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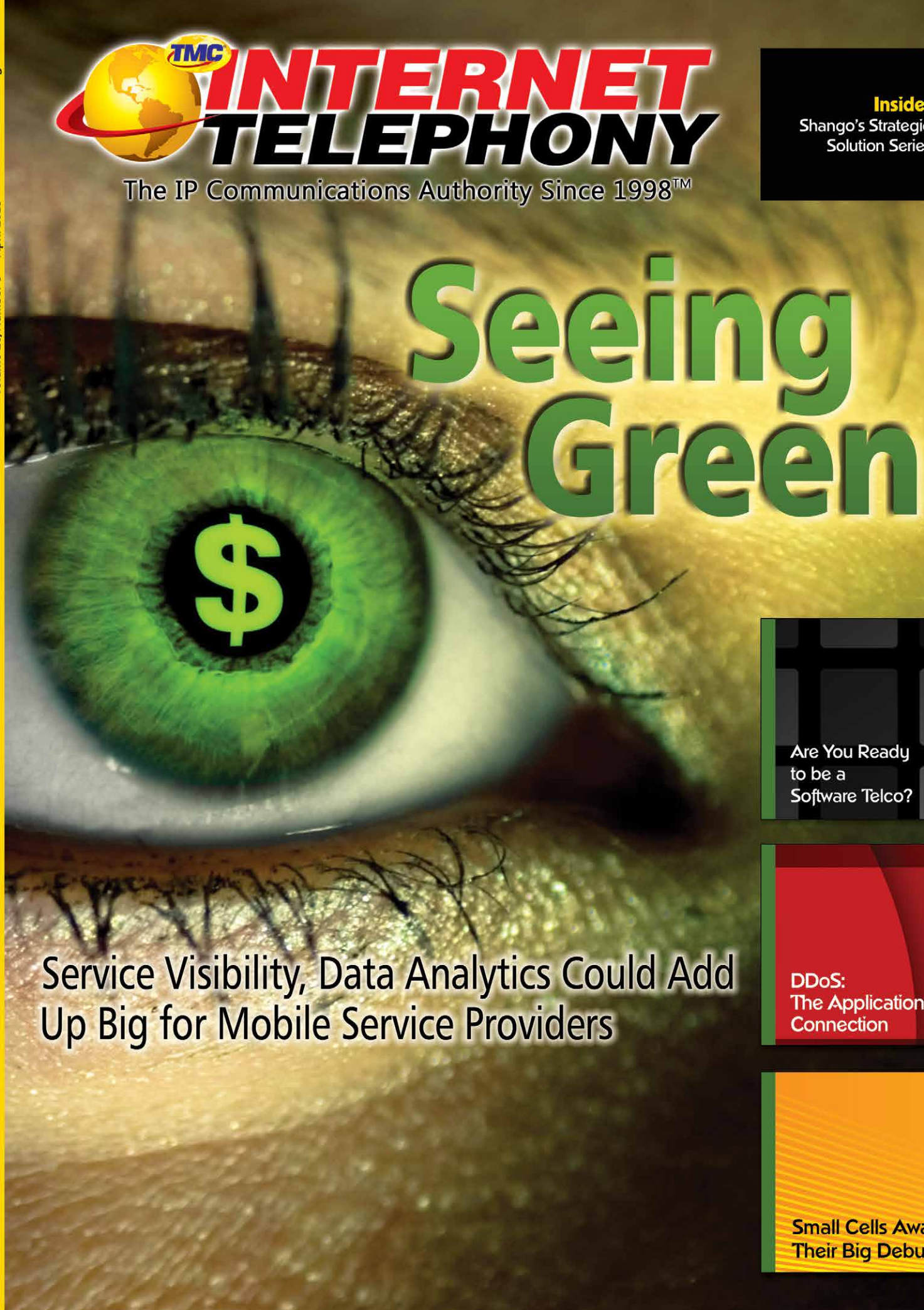

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Food for Thought

Mobile communications has taken over the world. That's clear if you just look around at what most people are doing at any public event, or within your own household.

The point of this column is to talk about views and forecasts for mobile and to point out some of the recent developments in this arena.

New data on the wireless space from the GSMA and A.T. Kearney, which recently released a report called "The Mobile Economy 2013", puts the number of worldwide mobile subscribers at 3.2 billion, meaning nearly half of the people on the planet now use mobile communications. And that number continues to grow, with the expectation that 700 million subscribers will come aboard by 2017, meaning there will be 4 billion mobile subscribers in 2018.

Here are a few other stats from the report:
- At the end of 2012, there were 6.8 billion mobile connections worldwide.
- That figure is expected to grow to 9.7 billion by the end of 2017.
- Mobile broadband accounted for 1.6 billion of these connections in 2012.
- That is expected to increase to 5.1 billion in 2017.

"Mobile is a vibrant and evolving industry at the heart of everyday life for billions of people around the world," says Anne Bouverot, director general of the GSMA. "Mobile has gone beyond being a mere communications tool to one that provides life-enhancing, and in some cases life-saving, services to men, women and children."

Mobile is also a key driver of the economy. According to the report, mobile ecosystem revenues are $1.6 trillion, or 2.2 percent of the global gross domestic product.

And in 2017 companies in the mobile ecosystem area expected to employ nearly 10 million people globally.

"The mobile industry's economic impact reaches far beyond its already-impressive $1.6 trillion in revenues, to boost individual well-being, corporate productivity and government funding," notes Mark Page, leader of A.T. Kearney's Communications, Media and Technology practice and co-author of the report. "As the market expands with the spread of smartphones, 4G networks and innovative applications across the globe, the challenge for mobile operators is to stake their claim to a share of the associated revenue growth. Cross-industry initiatives … will be essential to operators in ensuring a central position in the mobile ecosystem value chain."

Some other particularly interesting data points on the mobile front come from research and consulting giant Accenture.

Accenture indicates that most (79 percent) CIOs believe mobility will generate significant sources of new revenue for their businesses, and most expect to invest 31 to 40 percent of their discretionary budgets to achieve that goal. That's up from 19 percent of CIOs surveyed by Accenture in 2012. The current survey also reveals that 84 percent of the CIOs interviewed believe mobility will significantly improve interactions between their companies and their customers.

Here are a few other data bullets from the 2013 survey:
- 46 percent of CIOs plan to make workflow changes to better incorporate mobility in the year ahead;
- 73 percent believe mobility will impact their business as much or more than the web revolution of the late 90s;
- 58 percent of CIOs work for organizations that have a moderately developed formal mobile strategy;
- and 23 percent have an extensively-developed formal mobile strategy.

"It's encouraging that companies are embracing the importance of mobility but they need to go further by identifying the top areas for mobile deployment," says Jin Lee, senior managing director of Accenture Mobility. "In particular they should look at areas that will grow, such as connected devices, and conduct a 'gap analysis' to determine how to catch up, or even better, get ahead of the curve. Other critical considerations include investments, budget allocation, re-training staff, hiring mobile expertise, and leveraging external experts to help develop or implement mobility strategies." IT

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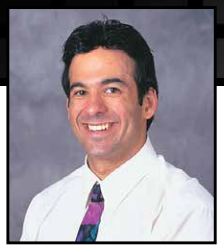

Are You Ready to be a Software Telco?

Virtualization has made the IT world much more efficient and cloud technology allows applications to scale up and down at will in a far more cost-effective manner while requiring little to no capex. There is hardly an industry that hasn't been affected as software and hardware vendors have worked together to make sure they are ready for this new world where a single server can run multiple instances of an application on servers that are flung far around the globe. Even the PBX world has gotten into the game with many vendors – especially those doing business with Fortune-class companies supporting virtualized software communications servers.

In a recent conversation with Steve Gleave and Carol Daniels of Metaswitch, I learned the company is taking the move to virtualization seriously and that the company's product launch of 19 months ago involves an SBC that was developed to run in such an environment. Expect the Metaswitch you know as the application server, gateway and SBC company to still do all these things but in software, running in virtualized environments on bare-metal servers. Their goal is to sell these solutions to you in order to turn your hardware telco into a software telco.

Gleave further discussed the industry's proactive push toward Network Standards Virtualization through the ETSI working group by the same name. The backers of this initiative are the largest global carriers, such as AT&T, BT, Deutsche Telekom, Orange, Telecom Italia, Telefonica and Verizon and 52 other vendors. They joined together to support this initiative this past January. Obviously there seems to be a huge push to shake up the way comms systems are designed.

The benefits of this evolution are obvious: Carriers will be able to utilize the same virtualized technology they use in their data centers in their networks and purchase it in a far more flexible way. Moreover, their services will run on bare-metal servers and will scale far more rapidly. This means they can take advantage of public clouds, virtual private clouds, private clouds and hybrid clouds – all the amazing choices a typical enterprise has today. Security, cost and capex versus opex decisions will likely drive their decisions – again, just like they would an enterprise or data center decision-maker.

One other crucial benefit of this move is there will be more choice for carriers looking to deploy solutions from the more innovative companies in the market. Typically, these are the players that do the most interesting things, but they quite often run out of money before carriers deploy their solutions and subsequently they go under. For me it's been about 30 years spent meeting the principals of these doomed entities – early in my career at trade shows such as TCA, Supercomm, ICA, Computer Telephony and NATA which took place in the eighties and nineties.

What has become common in the market is for CSPs to wait for the larger players to emulate what the smaller guys are doing and just buy from the companies with which they are used to doing business. Or, in other cases, the smaller players would be coerced into agreements with large equipment providers who would take part of the revenue from the sale and provide the gravitas, relationships and support needed to keep the large carrier happy. This is how Acme Packet got its start, for example, and in doing so, took out the competition in the SBC space in the last decade.

The point is, now hardware players will become software companies, which means the bar for purchase from a large telco while still high, has dropped down quite a bit. This was the goal, by the way, of the ATCA modular communications initiative last decade from Intel where hardware vendors could all write software on a single hardware standard. But the Intel division certainly wasn't pulling its own weight as evidenced by the fact it was sold off to Radisys in 2007 for $25 million.

This time though the chicken-and-egg problem may finally have eroded, allowing current carriers to be far more flexible in the new services they offer and upstart carriers to rapidly scale and compete with incumbents without having to purchase massive amounts of central office equipment to get started. **IT**

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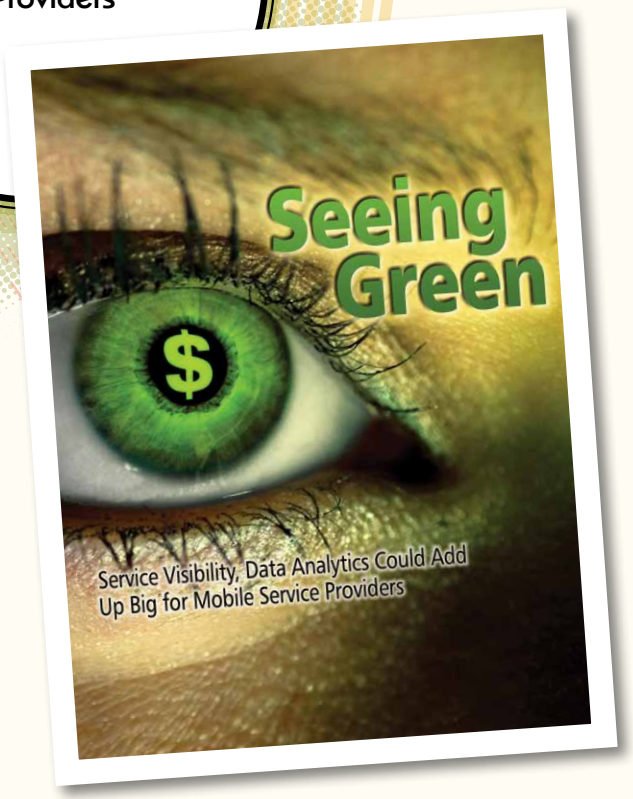

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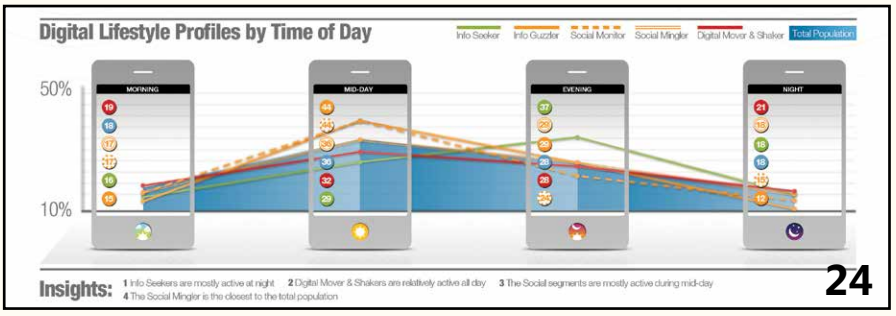

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By Barlow Keener

Considering a Spectrum of Developments

2013 is big year for regulatory policy setting for sharing spectrum, for creating new unlicensed spectrum, and for the mobile industry.

