and then e-mail them. Users can access and manage their messages on a desktop or mobile device. Cloudlink's bidirectional synchronization turns off the message waiting indicator on the desk phone. It also has rich presence by integrating with Cisco Unified Communications Manager and user calendars to publish their availability to others. With Cloudlink, users can see if their peers are on or off the phone, as well as if they free or busy. Other features include click-to-dial phone numbers in browser or e-mail, WebEx Calendar Integration: and an interesting Google + Hangouts to WebEx feature that allows you to mMove participants from a Google + Hangout to a WebEx collaboration session with one click.

#### Grandstream Networks Inc. GXV3672 Series Infrared IP Surveillance Camera www.grandstream.com

TMC Labs has been testing Grandstream VoIP equipment since its HandyTone ATAs gave the Cisco ATA 186 a run for its money with powerful features and a lower price. Grandstream became known for inexpensive ATAs and budget IP phones, helping to build a loyal and rabid fan base.

Usually with cheaper goods comes cheaper quality, and certainly TMC Labs is aware of users who years ago complained about Grandstream's audio quality, echo cancellation problems, or breakdown issues. However, just in our own testing over the past few years, we've seen a dramatic improvement not just in quality, but in advanced features as well.

For instance, TMC Labs recently tested the Grandstream GXP2200 Android-based IP phone, and we found it to be one of the most powerful and innovative IP phones you can buy, with support for Skype, IP cameras, Exchange sync, LDAP/Active Directory phone books, and at low cost that surely makes competitors cringe. Truly, Grandstream has shed its reputation as simply a "cheap" low cost alternative to Cisco, Polycom, and other VoIP players. Yes, they are still "cheap" in price, but we would argue the company is no longer cheap in quality, and it offers features not seen in many competing products that cost 30-100 percent more.

The GXV3672 Series Infrared IP Surveillance Camera continues Grandstream's trend of offering advanced features at a great value. The GXV3672 FHD and GXV3672 HD IP Cameras are two outdoor day/night tube cameras with IP66 weatherproof casing and ONVIF compliance that feature infrared capability for advanced nighttime and low-light video surveillance recording. The GXV3672 FHD includes a 3.1 Megapixel CMOS sensor for a 1080p HD resolution, while the GXV3672 HD features a 1.3 Megapixel CMOS sensor for 720p HD resolution. Because of its IR capability, both camera models provide users with an invaluable day/ night surveillance tool for securing premises and delivering solid evidence of events that occur especially in darkness. In addition to high-resolution black/white images produced at night, the IR cameras deliver vibrant HD color images during the day, even under dim light conditions. The GXV3672 series' are IP66 compliant, fully weatherproof casings allow the cameras to remain protected from the elements.

A unique end user application Grandstream offers with the GXV3672 series is the ability to interact with Grandstream videophones to create a fully featured surveillance monitoring and alert platform. Simply register the GXV3672 series IP cameras to the PBX and set the camera to make video calls to the IP video phone whenever an alert is triggered. Grandstream's GXV3672 camera can also be configured to call users' cell phones, send them a text message, or e-mail them a picture when an alarm is triggered. The GXV3672 Series can be configured to take monitoring snap shots and send them to users via e-mail or via file transfer protocol. It can also be set to monitor motion detection in up to 16 different areas and send alerts based on events.

Importantly, Grandstream supplies a free version of its GSURF Pro Video Management Software – an enterprise grade, level-monitoring platform that can monitor up to 36 cameras simultaneously. Most, perhaps all other manufacturers, require customers to pay licenses for their video management software for their IP cameras. Businesses seeking to integrate IP products for a unified approach to communications can use a host of Grandstream IP endpoints for integrating voice, video and physical security applications into one platform.

#### LifeSize, a division of Logitech LifeSize Icon Series www.lifesize.com

Training users how to use a room-based videoconferencing system can be troublesome. Users tend to wait till the last minute before inquiring about how to do something, so the individuals with the

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Brokering Packets. Optimizing Tools. vssmonitoring.com technical know-how may not be available to show users how to use the system. What if any user could walk into a meeting room, turn on the video system and be able to figure out how to use it on his or her own? That's exactly what LifeSize has achieved with its radically simplified user experience in LifeSize Icon Series.