The mobile and wireless world is dominated by regulators and is dependent on smart, innovative regulation of spectrum. There is only a limited amount of spectrum and the job the regulators around the globe, and here in the U.S., is to ensure that the spectrum is efficiently and effectively used by those licensed to use that spectrum.

At first it was easy to license spectrum. There were ship-to-sea uses, then commercial radio, then TV, then public safety two-way, then point-to-point microwave, followed by satellite uplinks, then starting in 1983 cellular mobile, and in the 1990s unlicensed Wi-Fi.

Wireless regulation was relatively simple. Auctions came and went. We all assumed that the mobile industry had all the spectrum it needed after the multiple auctions from 1993 to 2008. Our cell phones worked well (for voice) except in most rural areas. We had our laptops connected to Wi-Fi access routers using unlicensed spectrum. We considered Wi-Fi as free because we installed Wi-Fi routers without the help of mobile carriers, and we paid for our own backhaul to connect to the Internet.

Then on June 29, 2007, Steve Jobs forever changed our landscape with the introduction of the iPhone, which delivered both mobile carrier data and Wi-Fi data to the same device. Our wireless world was changed again on April 3, 2010, when Steve Jobs introduced the iPad. Suddenly, we had a laptop replacement delivering data over mobile networks using macrocell towers, and at home using our own installed, unlicensed, non-carrier, Wi-Fi access points.

Unlicensed spectrum has been the savior for the mobile carriers' data crunch problems. Mobile data caps ranging from 2Gb to 5Gb (enough for one movie) were imposed for data received on their licensed spectrum. The caps generally do not apply when we use our own unlicensed spectrum on non-carrier Wi-Fi. Radios using Wi-Fi leveraging unlicensed spectrum far exceed the use on licensed mobile networks. One study, from Strategy Analytics, suggests there are 440 million homes worldwide that have Wi-Fi access points, representing 25 percent of the world's homes, with 80 percent of the homes in Korea with Wi-Fi. By 2016, the prediction is that a staggering 800 million homes globally (42 percent) will have Wi-Fi access points – all using unlicensed spectrum. There are reported to be 7 million FON-enabled Wi-Fi access points using Wi-Fi data sharing. Seoul, South Korea, has 10,000 Wi-Fi access points in the city delivering free Internet using unlicensed spectrum.

As a result of the success of unlicensed, the FCC has strongly supported the expanded use of unlicensed, TV white spaces spectrum. In the FCC's new TV Incentive Auction proceeding, which is auctioning off TV UHF channels for mobile licensed use, the FCC Staff Summary stated that the FCC is committed to maintaining portions of the UHF TV spectrum for unlicensed use:

In the incentive auction proceeding, the FCC proposes to make a substantial amount of additional spectrum available for unlicensed uses. … A significant portion of this spectrum will be available on a nationwide basis, which is important because there currently is little or no white space in the TV bands in parts of many major markets

At the February 2013, TMC-Crossfire Media Super Wi-Fi Summit in Miami, announcements were made by the white spaces device makers that commercial devices were rolling off the factory lines. These white spaces radios use unlicensed, lower 700mHz spectrum, formerly occupied by UHF TV stations, to broadcast through trees, terrain, and walls, just like TV signals. The new white spaces unlicensed spectrum could dramatically increase the efficient use of the TV spectrum if demand for use is similar to the efficient, highly used 2.4gHz Wi-Fi spectrum.

The FCC is committed to growing the amount of unlicensed spectrum. The FCC is also making a shift toward using unlicensed, shared licensing, and lightly licensed for other spectrum. Moving in the new direction of allocating spectrum for more unlicensed uses is the equivalent of turning around a massive oil tanker. The major mobile carriers and mobile investors want certainty in knowing that the spectrum they are going to spend billions building out with DAS, macro cells on towers, microcells, and small cells is cleared for exclusive licensed use. Mobile carriers have communicated their preference for exclusive licensed spectrum to Congress and the FCC.

However, the massive amount of unlicensed, shared use of spectrum, such as Wi-Fi's 2.4gHz and 900mHz, enjoyed by 120 million U.S. smartphone users looms over regulators and cannot be ignored. A study by Juniper Research states that today 63 percent of the traffic from smartphones and tablets is over unlicensed Wi-Fi. This amount of traffic is projected to increase to 90 percent by 2015.

FCC Commissioner Clyburn recently noted that mobile carriers were saving $25 billion in deployment costs by using Wi-Fi offload. Start-up companies like Republic Wireless (recently reviewed by Walt Mossberg in the WSJ) are building business models focused on using primarily unlicensed Wi-Fi

for mobile voice and data at a jaw-dropping "$19/month unlimited talk, text & data." The Republic Wireless service uses a Motorola Android smartphone. Thus, basic mobile voice and data is moving to unlicensed spectrum.

While unlicensed spectrum is used more and more, licensed spectrum is not being efficiently used, as reported by the President's Council of Advisors on Science and Technology. PCAST in 2012 reported that only 20 percent of beachfront licensed spectrum in the "most congested cities" was actually being used. The FCC is considering unlicensed and spectrum sharing methodologies in several proceedings this year:

The TV Incentive Auction docket
The White Spaces Alliance filed comments on Jan. 25, 2013, noting that Wi-Fi has 84mHz of dedicated unlicensed, and efficiently used spectrum (2.4gHz-2.4835gHz) and that the FCC should allocated a nationwide unlicensed spectrum of a sufficient amount within the TV Incentive Auction band plan.

3.5GHz Small Cell and Spectrum Sharing
On Jan. 31, 2013, the FCC announced a workshop for small cells and "spectrum sharing" for 3.5gHz (3550-3650mHz). The idea is that 3.5gHz would be used for spectrum sharing for backhaul to the millions of new small cells to be deployed by carriers in the next infrastructure build outs.

5gHz Unlicensed Spectrum for Unlicensed National Information Infrastructure
On Jan. 9, 2013, FCC Chairman Julius Genachowski said that the FCC would be looking "to unleash up to 195mHz of spectrum in the 5gHz band." He said: "This would be the largest block of unlicensed spectrum to be made available for expansion of Wi-Fi since 2003." The FCC opened the 5gHz Unlicensed Spectrum rule-making docket on Feb. 21, 2013.

PCAST Spectrum Sharing Report
Last July 2012, PCAST recommended that the federal government share 1000mHz of spectrum using unlicensed or shared spectrum methods. The FCC's Technical Advisory Council recommend on Dec. 10, 2012, that the FCC study methodologies to implement the PCAST spectrum sharing proposals.

There are difficulties with moving in the unlicensed direction. It will not be easy. For example, in 2003 the FCC gave transportation agencies the license to use 5.850-5.925gHz for dedicated short-range communications, used for the Connected Vehicle program. But now with the new 5gHz proceeding, that exclusive use may be removed. In the same way, in 2008 and 2010, the FCC gave the white spaces industry the full shared use of UHF and VHF TV spectrum in geographies where the spectrum was not used by a TV station, but now will be taking some of the spectrum back in the TV Incentive Auction proceeding.

On the constructive side, regulators in the U.K. and European Commission have been advocating various methods of sharing that are between unlicensed and exclusive licenses. The methods are Authorized Shared Access and Licensed Shared Access. The white spaces database providers connected to cognitive radios allow for this new type of ASA and LSA sharing that could meet the demand for "certainty" for mobile carriers and at the same time allow the spectrum to be more efficiently used than under an exclusive license regulation.

> Moving in the new direction of allocating spectrum for more unlicensed uses is the equivalent of turning around a massive oil tanker.

A regulatory wireless revolution is taking place. However, turning around 20 years of exclusive licensed policy will cause industry and investors to question the past model of building infrastructure. The providers will require new thinking about cost-effectively deploying mobile infrastructure where the spectrum is shared or unlicensed. Policy innovation inevitably creates uncertainty. But, as we all know from using our iPhones, Android phones, iPads, and tablets, mobile and wireless innovation is giving us a fuller life and one that can potentially, dramatically improve our economy and our world. IT

Barlow Keener is the principal with Keener Law Group (www.keenerlawgroup.com) out of Boston. This is Keener's first contribution of Wireless Wonk, which starting this issue becomes a standing column in INTERNET TELEPHONY.

By Lamar Whitman

Tax Policies Can Limit IT Growth, Innovation and Jobs

The IT industry is a vital contributor to our economy. The U.S. market accounts for approximately 26 percent of the $3.6 trillion global industry, representing more than $950 billion in IT hardware, software, services and telecommunications. Through innovation and growth, domestic IT firms have remained globally competitive and economically strong.

Within this national IT industry, small and medium-sized IT companies employ approximately 1.8 million workers, while spending approximately $110 billion annually on payroll. While a range of policies may impact the state of the industry and its SMB component, few have a larger impact than the current tax code. Despite good intentions, too many outdated or unfair policies have proven to hamstring growth and innovation.

The tax code has continued to become increasingly complex, especially for SMB IT companies that do not have the resources to maintain large internal accounting and legal departments.

The tax code has continued to become increasingly complex, especially for SMB IT companies that do not have the resources to maintain large internal accounting and legal departments. As the tax code has grown, the cost of compliance (and potential for errors) has increased rapidly. Clearly, any efforts at tax reform should also include efforts to simplify the tax code and its compliance requirements.

A recent CompTIA survey found that certain tax provisions and policies, such as payroll tax requirements, constrain potential growth of SMBs, curtailing their ability to invest in their own companies, hire high-skilled employees and as well as serve customers in a globally competitive fashion.

The IT sector is rightly concerned that tax costs and compliance divert their attention away from running and growing their businesses to meet market demands and compete on a global scale.

Accordingly, to address some of these tax concerns, CompTIA lays out four key principles of tax reform:

Simplify the Tax Code

The cost of compliance weighs heavily on SMB IT businesses. One in three (32 percent) indicated that payroll tax filings were the most costly/complicated tax requirement for businesses. We believe this burden could be lessened by allowing more small businesses to file an annual payroll tax return. Currently, only those employers with an annual payroll tax liability of $1,000 or less are allowed to file annually.

Reduce the Tax Burden on the SMB IT Industry

Six out of 10 (61 percent) SMB IT companies cite a reduction in payroll tax costs as a top concern. If the payroll tax were lowered, SMBs could hire more workers, which in turn will lead to increased economic growth nationwide.