The Icon Series is a line of high-performance video systems that provides a new user experience designed to make video communication so simple and intuitive that anyone can use it without training, delivering smart videoconferencing through a broad range of features: simplified directory navigation, scheduling capabilities, streaming and recording, multiparty calling, firewall/ NAT, presentation, HD video quality and flexible upgrades.

According to LifeSize, "It is the product of years of user-behavior research and corresponding purposeful design to alleviate common barriers to adoption that have traditionally burdened the videoconferencing industry. The result is a system designed for maximum simplicity, flexibility and value." The company adds, "The LifeSize Icon Series is a first in that it was created so that businesses of all sizes can not only utilize videoconferencing technology, but also help foster a video culture in the workplace. LifeSize believes that for videoconferencing to live up to its true potential in the workplace, even non-technical employees need to able to use it. In a nutshell, the philosophy behind the Icon Series is simple: to provide a radically simple yet powerful user experience at an affordable price."

The UI sports large easy to see icons for ease of navigation when used in conjunction with the wireless remote control. The UI, including prompts and menus is overlaid on top of the screen allowing users to easily perform functions while keeping their eyes towards the camera.

The company also made it super simple to join a call. When users walk into a conference room for a scheduled meeting, an on-screen reminder pops up and notifies them of the scheduled call, and they can simply click to join the meeting. The other way to join a call is to browse through a list of meetings for the meeting name and simply click to call. LifeSize claims to be the first to actually push the list of meetings from the users' calendars directly into the video system, thereby eliminating the need for users to check a calendar, dial an IP address or connect to a bridge, then navigate a complicated IVR menu using DTMF tones or far end camera controls.

Features include unified multiparty experience, one-click scheduling, meeting notifications, SVC/Lync interoperability, an embedded multipoint option, 1080p video, a physical data port at a very competitive price-point of MSRP \$2,999.

#### **Plixer International Inc. Scrutinizer** www.plixer.com

Scrutinizer combines flow-based threat detection and network traffic performance monitoring. Able to monitor both physical

and virtual networks, the NetFlow solution gives you insights into your network enabling you to pinpoint performance and security issues. Plixer explains, "Leveraging detailed traffic meta-data, even sites with secured connections that use encrypted traffic can't hide from the insight provided by NetFlow, sFlow, and IPFIX collection and reporting. Scrutinizer is designed to peer deep into network traffic enabling the IT administrator to easily see who is consuming bandwidth, what they are using it for and immediately restore precious resources for work-related needs."

Scrutinizer allows administrators to search and filter for data based on any combination of specific details with include and exclude expressions. In addition, thresholds can be set on saved searches and scheduled to monitor for pattern matches. This feature is often used for early detection of network threats. Plixer also offers the optional Flow Analytics, which integrates into Scrutinizer and offers archiving beyond 24 hours, additional reporting, and behavior analysis of flow in search of odd traffic patterns. Flow Analytics is essentially a 24x7x365 audit trail of all network communications. When investigations need to take place, the flow solution can be used to verify what data may have been exposed, when and by whom.

Plixer's technology claims several industry firsts including support for Flexible NetFlow which led to the first reports on Cisco technologies such as NBAR & NBAR2, Performance Monitoring, Performance Routing, Performance Agent, Smart Logging Telemetry, Cisco TrustSec, Cisco ASA and Application Visibility and Control. Scrutinizer brings Network Behavior Analysis to NetFlow by providing threat detection and advanced reporting. Scrutinizer was the first solution to correlate flows from different vendors. For example, the company can leverage username from the Cisco ASA NSEL exports find flows from a specific host on a Juniper router. This strategy allows Plixer to provide contextual details when investigating threats. Plixer was the first vendor to provide a syslog to IPFIX gateway, which essentially turns old technology syslogs into NetFlow enabling users to correlate the data and perform network behavior analysis. Finally, it can report on several metrics including URLs, User Name, Round Trip Time, HTTP Host, Jitter, packet loss, retransmits and is able to leverage these details when investigating suspicious traffic patterns. TMC Labs truly believes that Scrutinizer is one of the most innovative network tools for any network administrator to have in his or her arsenal.

#### Presence Technology **Presence Web Agent** www.presenceco.com

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Presence Web Agent is a powerful browser-based communications tool designed for the contact center. Leveraging innovative browser-based WebRTC technology, this negates the need for the use of third-party extensions (Java, Flash, ActiveX, plug-in) and runs on any operating system. Both the voice path and the agent interface run in a browser. The Web Agent features a contact center toolbar, screen pop on every interaction, providing detailed information about the channel, service, data attached to the interaction, and outbound services provide historical call information, including agent notes, click-to-dial, capture next call, and add do-not-call numbers. All interactions go through the toolbar; which includes a fully featured softphone; and the toolbar informs agents about supervisor notifications and service queue status.

Presence Web Agent is the first contact center application that leverages WebRTC. Presence Technology tells TMC Labs, "It has never been easier to deploy almost any number of seats in a call/contact center. Just provide a URL and login, which gives access to the Presence Web Agent Suite Contact Center infrastructure, and your agents are ready to go to work." Presence Technology adds, "For the last 6 months our development team has been working hard in providing 100 percent web-based solutions that are easy to deploy and maintain in the cloud. We also made important improvements on our Predictive Dialer Algorithm. This new algorithm implemented in our dialer is that good; in all real implementations and comparisons we did side to side with well-known dialers on real implementations, we provided better productivity results."

Web Agent can work in conjunction with Presence Technology's complete multichannel Contact Center suite which features a predictive dialer, intelligent scripting, multichannel support (inbound, outbound, email, SMS, chat, web collaboration, web call back), recording, custom reporting, etc. It's truly an all-in-one contact center solution, which can work natively with Avaya CM via TSAPI or any PBX or even standalone using SIP.

#### Radware Radware Alteon 6420 www.radware.com

Radware Alteon 6420 serves as an Application Provider Edge to provide an application-level demarcation point in the mobile control and data plane frameworks. It provides transparent traffic steering and control for mobile web and applications based on payload, headers, AAA and other policy enforcement interfaces including header modification capabilities to support various mobile use cases. Additional new capabilities include optimized data delivery over radio access networks and monitoring tools such as application performance monitoring.

Designed for carriers, mobile operators and very large enterprises, it is a high-end performance application delivery appliance with on-demand 20-80gbps throughput scalability; support for ADC-VX with up to 28 vADCs; and SSL acceleration, compression and caching. Connectivity includes four ports of 40GE (QSFP+) and 20 ports of 10GE/GE (SFP+), RJ45 serial connection, USB interface for software installation and recovery,



and two redundant management ports providing out-of-band management interfaces with enhanced security.

Alteon 6420 supports application delivery controller virtualization with the highest vADC density in the industry, allowing organizations to consolidate their legacy ADC devices and to adopt a deployment model of vADC per application. Radware claims to be the only one to offer ADC virtualization solution starting at 1gbps and going up to 80gbps.

Alteon 6420 has comprehensive attack mitigation and deep flow inspection – with up to 40gbps of security inspection, 25M PPS DDoS mitigation, and anomaly/real-time signature generation to ensure complete mobile security at the network perimeter, service perimeter by mitigating network DDoS, DNS, IMS, and advanced persistent threat attacks. These capabilities are utilized to provide improved visibility for mobile traffic (DFI) with exporting interface towards policy engines (PCRF).

In addition, Alteon 6420 provides a comprehensive security attack mitigation framework to protect mobile networks and data centers against high-volumetric DDoS and server low and slow attacks. The 80gbps virtual platform allows multi-ADC tenants for flexible configurations based on any logical partition with built-in 4x40GE ports for high mobile traffic loads. Radware's vDirect automation and control APIs enable automated control over the Alteon 6420 platform virtual resources.

Radware explains, "When determining the right solution for a mobile network, carriers not only look for reliability but truly demand a scalable, cost-effective, and secure solution that is able to keep up with their capacity growth. We strongly feel our new network cloud platform offers the perfect balance to their needs while moving into cloud-based ecosystems."

#### Telarix Inc. iXLink www.telarix.com

iXLink is a neutral business exchange designed specifically for the telecom industry in conjunction with carriers. iXLink

provides a secure business-to-business information exchange platform for carriers to automate business processes as well as quickly and efficiently access and share business documents among their trading partners in near real time. Its product set includes price list receipt, price list distribution, bill receipt and bill distribution, and contract receipt and distribution. Newly enhanced premium features include dial code analysis and discrepancy management, least cost routing reporting, line by line invoice reconciliation, and audit and listed least cost routing report.