Incentivize Growth and Innovation

Many start-up IT firms are economically unable to make needed investments in equipment, workforce and research. Tax reforms that provide greater incentives for investments should be enacted, such as a research and experimentation tax credit for small businesses that would allow companies to offset R&E tax credits against payroll tax liability. We can also encourage growth and investment by extending bonus depreciation and the Section 179 small business expensing allowance; each of these steps will enable small businesses to invest in technologies that improve productivity and quality of goods and services.

Protect SMB IT Firms from New Interstate Tax Compliance Burdens

A confusing web of overlapping state taxes will continue to increase compliance burdens for SMBs. Chief among these are taxes on businesses that do not have a physical presence or workforce within a given state. For any legislation that requires small business to collect sales taxes for foreign state taxing authorities, CompTIA recommends a robust small business exemption.

The strength of the IT industry relies on its ability to grow, innovate and adjust to market trends. Tax reform should be a mechanism to promote additional growth and opportunity for the SMB IT industry. IT

Lamar Whitman is public policy director for CompTIA (www.comptia.org), a non-profit trade association working to advance the global interests of IT professionals and companies via advocacy, certification, education, and philanthropy.

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By Michael Stanford

What Happened to Presence?

For a while at the beginning of the SIP revolution, presence was touted as one of the main benefits of SIP. The idea of presence is that you can set your status to busy or available, so people can know when it is OK to interrupt you with a phone call or whatever. The fundamental problem with this idea is that it is incumbent on you to keep your status updated, something that human beings are ill equipped to remember to do.

So we don't hear so much about presence these days. In any case, solutions have evolved that perform similar functions, but in ways better fitted to human nature. Caller ID is an example.

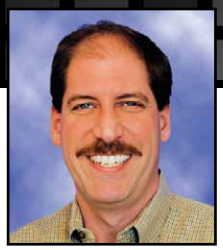
Caller ID fulfills half the promise of presence, by allowing you only to be interrupted by calls that you want to take. Instead of laboriously constructing and keeping current a whitelist of callers, you just look at the screen and make a decision. Then you take the interruption when you are ready, by picking up your voicemail.

The other half of the presence promise, disclosing when you are available to be interrupted, suffers from a further disconnect with human nature. Setting your presence status to available gives the impression that you are sitting around doing nothing. While this may actually be the case, it is something that business people are disinclined to broadcast.

This aspiration of presence is valid, though; it really is intrusive to call somebody without any warning. It's arrogant in a way to think that the person you are calling is sitting around with nothing better to do at that moment than to talk to you.

The solution to this is texting, or instant messaging. These are not as intrusive as phone calls, because there is no importunate ringing, and there is no 30-second deadline for your response. So you are chatting away by SMS or instant message, and occasionally -- but not as often as one might expect -- it becomes natural to agree to click on the call button and transition to real-time voice. IT

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



By Jeff Hudgins

The Telecom Server Landscape is Changing

It was not that long ago that the telecom server market was dominated by the likes of Sun and custom proprietary server platforms. Today we see new players like Dell and RadiSys entering this space. But what's driving these companies to enter such a mature market?

Let's start with a look at the changes in the market. According to the International Telecommunications Union, there are more than 200,000 text messages sent every second worldwide. The Apple iPad's LTE and HD video support make a powerful combination and also drives up the demand for data-rich HD movies from service providers. Some full-length HD movie files can measure up to 4GB. This constant demand by consumers for more data and an unwillingness to pay for it presents some big challenges in the telco industry.

The top three challenges are, first, a flexible design. Future solutions need to be flexible and scalable to ensure telecom OEMs can react to market changes and new opportunities. The second challenge is a need for faster rollouts. The pressure to roll out new technologies and service offerings is massive. A new technology rollout needs to take months, not years, as the return on investment needs to occur within a much quicker timeframe. Third challenge is lower prices. New services and features are launching at faster and faster rates. So the costs of developing and deploying a solution need to be economical to capitalize on the opportunity with minimal investment.

In short, this means a dramatic shift into the way standard X-86 based platforms are designed to meet the fast pace of the industry. But the telecom regulatory environment still remains firm and the need for certified platforms that comply with strict industry standards such as NEBS is often required by telecommunications customers.

The RadiSys RMS-220 Network Appliance is a fresh approach. The NEBS-compliant platform offers field-upgradeable front-facing IO options, creating a more flexible design. Additionally, the new line of 12th generation Dell rack mount and blade servers allow customers to leverage a broad line up of NEBS-compliant servers. Dell is greatly expanding its presence in the telecommunications market with highly competitive and flexible offerings.

So what's the final score? Having IT server giants like Dell enter this space greatly reduces the costs associated with delivering a telecom platform solution. IT

Jeff Hudgins is vice president of product management at NEI Inc. (www.nei.com).

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By Spence Mallder

Centering Customer Analytics Around the Contact Center

Companies today are looking for a more consistent, real-time and clear view of their customers in order to stay competitive in today's hyper-connected economy – from who their customers are, to what they need, to how they feel at any given time, and even what they might want or do in the future. Enterprises now have the potential to create this view.

The rapid adoption and application of mobile and social channels is enabling customers to drive interactions with brands through a growing number of touch points that contain valuable data about the customer. Companies often struggle with connecting the dots and using this data in order to make it useful and actionable for the business.

In a global survey of executive managers and analysts, the IBM Institute for Business Value Executive Report, the primary drivers for analytics are customer-centric objectives such as customer experience improvement and creating a complete picture of customers' preferences and demands. And the best place for organizations to locate useful customer insights is the contact center.

Today's contact center has become the new center of the customer experience. Most of the time, it is the function within the enterprise that controls the closest interactions a brand has with customers. The contact center is charged with collecting data from customer interactions across multiple channels and documenting critical information that can help the enterprise to improve business processes and outcomes in customer care and beyond. This can mean modifying a function in the finance department, identifying a new R&D initiative, or finding new product development opportunities.

Here are a few ideas that can get companies started analyzing, collecting and acting on customer data:

Know the Value of Each Piece

Every channel a customer uses to interact with a brand plays an important and unique role in knowing that person's needs in addition to understanding how to serve them better both today and in the future. Incorporate analytics from all channels and sources to create a complete picture of your customer and gain better knowledge on how to serve them.

- The ability to track and mine customer conversations on social media platforms such as Facebook and Twitter will only grow in importance in the coming years.
- Many companies only focus on structured platforms and neglect or ignore data and conversations on uncontrolled social sources like discussion boards and online forums.
- Categorizing e-mail communications with customers allows organizations to prioritize requests and ensure the most critical issues are being addressed in an efficient and timely manner.
- Collecting all real-time conversations customer contact agents have through chat helps to categorize the intent of conversation for inclusion in customer profiles.
- There are distinctions in voice that can reveal critical insights more so than any other channel. Track caller intentions for issues management and monitor customer tone to flag at-risk individuals for increased attention to prevent losing customers.

Bring the Data Together

Collecting data from an increasing number of customer touch points is just the beginning. Bringing disparate data together into a form that is manageable and easily actionable is vital to put the information to work. But this is easier said than done. According to a Forrester survey commissioned by Aspect, about half of customer service strategy decision-makers said they struggle with data and that creating a single view of customer data and information is one of their biggest challenges.

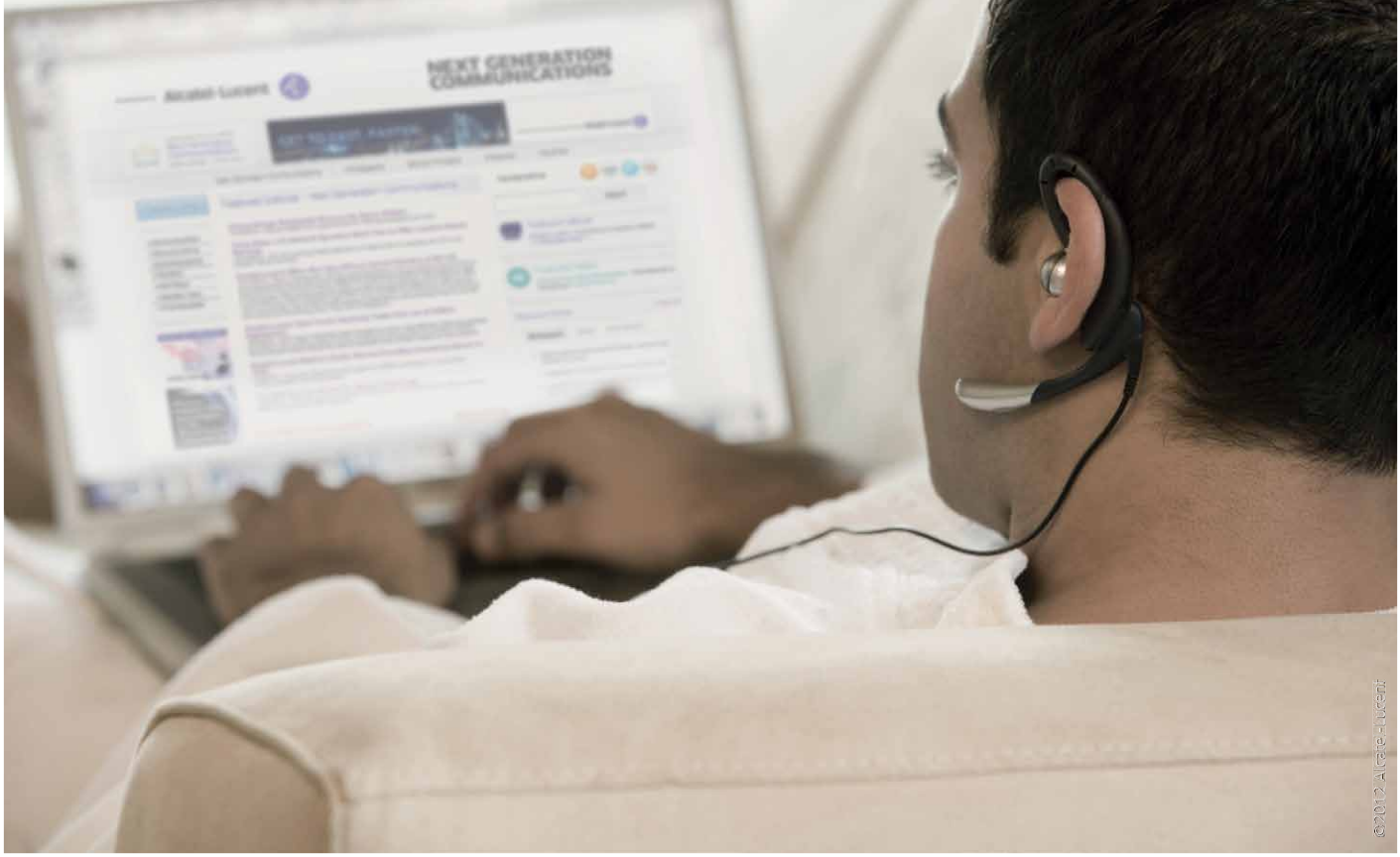
Companies need to determine how the data is shared with various departments or experts to move beyond the collection process and make the large volume of data accessible and useful. The enterprise can then create clear internal processes that standardize the information sharing and allow each piece of customer feedback to be filtered back into the organization appropriately. Businesses that approach disparate interactions as a new opportunity and apply analytics in this way, better position themselves to deliver the enhanced customer experiences that consumers demand.

It's all About Application

To complete the process, companies need to apply the learnings from customer analytics into internal decision-making. Managers can take several actions within the contact center environment based on customer interaction data analysis such as better call routing, improved supervisor-agent coaching, enhanced just-in-time training, staffing adjustments and tapping subject-matter experts. But this doesn't stop at the contact center. With a shared approach to this valuable data source, an organization can apply customer knowledge across enterprise functions – marketing, sales, product development and strategy – and can take advantage of customer know how.

Companies can gain deeper understanding of their customers and ultimately deliver enhanced, differentiated customer experiences that keep today's customers loyal and garner new customers down the road by applying analytics. The contact center is the only aspect of the enterprise that is at the core of orchestrating the data secured through the growing number of touch points to the right people and process. Analytics is to the enterprise what a wand is to a maestro, the key to a better and smarter business. **IT**

Spence Mallder is CTO and senior vice president of the workforce optimization division at Aspect Software (www.aspect.com).



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AT THE SPEED OF IDEAS™

By Jon Arnold

Do You Have a Mobile Strategy?

Mobility means different things to different people, but every business is struggling with the various implications and opportunities that come with it. Initially, mobility was about cell phones and doing telephony on the go. At the time, this was big step forward, but seems almost primitive today. The bigger issue now is how far you can go with mobility, and I don't just mean reception coverage. Just as many consumers have gone totally wireless and abandoned their landlines, it is not inconceivable for a business to manage the vast majority of its communications without wires.

If you attended the recent ITEXPO Miami, you'll know that mobility was a major theme, with sessions touching on a wide range of topics, including BYOD, BYOI, VoLTE, WiFi, RCS, mobile UC, and supporting remote workers. All of these and others will at some point impact your business, either currently or in the near term.

In the spirit of this column, I'm going to briefly touch on three mobile themes you may need to rethink, and from there, determine how they should drive your strategy around mobility. Today, mobility is just too pervasive and happening too quickly for you not to have a strategy. An ad hoc, reactive approach is not going to do the job, especially for something that is simultaneously impacting both revenues and expenses.

Mobile theme No. 1 - BYOD

Bring your own device has taken on a life of its own now, and IT really has no choice but to accept it. Whether your business is small or large, most employees now have a smartphone and expect to bring it into the workplace. Compared to earlier days when cell phones were issued to employees, the economics of BYOD are attractive, since employees are bearing the cost. However, that comes with a sense of entitlement that you really cannot deny.

The challenge, of course, comes from developing reasonable policies for how mobile devices are used and managed, along with ensuring the right infrastructure to support network access, privacy, data security, storage, etc. You are likely working on this now, and it's definitely a challenge that few businesses have yet to fully address. As important as BYOD is, there are other mobility issues you need to manage as well.

Mobile theme No. 2 - BYOI

Whereas BYOD pertains to tangible, inanimate objects, BYOI – bring your own identity – is far more ephemeral. Having multiple digital identities is quite common, and when employees bring these to work, it becomes difficult to monitor their activity and be certain they are being responsible with sensitive company information. Employees will have a company-based identity, such as via their e-mail address, but during the course of the day, they may well use several personal identities for work-related activity, such as scheduling meetings, working on files or updating contact details. This activity can be difficult to manage if used on online social media sites that are not accessed via the LAN.

We are just beginning to understand the implications of BYOI, and while this is primarily an IT issue, it's going to become a mobility issue given how much our personal identities are connected to our mobile devices. This adds a layer of complexity to BYOD that could pose both networking and ethical challenges for your business. Given how tightly privacy is tied to identity, along with the pervasiveness of cloud-based social media sites, managing identity may prove more difficult than managing the mobile devices themselves.

Mobile theme No. 3 – Service Providers

There are two basic shifts occurring that will give cause for you to think carefully about which type of service provider to partner with. First is the shift in traffic from fixed to wireless, which has been ongoing for several years. Most of your telephony activity still runs over desk phones or on PCs, and these modes will be with us for some time. As VoLTE finds its way to market, you can expect to see a more pronounced shift of those minutes to mobile devices, and that means you may need to rethink the voice plans that will best support this transition.

This leads us to the second shift, which is more profound in terms of how you work with service providers. VoLTE is part of the bigger upgrade to 4G and LTE, which is very much about data, not voice. With that, we will see faster mobile broadband speeds, more powerful devices, yet even more mobile apps, and more engaging mobile UC platforms. When mobility is powered by IP-based data networks, and carriers have more mature IMS architectures, the options for service providers become more interesting. You may choose to consolidate all fixed and wireless traffic with a single operator, and you may even consider using an OTT provider for specific mobility services. The main idea here is that you need to be strategic when going with the service provider(s) who can best meet your overall mobility needs.

Conclusion

These are just some high-level examples of how complex the mobile landscape is becoming, and the changes are coming faster than what you have experienced with fixed line services. We've come a long way from cellular phones, and you need to understand the bigger picture to plan effectively for what's coming. I'll explore these themes and others further in upcoming articles, so if mobility is on your mind, I hope to see you back here next month. IT

Jon Arnold is principal of J Arnold & Associates, an independent telecom analyst and marketing consultancy with a focus on IP communications, and writes the Analyst 2.0 blog. Previously, he was the VoIP program leader at Frost & Sullivan.

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By Steven Johnson

SIP Trunking and UC with Lync: The Role of the E-SBC

Enterprise session border controllers play an important role in enabling SIP trunking and all unified communications applications with Lync. Ingate Systems' E-SBC, the SIParator, is fully certified for use in Lync environments and meets or exceeds both the required and optional test parameters, making it one of the few E-SBCs that can support TLS and other security features offered by Microsoft.

The E-SBC serves many roles in a Lync deployment, as it does in deployments with other IP-PBXs. Microsoft Lync has several unique requirements when deployed for SIP trunking. First is the use of TCP Transport (transmission control protocol). The TCP Transport, as compared to UDP (user datagram protocol) Transport, provides a more reliable means of communication between services and can be effective in unified communications. However, many SIP trunk service providers deploy SIP trunking only using the UDP Transport (referred to as a streaming protocol, as data is sent without confirmation or receipt/delivery, whereas TCP is sent in small segments and confirmation is sent before the next segment is sent).

Another Lync requirement is the use of fully qualified domain names in many of the SIP addressing fields. Many SIP trunk service providers deploy SIP trunks using only IP addresses in the SIP addressing fields.

E-SBCs can solve these problems. E-SBCs can provide a seamless format conversion of TCP to UDP, and change IPs to FQDNs, enabling seamless interoperability between the SIP trunking service provider and Lync.

E-SBCs sit at the edge of the network to provide control over the SIP traffic. Traditionally E-SBCs were seen as just providing NAT traversal and firewalling protection – the security – for SIP-based voice networks. Today's E-SBCs provide that crucial, business-class security, and also resolve interoperability issues between other on-premises equipment and the Microsoft Lync server, resulting in a fast, simplified and robust installation.

Microsoft has a rigorous certification process for E-SBCs. Certified E-SBCs ensure a seamless and reliable use of Lync applications. However, not all certified E-SBCs have been qualified to include the same security options. Some only comply with the basic requirements.

Only a handful of Lync-certified E-SBCs have been successfully tested to support optional features such as TLS, SRTP, DNS load balancing, full failover and full consultative transfer, ensuring the secure connection between the SIP trunking service and the Microsoft Lync environment. Ingate E-SBCs include these optional features, and have also been used by SIP trunking service providers to offer Microsoft Lync-qualified SIP trunks, with or without additional security such as TLS and SRTP.

E-SBCs can provide a seamless format conversion of TCP to UDP, and change IPs to FQDNs, enabling seamless interoperability between the SIP trunking service provider and Lync.

The same Ingate product can also integrate PBXs and other unified communications solutions into the Microsoft Lync environment.

As Microsoft Lync gains market share, enterprises (and service providers) can be confident that with an Ingate SIParator as the E-SBC, Lync deployments will be quick and result in a robust and secure SIP trunking and unified communications environment. IT

Steven Johnson is president of Ingate Systems (www.ingate.com).

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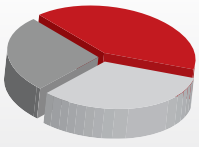

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DDoS: The Application Connection

By Lori MacVittie

Slowloris. Slow Post. HashDos. Dirt Jumper. Tor Hammer. Keep-Dead.

Sounds more like a list of names for Transformers than what they are: application-layer DDoS attacks and toolsets.

Attacks in general have been moving up the network stack to layer 7 for some time, but those we hear the most about tend to be those that result in data breaches such as SQL injection and XSS (Cross-Site Scripting). Lesser mentioned are the application-layer DDoS attacks, maybe because if they are difficult to defend against, they are even more difficult to simply detect.

It is their very modus operandi that makes them a needle in a haystack. There is nothing anomalous or odd about the packets that comprise the application requests, nor the application requests themselves. It isn't that they are barraging a resource at a rate that's abnormal. The problem is these attacks exploit the normal, expected behavior of applications in such a way as to rapidly consume resources and ultimately render the application (or intermediate infrastructure in the data path) unresponsive.

The infrastructure cannot distinguish between application layer attacks such as simple HTTP or GET Flood and a legitimate sudden surge in traffic. Applications themselves are inherently unable to detect such attacks as well.

What attacks have learned is that the infrastructure often in place to support security and delivery of applications is not intelligent enough to detect when a client is behaving oddly. For example, one class of application DDoS attacks mimics a DNS attack in that it uses the disparity between request and response size to overwhelm servers. But it does this not by sending a noticeably larger or faster number of requests (that would likely be noticed by security infrastructure), rather it simply pretends that it is connected to the Internet with speeds akin to a 28.8 baud modem, which forces the server to send responses more slowly. Ultimately a single attacker with very few clients can fill up the send queues on a server and cause it to become unresponsive to other requests.

Other attacks do attempt to overwhelm through sheer force – but at the application layer, not the network. What the network and security infrastructure often see is simply a sudden spike in application requests. These floods are not seen as dangerous by most infrastructure services because they are all legitimate. The infrastructure cannot distinguish between application layer attacks such as simple HTTP or GET Flood and a legitimate sudden surge in traffic. Applications themselves are inherently unable to detect such attacks as well. Each request is isolated from the other; there's no way for a developer to ask how many other requests are being serviced. And even if there were a way, it would provide no better insight into whether the requests were legitimate or part of a larger attack.

Infrastructure must therefore provide a solution that can adequately mitigate the impact of such attacks. It isn't a matter of stopping them – that's not possible. What is possible is to put into the data path solutions capable of buffering the more sensitive application infrastructure from the impact of such attacks.

Such solutions able to serve as a buffer between potential attackers and application infrastructure must be capable of managing hundreds of thousands if not millions of application connections without negatively impacting other applications that may be sensitive to jitter and latency, such as voice and video. To assist in achieving that, such infrastructure should be topologically near the edge of the network, to provide buffering and filtering of attacks in such a way as to prevent the natural congestion arising out of amplified, application attacks from impacting business critical voice and data operations.

Application layer DDoS attacks are real and on the rise. Mitigating their impact is key to ensuring that applications and critical business services are not impacted by these increasingly stealthy attack patterns. IT

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

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By Hunter Newby

Going to Kansas City, Kansas City Here We Come!

Little Willie Littlefield first performed the song Kansas City in that city in 1952 at the Orchid Room at 12th and Vine Streets. As the lyrics go, Little Willie was on his way there to find a local female companion and quite determined to make the trip. The song was very popular and created a buzz about the city at the time that likely incited others to travel there as well.

In 2013, 61 years later, Kansas City is buzzing once again, but this time it is not a song about access to "crazy little women" that is causing the stir. It is about access to the Internet. It is even more so about access to the growing start-up company scene, or just becoming a part of something that is about to take off while the basis is still near zero. This modern-day digital Gold Rush is music to the ears of the people of Kansas City.