As a web-based hosted business-to-business automation platform, iXLink utilizes leverages encryption, transaction logging, and content monitoring and filtering. iXLink provides enhanced data security to ensure the protection of data within an application and across applications such that access to the data and the ability to modify it is limited to registered and authorized users. Members do not have a direct connection to each other and must use the iXLink server to complete the exchange of information.

Telarix tells TMC Labs, "iXlink is the first, and remains the only, electronic business exchange that allows customers to trade documents (price lists, bills and contracts) in their own formats, eliminating the need for standardization in the industry." The company continues, "Previously price lists and bills were sent to a carrier where someone manually entered in the information; this was not only inefficient but very costly, in some cases it would take months to reconcile and settle bills. Price Lists also took time to implement, resulting in lost revenue. With iXLink the process is electronic and in near real time so new rates are realized faster, bills are audited and reconciled almost instantly, meaning a much quicker settlement time."

iXLink is fully patented with the patent concerning iXLink features that enable carriers to fully automate certain business to business processes by defining a series of business rules to pre-screen and validate price lists, contracts, and invoices. This eliminates manual entry providing end-to-end automation among carriers. The company recently added a new service, Contract Receipt and Distribution, allowing agreements to be received, signed and distributed electronically. The company claims more than 3,000 members exchanging over 40,000 documents monthly. When combined with iXTools, Telarix's business solution software suite that offer LCR, settlement and trading, and bill and audit, carriers have a complete end-to-end solution that helps save time and money.

#### VBrick VBrick VEMS www.vbrick.com

VBrick's Video Content Management System technology, VEMS, is one of our favorite TMC Labs Innovation Award winners of all time. The solution allows for the capturing, encoding, managing, distribution and displaying of media from the cloud and across any network. It offers live and on-demand streaming, content management and widespread video distribution. The technology, which supports multicast, has the capability to distribute high-definition video streams to tens of thousands of viewers simultaneously and across any device, including monitors, smartphones, tablets and more. We even discovered a Cisco.com link on how to enable multicast for Vbrick and Cisco hardware. That says a lot.

The solution integrates video into enterprise applications and can broadcast rich media communications to large groups of 1000-plus people, or very targeted, highly secure groups. VBrick offers both on-premises and cloud-based solutions (or a combination of both). VBrick's VEMS Mystro is a premises-based solution that manages video and rich media content for up to hundreds of thousands of users. It is a web-based portal enabling users to organize and search for content, and is integrated directly with a number of well-known solutions, including Microsoft Lync, Microsoft SharePoint and LMS tools.

In fact, VBrick's Lync Streaming Gateway is an industry first, the only product that delivers streaming video to the desktop and other devices through the Microsoft Lync interface. The Lync Streaming Gateway leverages the VBrick streaming video ecosystem to provide video to thousands of Lync users simultaneously – extending Lync's current video capacity and giving users increased video access through an already integrated video interface.

Additionally, VBrick's Lync Streaming Gateway allows streaming video to be delivered on a much larger scale to a broad range of devices. With Lync alone streaming video can reach 1,000 viewers at best, but with the integration of VBrick's video solutions, the same video can reach tens of thousands of viewers. Uniquely, it enables users to access a video stream through the Lync interface and collaborate while watching it by using Lync's IM, voice or video capabilities. In addition to Microsoft's video onferencing it supports integration with Polycom, Cisco, Life-Size, Avaya/RADVISION, and others. It also supports Learning Management Systems such as Blackboard, Modal, Learn360, and Discovery.

Other innovative features include a full suite of social features (sharing clips, Like, Featured, etc.), and we're told VBrick is in the final phase of negotiating an OEM relationship that would allow for audio (from video) transcription to text within the VBrick ecosystem. Also worth mentioning is SharePoint native FAST search support, automatic ingest of Microsoft Lync video recordings, and Microsoft Outlook scheduling integration.

#### Vertical Communications ViewPoint Mobile www.vertical.com

ViewPoint Mobile extends the full functionality of Vertical's WAVE IP communications platform bringing unified com-

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The Voice Peering Fabric ("VPF") is a private Internet that expands to major U.S. cities and abroad, uniting domestic and international telecom providers to bring the most secure and quality experience for the exchange of voice, video and data. It is a unique environment for enterprises and carriers to buy, sell and peer communications services on their own terms. Businesses now have control over and choices about their communications needs.