With the advent of Google Fiber's deployment in Kansas City, Kan., and Mo., of fiber to the home and the delivery of 1gbps speeds of Internet access for $70 (which equates to $0.07 per megabit!) several very interesting developments have occurred. Media attention about the fiber build has led to more media attention about the demand for 1-gigabit Internet access speeds.

A component of that demand is coming from business requirements and specifically start-up businesses operating primarily, if not exclusively, on the Internet and on a tight budget. This has led to real estate demand for homes in the now famous and nouveau tech-trendy Hanover Heights section of Kansas City, Kan., which was the first Google Fiber "fiberhood" in the area, by these start-up businesses as well as entrepreneurs seeking to incubate start-ups. People are coming to Kansas City!

The equation being implemented here is sound and replicable. It is similar to a recipe for a great meal. On the surface it seems simple enough, but there are clear definitions to the formula and a sequence that must be followed in order for it to succeed. The key point is that this is not speculation as this concoction has already produced a desired result – an investment in fiber that brings low-cost and truly high-speed Internet access, driving economic growth. IT

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

By Max Schroeder

Partnering for Success

The Health Insurance Portability and Accountability Act of 1996, better known as HIPAA, was passed by Congress to protect individuals and their medical privacy. It was the first time the government set a policy to protect patient rights. All health care providers had to modify their procedures to comply. Much has changed in both the health care field and communications technology since 1996. HIPAA regulations have been regularly modified to adapt to these changes so health care providers are constantly in catch-up mode.

In 1996, the cloud was still a future concept and even today many health care professions have only a vague idea of what the term really means. These professionals may be highly educated, but the medical field is so far removed from the world of Internet telephony, SaaS, hosted VoIP, hybrid fax and other cloud technologies that the terms have little meaning. Regardless, many organizations have been attracted by the many benefits of cloud solutions including the inherent disaster recovery features, as mandated by HIPAA, and have been migrating to the cloud. This migration has created some concern among government regulators who feel that security is being jeopardized.

Some people feel that the recent changes to the HIPAA rules are an attempt to slow down the migration process and refocus the health care industry on security. This has many companies worried that maybe the technology is not ready and migrating now could put their operations at risk. Many decisions are being put on hold.

Those of us that have been following TMC know that data storage, communications, hosted services and other cloud technologies can be very secure if implemented properly. Personally, I refer to these as TMC technologies, since TMC has been so instrumental in introducing them to the world at large.

In looking at the marketplace, very large health care organizations such as major insurance companies have the resources to manage the migration process themselves, but smaller organizations do not. However, this situation opens up a great opportunity for experienced TMC technologies resellers to partner with health care organizations and provide the expertise necessary for them to migrate and still be HIPAA compliant. To become more familiar with this market, visit the TMC home page and select Health Technology located in the center of the top banner. IT

Max Schroeder is the senior vice president of FaxCore Inc. (www.faxcore.com).

The World

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By Paula Bernier

Seeing Green

Service Visibility, Data Analytics Could Add Up Big for Mobile Service Providers

When a YouTube video doesn't work or involves a lot of buffering, mobile subscribers don't contact YouTube to complain. Rather, they think about their wireless service providers.

In fact, such scenarios are probably the few times subscribers think about their mobile service providers, says Jonathon Gordon, director of marketing at Allot Communications. But, he adds, that's not necessarily a bad thing.

"Service providers should like it because it puts them in a position of power," says Gordon.

That's because facilities-based service providers have the ability to understand what's happening on their networks to predict congestion, for example. And that can enable facilities-based mobile operators to get ahead of the problem by alerting subscribers of the situation and offering them solutions, such as upping their subscription plans or delivering an offer from a content provider partner who might sponsor a better network experience and pay the mobile operator for that capability.

Gigamon Approaches Big Data from a New Angle

By Paula Bernier

Gigamon is telling its big data story, and that story has a significantly different plot line than those of others in the industry, says Andy Huckridge.

"There's a new way to solve monitoring for big data," he says.

Rather than analyzing every bit of traffic in every pipe, which would require a large and growing investment in costly analysis tools by service providers, Gigamon suggests that carriers can get a representative sample of traffic on their pipes, and analyze just that information.

Less data to analyze equals lower processing requirements and the need for fewer analysis tools, he says. And that equals lower costs for service providers.

"This is a new concept, we don't think anyone is working in this direction," says Huckridge.

Gigamon is currently collaborating with a tier 1 U.S. carrier on a proof of concept around this. They're working together to characterize data and figure out how much data you can remove and still make it representative of that data.

"We're certainly not saying this is going to work out of the gate, there are going to be teething issues," says Huckridge.

The company is not yet certain when it will productize this concept, but Huckridge suggests it could be toward the end of this year. The offering will be available as a software addition to Gigamon's existing products.

Gigamon sells an intelligent traffic visibility appliance called GigaVUE, and it recently added GigaPORT-C01 100Gb and GigaPORT-Q08 40Gb line cards to the GigaVUE H Series product line. Huckridge adds that Gigamon also can connect its nodes across the network to allow for much higher processing capabilities. The above, he says, enables Gigamon to deliver on volume, port density, and scale.

Procera Takes DPI to the Next Level

By Paula Bernier

Procera Networks is focused on providing network operators visibility into what's happening on their networks. As more applications and subscribers move onto networks, there is, of course, a greater need for higher performance solutions. So Procera this week at Mobile World Congress announced the implementation of DPI-based Vineyard NAVL running on a 1RU 200-gigabit Tilera CPU. This a reference platform for a very high performance solution in a small footprint that an equipment company such as a vendor of Ethernet switches, firewalls or routers could get from Procera and Tilera using a single purchase order.

Vineyard recently was acquired by Procera. A leader in enterprise OEM DPI, Vineyard is Procera's main point of entry into the enterprise, according to Cam Cullen, vice president of global marketing.

Cullen adds that Procera continues to add capabilities to its policy enforcement boxes, which it sells direct to service providers. In January, the company announced ContentLogic, which can recognize any category of content – like shopping, video or porn sites, so service providers can for example offer parental control (or the ability to block any sites) as a value-added services. ContentLogic can correlate the categories of content consumed by broadband subscribers for up to 100 million URLs with minimal performance impact to any of the PacketLogic Real-Time Enforcement systems, according to Procera. That means that one PL20000 system can do policy enforcement and replace several racks of content categorization or filtering solutions, according to the company.

"From the service provider perspective, Procera is delivering the final piece of the puzzle in understanding and responding to what is happening on their networks," said Jim Brear, president and CEO for Procera Networks. "In adding content categorization intelligence to location, subscriber and application intelligence, operators now have even greater control in delivering the highest quality of experience to consumers. This adds the dimension of content to our understanding of user context which is truly differentiating."

This type of thing can enable service providers to insert themselves more prominently in the mobile value chain, build new revenue, and lower help desk requests in the process, Gordon says. And, he adds, the tools necessary to make that happen are available, so all of the above is possible today.

Ulla Koivukoski, senior vice president of marketing and communications at Comptel, which is known for outfitting service providers with data collection solutions for billing, charging and fulfillment, agrees.

"Service providers need to make the most out of customer touch points and connect with customers emotionally to make money," says Koivukoski.

> "Service providers need to make the most out of customer touch points and connect with customers emotionally to make money."
>
> - Comptel's Ulla Koivukoski

At the recent Mobile World Congress event in Barcelona, Comptel was showing a video of how a service provider can identify the particular interests of select groups of subscribers to provide them with specialized service bundles including LTE connectivity and, potentially, content or special connectivity options to access certain content. This particular video featured a service provider identifying jazz fans by using location information to see who attended a jazz concert, tapping into those sub-

Mobile Digital Lifestyle Segmentation

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Digital Lifestyle Profiles

The Info Seeker
- 32% Of subscribers
- 12% Of traffic
- 75% use Browsing

The Info Guzzler
- 5% Of subscribers
- 5% Of traffic
- Divided into to two distinct types:
  - A Browsing and P2P (33%)
  - B Browsing and App Download (23%)

The Digital Mover & Shaker
- 34% Of subscribers
- 58% Of traffic
- Characterized by very high data usage. This segment combines personal data activity with social data activity
- Subscribers in this segment are the social influencers of the Digital Lifestyle
- Leading activity combinations are:
  - A Browsing, Video Streaming, Social Networks, Social Video and Instant Messaging (31%)
  - B Browsing, Social Video and VoIP (15%)
- Digital Movers and Shakers are important not just because of the heavy traffic they consume but also mainly because their activity spawns even more usage on the mobile network. The subscribers in this segment connect socially and they upload and share the information and content that interests them

The Social Monitor
- 15% of subscribers
- 9% of traffic
- Tends to access Social Network content (24%), Social Video (28%) and VoIP (18%)

The Social Mingler
- 15% Of subscribers
- 16% Of traffic
- This segment engages in pairs of personal activity and social activity
- The leading pairs are Browsing and Social Networks (35%), and General Browsing & Social Video (11%)

Digital Lifestyle Profiles by Time of Day

Insights: 1 Info Seekers are mostly active at night 2 Digital Mover & Shakers are relatively active all day 3 The Social segments are mostly active during mid-day 4 The Social Mingler is the closest to the total population

The Mobile Subscriber High Five

By Paula Bernier

Allot Communications recently released the results of its new Mobile Trends Report, which illustrates there are several distinct types of mobile broadband subscribers to whom wireless network operators might deliver targeted offers.

The report, which aggregates subscriber information from multiple wireless operators, segments broadband users into five groups.

Info Seekers, which make up 32 percent of subscribers, are those individuals who use the Internet ad hoc, meaning when they need it and where they need it. For example, an Info Seeker might use her mobile broadband connection to access specific information from a website while waiting for a bus, explains Jonathon Gordon, director of marketing at Allot Communications. About 75 percent of the traffic from this group is used for Internet browsing, and this segment accounts for just 12 percent of network resources.

A second type of mobile broadband user is categorized in the February report as the Digital Mover and Shaker. As the name suggests, this is a more prolific type of mobile broadband subscriber, as these folks are both contributing to and drawing from online content, and sharing their activities on these fronts via social media pretty much around the clock. The report says about 34 percent of individuals fall into this category. Digital Mover and Shaker subscribers are estimated by the study to use 58 percent of network resources.

Allot's new report also defines a type of mobile broader user as the Info Guzzler. This type of subscriber, which represents 5 percent of users, accesses content mostly during the day and primarily for P2P and other downloading. Meanwhile, the Social Monitor accounts for 14 percent of subscribers and represents those folks who access content mostly during mid-day for social networking, video and VoIP. And the Social Mingler, which represents 15 percent of subscribers, is recognized by his or her use of multiple application types during mid-day and the evening.

As noted above, this exercise of segmenting subscribers illuminates that there are different repeated user behaviors on broadband mobile networks, and wireless service providers can and should harness that intelligence not only to make best use of their network assets – but also to put together targeted offers for select user types in an effort to drive new revenues and build customer loyalty.

"Analytics is great, but at some point you need to do something with it," says Gordon. Indeed, he says mobile service providers need to see themselves as being at the center of the digital lifecycle rather than "just delivering bars". Understanding how subscribers use mobile networks can enable a cellular service provider to make specific experiences better – or, at least, unique to specific subscriber's desires and willingness to pay or accept sponsored offers.

scribers' social network profiles to find friends with similar interests, and providing all of the above with bundled LTE service offerings.