#### **Communicate with Choice**

#### **Communicate with Confidence**



The VPF removes barriers to communications between communities and gives control over how you direct your traffic and how much you pay for it. To find out who is in this new community, visit thevpf.com/members.

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munications functionality to iOS and Android phones and tablets, including messaging, conferencing, collaboration, and presence management. ViewPoint Mobile also extends full telephony features, such as call recording, contact center functionalities, and voicemail. Vertical's competitors often charge exorbitant licensing fees for mobility features, while Vertical includes these features as part of its basic licensing package.

Vertical Communications espouses its solution, saying, "ViewPoint Mobile offers robust BYOD capabilities by partitioning enterprise and personal data on the mobile device. All corporate resources are stored on the server, protecting the business from the theft or loss of a device. Vertical delivers ViewPoint Mobile through its singular license. As a result, there are no incremental licenses or hardware required to deploy this solution."

Other features include the ability to forward calls, visual voicemail, CRM integration, access call logs and call notes, conference in colleagues, and check the availability (presence) of the people you need to reach. Currently, the app connects by calling your mobile device, however, by the time you read this, Vertical will have embedded SIP phone capabilities allowing the app to directly receive calls over a data (3G, 4G, Wi-Fi) connection. The company also plans to release a full mobility package (without any desktop phones) in the fall.

#### Virtual PBX Virtual PBX Complete with VoIP Anywhere www.virtualpbx.com

Virtual PBX traces its roots way back to 1997 during VoIP's infancy, so it has tons of experience evolving and improving its product. Virtual PBX Complete with VoIP Anywhere is a hosted IP PBX designed for small- and mid-size businesses. Its latest enhancement allows customers to use their smartphones, laptops, and computers as softphone extensions of their business VoIP networks. High-quality calls can be placed over 3G, 4G, and Wi-Fi connections through any standard SIP softphone, running on Android, iPhone, iPad, laptop, etc.

Virtual PBX Complete with VoIP Anywhere features digital fax, call recording, web-based management, real-time voicemail monitor and interrupt, offsite data backups, never full mailboxes, auto-attendant, day and night modes, virtual extensions, and follow-me/find-me calling. Other powerful features include call screening and blocking, web callback, multi-stage dialing, and skills-based routing. It also supports Polycom IP phones and customizable greetings and hold music for different departments The company have several firsts to its name, including the first to offer ACD queuing in a hosted phone service, first hosted follow-me service, first remote hot standby disaster recovery PBX, first hosted system to announce open VoIP peering, first to allow real-time on-line monitoring in a hosted phone service, and the first hosted system with voicemail interrupt and connect. Virtual PBX plans start at \$18.99 for flat rate plans and annual plan customers receive up to 10 free VoIP phones, making them a phenomenal value, especially for the SMB market.

#### Zultys Inc. Zultys MX Release Version 8.0 www.zultys.com

Zultys Technologies has an interesting history, including bankruptcy back in 2006, which saddened TMC Labs, since we've always been impressed with the company's all-in-one unified communications platform. Well, you can't keep good technology down! It was resurrected and with CEO Neil Lichtman at the helm, the company has built a solid channel and an improved unified communications platform.

The all-in-one integrated contact center solution and unified communications system delivers advanced contact center features to SMBs without the complexity associated with competing solutions. Features include supervisor monitoring, call recording, reporting, IVR, presence, instant messaging, CRM integration, visual voicemail, fax, and collaboration and conferencing, which are delivered from a single, fully integrated appliance greatly simplifying the deployment and ongoing management, while remaining extremely cost effective.

The Zultys MX30 and MX250 are self-contained Linux appliances, which require no gateways or other servers for SIP trunking. Zultys SuperView provides contact center supervisors with superb real-time monitoring capabilities. Super-View combines all key statistical data for agents and calls on one screen as well as allows the supervisor to manage agents and calls without needing to switch windows. In the last six months the company has added enhanced cross-site redundancy/resiliency, supporting failover of contact center queues to alternative sites in the event of a hardware/network failure preventing access to the local contact center. TMC Labs believes that Zultsys shouldn't run away from its history, but should embrace its resurrection as a badge of honor, as it's now tstronger than ever with a feature-rich and innovative UC solution. **IT** 

Tom Keating is vice president, CTO and executive technology editor/SEO director of TMC.