A little more than a year ago Comptel purchased Xtract. As a result, Comptel can now provide network operators with tools to help them understand the uniqueness of individual subscribers, and then quickly act on that information to increase average revenue per subscriber, lower customer churn, or otherwise meet a specific goal.

In fact, EMEA service provider Zain already is leveraging the Comptel solution to identify likely churn candidates and provide them with special offers before they express their intentions to drop service. In the past, Zain had responded to customers who voiced their intentions to leave by presenting them with special offers, says Koivukoski, "but that's too late." A better approach is to proactively look for such parameters as service inactivity or lower than normal service usage and then approach such customers with special offers in an effort to avoid churn, she says, adding that Bangladeshi service provider Robi is using the Comptel solution for similar purposes.

Churn is a big issue for these operators, she says. The resulting cost involved to retain new customers is a major expenditure for carriers – in some cases accounting for 20 percent their of sales.

"It's a big figure," Koivukoski says, "so most CSPs are keen at looking for ways they can prevent the churn – not just predict it, but prevent it."

Of course, facilities-based service providers need to move beyond simply using customer and network intelligence to save money and also leverage this information to generate new revenue sources.

Dan Siemon, a product manager at Sandvine, which got its start providing gear for traffic management applications, says its policy control solutions are increasingly being used for service creation to drive average revenue per user. One of the success stories on this front involves Vox Telecom, a DSL provider in South Africa that wanted to give select customers a taste of what life would be like if they upgraded to a 40gbps connection. The communications service provider, whose aim was to increase subscriber revenue and differentiate itself in the marketplace, targeted gamers by partnering with retailer Look & Listen, which offered people who bought Call of Duty Black Ops a special link and code they could use to try out connectivity optimized for the gaming experience. Sandvine's Usage Management product running on its network policy control platform enabled Vox to deliver this offer.

"They plan on rolling this out for every blockbuster game now," says Siemon. IT

By Peter Radizeski

The Top Hosted VoIP Companies in the U.S.

There are more than a thousand companies offering VoIP in the U.S. A majority of these companies provide landline replacement VoIP (aka SIP trunks) and mobile VoIP. Examples would be Vonage and cable companies.

It is important to note that Skype and RebTel have hundreds of millions of users signed up. I am going to ignore mobile VoIP and residential VoIP to focus on B2B hosted PBX providers. This sector is smaller in sales than the Centrex market that the ILECs still maintain. (Sad really.)

The largest provider of business hosted PBX is Comcast. With its acquisition of NGT and the retention of the smartest person in this space, Comcast has been growing steadily. I estimate that the company has more than 325,000 seats and about $150 million in sales. It should be available throughout Comcast regions by the end of the quarter and rolled out to the channel by the second quarter. If the company can scale the sales process, it could be amazing.

Next up is 8x8 with more than $100 million in business sales. 8x8 made a conscious effort about 4 years ago to switch from being a tech company to a marketing company – that is when sales took off.

When ShoreTel bought M5, the hosted PBX company was doing about $48 million. Best guess is that they have peaked over $50 million now. Probably tied with ShoreTel Sky (the new name for M5) is the company formerly known as Smoothstone, now named West IP Communications.

At ITEXPO Miami this year, I was confronted about this list and reminded that Nextiva and Vocalocity should be on this list. Vocalocity was at $25.5 million in 2011 according to the INC5000. Unless Vocalocity had a killer 2012 with 100 percent growth, it wouldn't make the top. As for Nextiva, a UnitedWeb company, it is unclear how much hosted PBX revenue they have.

The Cloud Communications Alliance members like Telovations, Telesphere, Broadcore, Globalinx, Alteva and Simple Signal are all in the under $40 million revenue boat – with most under the $20 million marker.

It is difficult to determine the actual revenue of many of these companies, as they are private. Also, the revenue comes from MPLS circuits, origination, toll-free and SIP trunking – not strictly hosted PBX sales. RingCentral is rumored to be over the $50 million mark, which would put the company near the top. IT

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

Hosted VoIP Provider Tweaks Program

Vocalocity, a provider of hosted VoIP phone systems for small and mid-sized businesses, has made changes to its channel program to enable it and its partners to further accelerate growth. New are an expanded commission structure that provides new upfronts, residuals and additional monthly incentives; scaling channel partner resources and support, including additional channel staff and enhanced sales enablement materials; and improvements to the sales process in an effort to make Vocalocity's services easier to sell and deploy. Since 2011, Vocalocity has more than doubled its annual channel partner production, as well as the number of program members.

IaaS Outfit Intros Reseller Effort

ProfitBricks, an infrastructure-as-a-service company, has debuted its Reseller Program. This program is aimed at managed service providers, value-added resellers, IT consultants, system integrators, and independent software vendors. Qualified reseller partners can receive up to a 25 percent discount on ProfitBricks' next- cloud computing services. Partners also get access to what ProfitBricks says is an easy-to-use, drag-and-drop graphical user interface that simplifies the setup and maintenance of cloud environments for resellers.

Global Capacity, Hidalgo Join Forces

Telecommunications information and logistics company Global Capacity has signed on Hidalgo Communications, a master agency providing voice and data telecommunication services to the enterprise market. Anthony Hidalgo, CEO of Hidalgo Communications, says: "Access to One Marketplace has enabled our team of experienced agents to dynamically quote global network solutions from multiple vendors in less than an hour, providing us with a greater competitive advantage and increased opportunity to win deals."

Cloud Storage Provider Seeks Partners

Livedrive, a cloud storage company, is offering a 30-day money back guarantee for all reseller consumer and business accounts in addition to the unlimited free backup accounts the company already provides to resellers. Livedrive, which delivers unlimited online backup and 2,000GB+ cloud sync storage to more than 1 million customers, provides a white-label option, enabling businesses to bring the desktop software, apps and online dashboard under their own brands. That includes full text and image customization and the ability to change the software template colors as desired.

BroadSoft, Sonus Integrate Capabilities

BroadSoft Inc. and Sonus Networks Inc. are partnering to ensure full interoperability of IP communications solutions for telecommunications service providers, designed to accelerate their deployment of hosted, cloud-based, communication services. Together BroadSoft and Sonus will deliver integrated, fully tested, and secure, unified communications, SIP trunking and interworking network components; coordinate sales and go-to-market activities; and jointly serve customers through coordinated solution sales, testing and documentation.

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By Paula Bernier

Shango Establishes a Common Service Orchestration Platform for Unified Communications

While the telephone used to be a single-purpose and uniform device, with a relatively simple network to which it was connected and operated by a single entity, it no longer has the sole purpose of delivering voice connectivity. With the proliferation of IP, the demand for unified communications, and given the rise of the 'smartphone,' the industry has founded the premise that the telephone network is now a platform that can support various third-party applications; which has left communication service providers to rethink how they use communications.

There's no doubt that while IP communications is still very much in its evolutionary days, it has disrupted the very way that carriers and service providers offer up and deliver voice and data communications and network services. The speed at which the industry is changing has left them continually seeking ways to unify and integrate communication offerings through an increasing variety of devices and applications; and lately, especially those connected via the cloud. Providers are still bound by the legacy workflows of the PSTN, forced to pull through and manage disparate applications at the front end, while the ambition of unified communications systems still hope to ease the difficulty in application sourcing and fulfillment for end-users.

All the while, change beyond its means has only compounded the rise of CSPs within the industry. It has opened the door to an even larger number, each with their own business and service models, network infrastructure, and wholesale service providers from which to buy and sell services, and push products out to – all intent on rivaling to reach the crest of this IP wave, and contain mounting end-user demands for better and faster communication applications, features, and devices.

However, the ability to leverage IP and pull together a unified offering for sale or resale is still tougher than ever. Whether it's a facilities-based provider that's supplying wholesale voice or an Internet Telephony Services Provider (ITSP) or an application provider that needs to buy on- or off-net services quickly and just-in-time, the process is like putting together a jigsaw puzzle.

"Imagine trying to bring together numerous mismatched pieces strewn across a table into a unified image; similarly, to bring together a unified communications offering, some pieces may belong to one network while numerous others are scattered across other provider networks, explains David Walsh, CEO of Shango. "The task of sorting, matching and joining them together seamlessly to create that product requires some ubiquitous manner of orchestration—that's the underlying challenge facing providers day-to-day, is coming up with one; and without strategies like utilizing APIs to instill some automation, the orchestration issue is only compounded," he asserts.

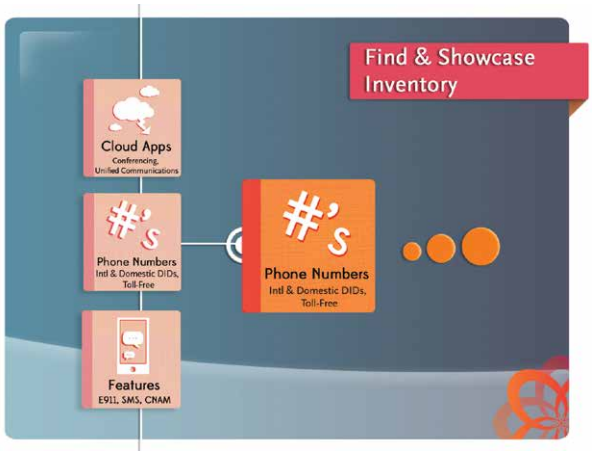
To leverage provider network services today comes with the reality that bringing a product to market could take months, given that the pieces reside on different networks. Plus, the ability to orchestrate disparate components on both the buy side and the sell side to bring a product to market is a very complex and tedious process, and taxing on operations when you bring in cost, resources, and even API development into the mix.

The Shango marketplace facilitates the order and fulfillment process of any IP service or application from any provider. Through its common API, Shango has created an open, common platform for CSPs, which eliminates the need for manual swivel chair processes when putting together an IP-based offering. In fact, Shango enables carriers, operators and their service provider customers to pull through best-of-breed, third-party applications, manage and fulfill those orders, and present applications out to customers in a seamless way.

"The marketplace is providing a common meeting place for buyers and sellers of wholesale IP communications to provide direct access to new features and services," says CTO of Shango, Evin Hunt. "With Shango, CSPs can now simplify and better manage service fulfillment and instantly transact with any IP services provider in one place."

"Now, emerging service providers can easily source services from multiple vendors, and those that want to tie in voice functionality can access the services they need through a single interface," Hunt explains. "The marketplace also enables carriers and network operators to transcend legacy constraints by setting up their inventory within it, and more easily offer up the new types of services and applications that their customers are demanding," he continues.

In just its first year, the Shango marketplace has already facilitated more than 5 million transactions across a plurality of voice and data applications for more than 1,400 trading partners. Shango marketplace members include Tier 1 global telcos and other leading providers of DID and toll-free telephone numbers; CNAM, E911 and SMS features; hosted PBX and routing platforms; and even providers of cloud applications like video conferencing, as well as back office solutions such as billing and storage, which are also in the ever-expanding marketplace ecosystem.



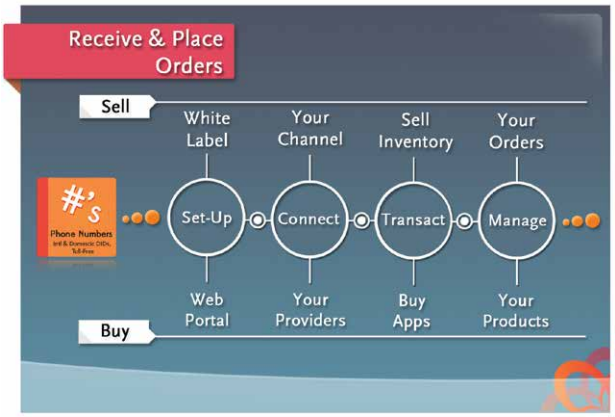
Amidst the evolution of the telephone and the phone number, new emerging players such as application providers are bringing new over-the-top (OTT) applications, features and services to market to be sold to a variety of end-users; simply by tying voice services and numbers together in new ways. These applications are changing the customer base of wholesale providers, especially carriers and operators, who are increasingly turning to Shango to enable them to meet and serve this evolution head on.