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#### **How Thirsty Are Service Providers?**

By Erik Linask



The debate over the future of the traditional service provider market has never been louder, as pundits debate whether the behemoth network operators have it in their DNA to adapt quickly to meet the needs of customers. At ITEXPO Miami earlier this year, led by TMC's Peter Bernstein, a panel of industry insiders discussed the precarious position in which carriers find themselves today. The panel's collective resolution was skepticism over carriers' ability to effectively leverage their golden egg – their networks – to become true full service providers to their communities of users.

"Carriers do not reach out and ask – rather they spend too much time acting as ivory towers that know the answers without doing the requisite consumer and enterprise homework. Instead of delivering smart solutions for their emerging smart pipes, they deliver solutions that fail to delight the consumer or business user," TMC's Tony Rizzo noted in his commentary.

The question then becomes, who has the power to step up and take control of the customer and the all-important customer experience, which includes being able to deliver a full suite of integrated services and applications?

At its recent Perspectives 2013 event, GENBAND, which many believe has been traditionally far too slow to react to market change, took a major step toward becoming part of the answer, officially launching its Innovation Exchange, a collaborative community of technology innovators designed to drive new applications, features, and services to market to help businesses and service providers alike increase their value to customers by creating tightly integrated business solutions that will replace disparate alternatives that have proven difficult to unify and manage.

Highlighted by a relationship with Samsung announced back in February, IX launches with a cast of charter members comprising both household Fortune 500 brands as well as smaller entrepreneurial innovators, which collectively already present an impressive capability to serve evolving business needs. Charter members include Arrow S3, Avnet, CounterPath, IBM, Intel, IP Command, IP Trade, M\*Modal, mPortal, Netas, Polycom, RapidScale, SMARTRAC, T-Metrics, UXP Systems, Voxeo, X-Factor Communications, and Zecurion.

Following its "Making Networks Smarter" mantra, IX is merely the latest element to GENBAND's evolution from a slowly moving, reactionary hardware business to a proactive innovator, as it continues to drive the transformation of networks and service delivery to all-IP environments. With IX, GENBAND continues to move the industry toward a vision of being able to deliver a single, unified platform that includes an ability to integrate OTT services and multiple application developers to create one holistic, interoperable set of offerings. "The Innovation Exchange is a select community that brings together many of the best companies and start-ups in the industry to unlock the power of IP and deliver the breakthrough solutions that our customers are seeking – from the core, to the edge, to the experience," said Sam Waicberg, chief marketing officer for GENBAND.

IX will prove a key asset to not only GENBAND as it heads towards an increasingly likely inevitable showdown with Oracle, but also for the operator community, which, in addition to being traditionally inflexible, often finds itself as the forgotten stepchild in the service world, as many developers are reluctant to partner directly with carriers for fear of ending up hopelessly tied to one and losing opportunities elsewhere, founded by carriers' long-standing history of being unwilling to open up their networks to third parties.

Will Innovation Exchange be the answer to the service provider challenge? It can be – and GENBAND is undoubtedly in a position to support their transition. But, as CSO Mark Pugerude noted almost 18 months ago, "Everybody needs to recognize the importance of developers, and carriers have the opportunity to be viewed as value-added players, much as Google does with search."

The operators' world has long been one that has shunned collaboration in favor of individually taking on the rest of the market. Understand, though, that it isn't about the technology; rather, it's a long-standing failure to truly understand customer service, placing short-term revenue ahead of long-term retention and loyalty. Indeed, there have been others who have promoted similarly focused service and application ecosystems – such as Alcatel Lucent's ngConnect program – but the inherent nature of operators as closed systems, and their reluctance to open their networks for fear of losing control is evidence they lack a fundamental understanding of subscribers and what drives their satisfaction.

Through Innovation Exchange, GENBAND can eliminate many of the traditional barriers but, in the end, much of it still comes down to the service providers being willing to become more transparent and working more openly and collaboratively with the community at large. The hope is that, with a powerhouse like GENBAND leading the initiative, the trust factor will increase and both sides of the equation will come to the table with open arms, for the greater good of developers, operators, and subscribers alike.

And if that doesn't play out – or, perhaps, even if it does – GENBAND is not-so-quietly accumulating on its own the pieces to deliver the services businesses need. While the community should see Innovation Exchange as an opportunity for growth and evolution, for GENBAND, it's a clear winning proposition. August 27 - 29, 2013 • Mandalay Bay Convention Center • Las Vegas, Nevada

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