With the demand for OTT services on the rise, both wholesale providers and their customers have sought an easier way to push out and pull down IP-enabled services and applications to-and-from one another faster and more seamlessly. Wholesale enablement through the Shango marketplace is allowing both buyers and sellers of IP-enabled services to cross legacy constraints. They are attaining greater autonomy from traditional partners through the marketplace's carrier-agnostic transport layer, which can also support transactions across all voice services, such as VoIP, wireless, and wireline, enabling them to more easily scale wholesale channels and revenue.

Take for example emerging OTT service providers, such as ITSPs, cloud application providers, and those providing cloud applications through UCaaS or a Cloud Services Brokerage model, which all need the ability to easily source wholesale services. As a member of Shango, an ITSP can aggregate its providers to a single UI and API; likewise a UCaaS provider can gain a single point of integration in order to source and fulfill applications from its multiple vendors, and a Cloud Services Broker could more easily source and bundle cloud-based applications and set them up for resale to its own customers.

The need for simplified service fulfillment is clear. UCaaS subscriber numbers are forecasted to grow sixteen-fold over the next five years, and UCaaS revenues are expected to grow almost as quickly, according to Synergy Research Group. The global research and advisory firm Gartner has also predicted that IT expenditure on cloud services are expected to hit the $100 billion mark by 2014, indicating a great need to reduce IT capital and operating expenses.

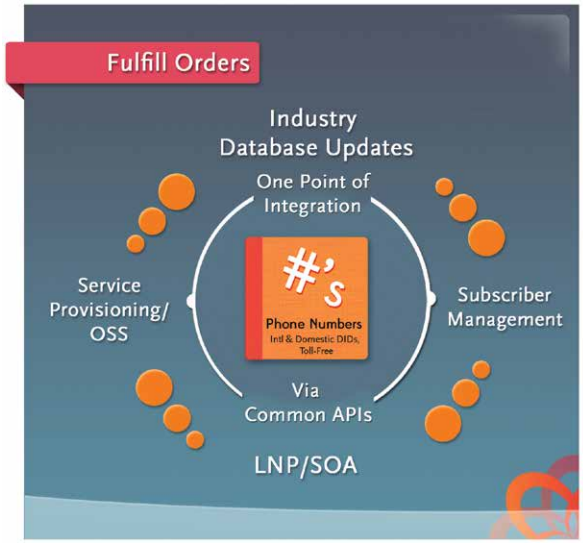
Similarly, carriers that want to grow existing wholesale channels or to serve new types of OTT applications to new markets can easily offer up their inventory, or even incorporate OTT offerings into their own value-added services. Within Shango, they can identify new revenue streams for new products by leveraging an ecosystem of new potential customers already buying services from existing and new partners active within the marketplace. Indeed, telecom revenue mix forecasts point to an increasing shift toward wholesale and "smart" operators, with 50 percent of service provider revenues expected to come from wholesale/indirect channels by 2020, according to 2012 data from Ernst & Young.



As it stands today, infrastructure complexities plague wholesale supply chain and distribution processes. Plus, with various B/OSS and activation systems on the backend, alternate solutions would require providers to overlay customer-specific multi-tenancy and differing workflows to various trading partners. Further, every new partner or customer relationship would require new agreements, processes, features, and services that need to be enabled. Not to mention, the possibility that new APIs that would need to be developed or augmented, and in the case of many legacy carriers, they may not even be available.

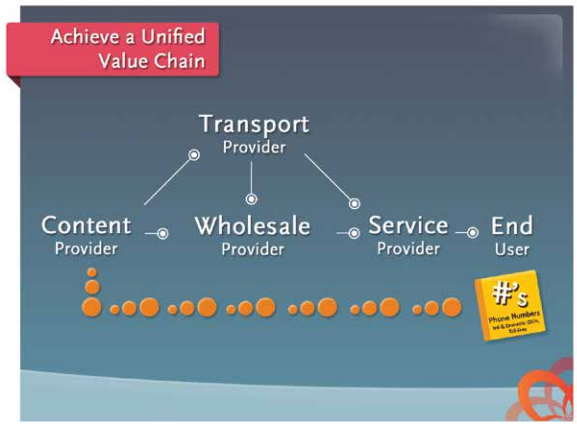
While many ITSPs have invested in certain systems and technologies to improve activation and provisioning intervals, the reality is that today many carriers and operators are still bound by legacy assets that can't meet the technical demands of their customers; and who themselves don't have the IT or human capital to handle the manual swivel chair processes required to orchestrate or pull down services directly. In fact, these are the same buyers of wholesale services that are increasingly growing accustomed to real-time access, like pulling applications down from "app stores," causing carriers to rethink everything from activating and

orchestrating services, to everyday MACDs required for meeting demand.



Much like Amazon.com lets vendors set up a store front and present inventory, and then handles order fulfillment through its back-end systems, Shango does the same thing for wholesale buyers and sellers of IP communications. Suppliers put their inventory in the marketplace, and buyers can pick out their services and features through one point of integration.

The marketplace, through its platform and simultaneous workflow handles all necessary orchestration, activation and service fulfillment, bonding selected services and features to a number, hosted seat, or OTT application. Within the marketplace, sellers, called "Merchants," can offer a single point of integration across a portfolio of network service offerings to buyers – who in turn can more easily source services from new and existing providers. Even sellers without an API can post inventory and make it searchable for buyers to pull down products instantly. Likewise, a buyer can turn around a reverse API and offer up its services, such as OTT features and applications to carriers and operators who want to expand their own service portfolios.



The numerous buyers and sellers already engaged in the marketplace echoes a desire to move beyond the legacy of traditional operations – just as the phone number has been released from the confounds of the telephone network, now connected to a range of devices and people, in a verve of greater mobility and elasticity, service providers are also charged with intent of evolving their business relationships, interactions, transactions and revenue growth through greater autonomy.

The marketplace's ability to flex value chains, and pre-integrate to various platforms for activation and fulfillment has enabled wholesale provider members to earn new revenues from existing network assets, and bridge the buy/sell relationships from just a small number of traditional telephony providers, to making the most of new and emerging customer bases.

How Buyers Benefit from the Shango Marketplace

- access to multiple suppliers in a single environment
- activation across providers via a common API
- blended tier groups of your providers
- instant selection of voice services
- least-cost sourcing from your own provider relationships

How Sellers Benefit from the Shango Marketplace

- link customers to your services via a single point of access
- open new channels to increase revenue
- quickly onboard subscribers
- use partner-sourced product offerings to create unique offers and extend the portfolio presented to your channels

While in the past it used to be enough to release some new features every year or two, today's CSPs need to be able to bring new offers to market as quickly as customers demand of them and as opportunities present themselves. The reality is that those CSPs who don't move on such opportunities will find themselves at risk of losing business to competitors, be they facilities-based outfits or new OTT service providers.

Today, the marketplace's activation and fulfillment engine helps to mitigate that risk by simplifying interactions and transactions across disparate partners, applications, and service providers, helping them remain relevant in what has quite rightly been deemed the age of acceleration.

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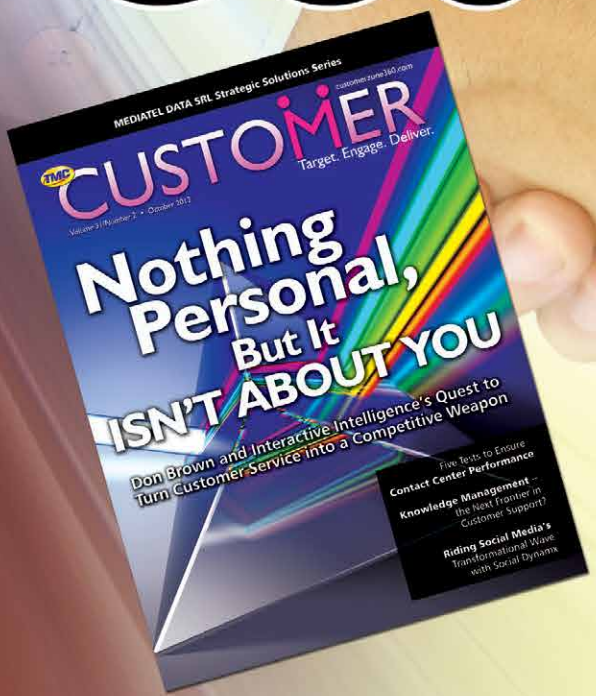

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By Paula Bernier

Small Cells Await Their Big Debut

Small cells remain a hot topic in the wireless industry, and this area of interest certainly got its share of attention at the recent Mobile World Congress. But while expectations remain high for small cells, and some major wireless service providers have made public their plans to deploy large numbers of these network elements, the extent to which small cells actually have been implemented to date is quite limited. And one source tells INTERNET TELEPHONY that femtocells, an indoor mostly residential version of small cells, have been less than a success for service providers.

Here's the good news on the small cell front. The industry at large still seems bullish on small cells. AT&T – which has trialed small cells in Missouri, New York City and Wisconsin – has publicly announced its plans to have 40,000 small cells operational by the end of 2015. Sprint is reportedly committed to large-scale small cell rollouts this year, although the company hasn't said much about this lately. Verizon has also expressed interest in small cells in the past. In fact, website AnandTech reports that Verizon at the CES trade show early this year was showing Alcatel-Lucent's small cell and says "the Cube Dock 2600 will be deployed by Verizon starting 2H 2013 to do what amounts to hole filling in the operator's network. That is, deployment in small dead zones such as under a bridge or inside a mall that's still too small or under trafficked for a DAS (Distributed Antenna System) or urban environment." And there's a fair amount of small cell activity with carriers abroad as well.

About a year ago Mobile World Congress, the mobile industry's largest annual confab, was heavily focused on the subject of small cells and their important role in adding capacity and coverage to what people are referring to as the larger heterogeneous network, which is expected to be comprised of macrocells, small cells and Wi-Fi solutions. Small cells were again a center of discussion at Mobile World Congress earlier this year in Barcelona, but there was no blockbuster news on this front, and everybody is now familiar with the small cell concept so the buzz around this subject has died down to some extent.

However, just prior to Mobile World Congress in late February, ip.access announced that it's shipped 1 million small cells. The company has been in the small cell industry for a decade, having started out with enterprise 2G solutions, then expanding to 3G residential applications, and now also addressing enterprise 3G and LTE deployments.

Also around the show, Informa Telecoms & Media issued its latest quarterly small-cell market status report for the Small Cell Forum, which the organizations say "highlights that public access small cells are gaining clear market traction and will dominate small cell revenues for the foreseeable future." According to the report, small cells are poised to increase from today's 11 million units to 92 million units in 2016. Public access will be the predominant application for small cells going forward, according to the report, which says that by 2016 this chunk of the market will be worth $16.2 billion.

"Public access small cells in busy urban areas are set to be one of the defining mobile network trends in the coming years. While operators won't be deploying them in the same numbers as femtocells, they are arguably their best tool for bringing massive extra capacity to their mobile networks. As this research shows, the vendors who succeed in this space are going to win the lion's share of small cell revenues. All eyes will be on the deployments taking place in the coming months in order to establish best practice for the many more that will follow over the next few years," said the report's author, Dimitris Mavrakis, principal analyst at Informa Telecoms & Media.

In addition to AT&T's activities on this front, Informa noted that Vodafone UK is testing 1,000 public small cells and plans to start rolling out tri-mode models (3G, 4G & Wi-Fi) by March, while Verizon expects to roll out the technology in the second half of the year. BT, meanwhile, is looking at how small cells might work to expand coverage to rural areas.

Informa and the Small Cell Forum also report that femtocells, of which there are 9.6 million in operation today, continue to progress. The organizations note that NTT DOCOMO is launching an LTE offering on this front; DOCOMO PACIFIC will deploy enterprise and residential small cells; and Orange France and Vodafone UK are working with femtocells for in-building coverage.

However, while activities continue on the femtocell front, Raj Singh, general manager of the wireless broadband group and digital home and office division at Cavium, tells INTERNET TELEPHONY that there's been "a bloodbath" on the femtocell front because those devices have not been successful in improving the customer experience.

Cavium was at this year's Mobile World Congress talking about its small cell solution, which is in use by three Korean service providers. KT Telecom and LG U+ are using Cavium-embedded small cell solutions provided by CS, and SK Telecom is using a Cavium-enabled small cell solution supplied by Inno Wireless. Singh says that tens of thousands of these solutions have been shipped to these service providers, which began trials of the technology last August and started to use this gear in volume starting in December 2012.

Large populations in Korea use mobile services, creating significant service challenges for these providers. Some carriers have tried to address service availability by deploying femtocells, but Singh says it didn't always work because early femtocell solutions sometimes lacked density and capacity. Cavium's small cell solutions, however, apply macro technology and are based on category 4 transmission (which supports 150mbps downstream and 75mbps upstream) vs. category 3 transport (which is limited to 30mbps upstream), he says. IT

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YOUR NETWORK. OUR CONNECTION.

By Paula Bernier

InfoVista Helps Expedite LTE Network Builds

InfoVista, now with the Mentum acquisition under its belt, aims to help service providers get their LTE networks, including small cell deployments, up and running faster.

That's the word from Juan Pablo Prieto Baez, product marketing manager – mobile services at InfoVista, who met with INTERNET TELEPHONY at the recent Mobile World Congress in Barcelona.

InfoVista got its start in MPLS performance management and service assurance, but is expanding into mobile. The acquisition of privately-owned Mentum, which InfoVista announced and closed in late November, strengthened InfoVista's play in the radio access space.

Mentum offers solutions in the network planning and modeling space. In fact, at Mobile World Congress, InfoVista announced the release of Mentum Planet 5.6, which includes enhanced 3D modeling features.

Before you launch a network, especially a very large one, you need to know what gear is needed, and where to put it, says Baez. Mentum has more than 250 mobile service provider customers, which rely on the company for radio access planning and modeling, and more than 100 of those customers leverage Mentum solutions for their LTE deployments. That customer list includes such companies as Sprint and Telus.

Planning is a function that happens with every next cycle, says Baez, but now with LTE it's become more complex because LTE involves not just macrocells, but also small cells and Wi-Fi offload infrastructure, he says. And while the standard planning cycle used to be six months to a year, it is now more on the order of three months, given mobile operators are expected to add small cells regularly as needed.

One of the network planning bottlenecks is getting a view of what the network is currently doing so you understand what needs to be done, says Baez. By integrating InfoVista and Mentum products, he says, the newly combined companies can open up that bottleneck and shorten that timeline. IT

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By William Leddy

Run, FIDO, Run

Alliance Works on Non-Proprietary Authentication

The FIDO Alliance, formally established in July of 2012, has been working for more than 2 years developing the open FIDO standards – the first open industry standard for online authentication.

The goals of the FIDO Alliance are to define and promote protocols to enable a broad range of strong authentication options across all end user devices; enable stronger authentication and better user experience; support the international standardization of the FIDO protocols by a recognized standards body; work with existing standards not replace them; and make the protocol stack ubiquitously available on client devices.

Relying parties, system integrators and security providers have formed the FIDO Alliance (Fast IDentity Online) to revolutionize online authentication with an industry supported standards-based open protocol. FIDO Alliance founding member organizations Agnitio, Infineon Technologies, Lenovo, Nok Nok Labs, PayPal, and Validity are developing the specification and FIDO-compliant products. New members joining the alliance throughout 2013 will have access and input to the development of the FIDO specification.

FIDO standards will enable better security and convenience for users. Users will be able to pick the authentication token type that best suits their needs, and that single token can be used to access all their Internet accounts. Because the FIDO token will send a unique, one time passcode to the relying party instead of a password, passwords are not reused across unreliable websites.

FIDO standards will give large websites and web services an authentication solution that can scale both in terms of cost and manageability. This will enable web services with 10 or 100 million accounts to authenticate beyond passwords for all their users, not just selected subsets.

FIDO in the Marketplace

FIDO tokens can be simple non-spoofable identifiers or can be a user authentication token that uses a PIN, finger, voice, etc. FIDO tokens can be built into the user's system like a finger scan or a chip on the motherboard, or can be portable across systems like a USB or SD card. Because the relying party will have a single protocol to dynamically discover and invoke all different FIDO device types, it will be possible to support all types without customization for any.

Authentication token vendors will have easier access to the broader Internet market instead of custom silo applications. In addition, token vendors will not need to build, deploy and support a complete software stack for their devices. Similarly, integrators will not need to deploy a custom software stack for each vendor since the FIDO stack will provide a common interface for all.

The open FIDO protocol should be relatively easy to add to a variety of chips in a PC, phone, TV box, game console, etc. In many cases a non-spoofable identifier will be sufficient to allow a relying party, like PayPal or any website, to create a streamlined (no login) experience. For example, a $20 transaction from your TV set in your living room or your mobile phone should not require a password, unless you want that additional security. Similarly, imagine that the next thumb drive you buy could be FIDO enabled. This gives users a portable strong authentication option with a device they are likely to have anyway.

How It Works

FIDO raises security and enhances privacy. The user authenticates locally to the FIDO authenticator with PIN, finger, voice, etc. Only then will the FIDO authenticator release a unique identifier for the account that can only be validated by the requesting Internet site or service. The user's PIN, password or biometric information is never sent across the network. A FIDO-enabled authenticator can store unique identifiers for many Internet accounts, so even if one account is compromised other accounts cannot be attacked using this information.

At the relying party, such as PayPal, the information from the authenticator is validated using cached information that has been provided by each token vendor. When new tokens are produced the token maker will store a secret in each token and provide information to validate the token to a FIDO repository. A local copy of this information will be cached at the relying party site and new additions will be made as token vendors make more tokens. Note that the validation process happens locally so there is no Internet delay or reduced potential for attack.

With identifying factors stored only locally within the device, hacking becomes too expensive, too time consuming, and doesn't scale. Among the challenges, hackers would need physical access to an individual's device, as the hack would have to be done on premises, on the device itself. The victim of such an attack would be a very high value target, not one among the general masses of users. Hackers are very unlikely to proceed with such a high level of challenge and more likely to move on to easier targets.

What's Next

The FIDO draft requirements were expected to be ready to share with prospective members in the near future with the FIDO Reference Architecture 1.0 planned in February of 2013 (before press time of this magazine). Protocol and compliance specifications work was under way, with public access to be available in the second half of FY 2013. Based on this schedule, FIDO -ompliant products could be available in the marketplace beginning 2014. IT

William Leddy, PayPal's principle security strategist, is vice chair of the FIDO Alliance Marketing Working Group (www.fidoalliance.org).

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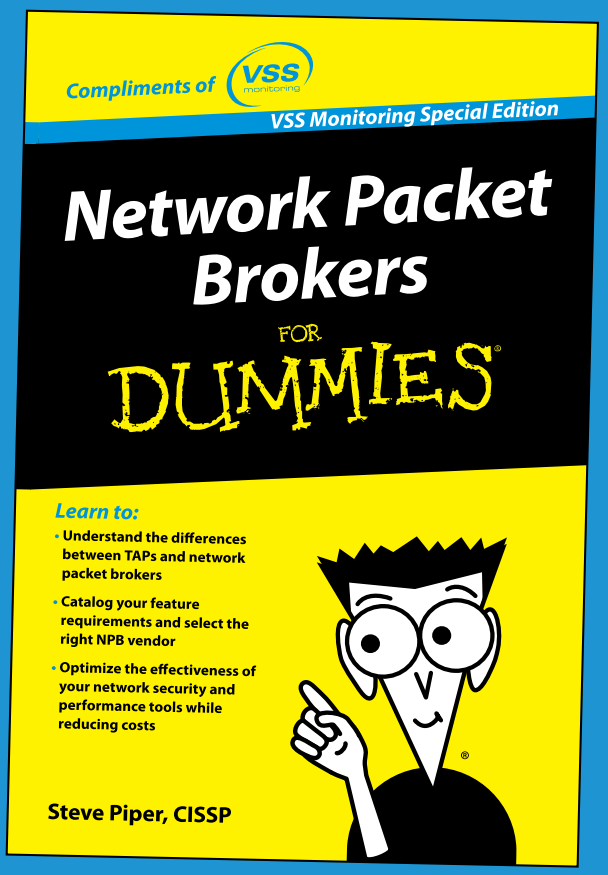

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By Peter Bernstein

Distributed Denial of Service Attacks

Arbor Networks Highlights the Challenges

It used to be that distributed denial of service attacks – for which the bad guys overwhelmed company servers with messages, thereby bringing web viewing and transactional capabilities to a grinding halt – were more major nuisance than possible long-term threat to enterprises. However, as leading network security and management company Arbor Networks, in its 8th Annual Worldwide Infrastructure Security Report, recently revealed, such is not the case. In fact, what the company found was not only that the frequency of such attacks is on the rise, but the sophistication of the attackers is increasing. Equally as alarming is that DDos has become part of the growing nasty proliferation of the advanced persistent threat landscape.

For those not aware, APTs (also known as zero day polymorphic attacks because they strike with ferocity and take many pernicious and multi-vector forms) are spanning the globe and wreaking havoc for enterprises and service providers alike. These are Internet-enabled government-sponsored espionage threats. They are customized and aimed at the usual targets, but now are being used on other vectors of vulnerability to infect media, compromise supply chains, and disrupt financial institutions' ability to conduct commerce. And, while individual hackers are not formally engaging in APT, since they likely do not have the resources of government-backed efforts, they have adopted many APT best (or should I say worst) practices.

It needs to be noted that confronting APT and DDoS threats was at the very top of the list of discussion among the elite of the cybersecurity industry at the recently concluded annual RSA event.

Arbor finds bad actors have been busy and adaptable

The Arbor Network report is sobering as well as enlightening in terms of quantifying the landscape IT professionals are dealing with on the infrastructure side of things.

Key findings included:

- Advanced persistent threats are at the top of the concern lists for chief security officers at both enterprises and services providers.
- While the size of traditional DDoS attacks seems to have reached a plateau, there has been a marked increase in complex multi-vector attacks.
- Data centers and cloud services are increasingly victimized.
- Mobile operators increase capacity but not visibility.

The data in the report covers October of 2011 through September of 2012. One-hundred thirty respondents from a mixture of tier 1, tier 2/3, enterprise and other types of network operators from around the world were interviewed; 64 percent of respondents are network or security operations engineers, analysts or architects; the remaining are management or executives.

What was gleaned is eye opening.

APTs evolve: 61 percent named botted or otherwise compromised hosts as their top concern, and 55 percent named APTs as the top concern. Plus, when it comes to DDoS, the largest attacked reported was 60gbps, which is roughly the same as in 2011; however, 46 percent reported multi-vector attacks. This means application-layer and multi-vector attacks are evolving and on the rise.

Data center and cloud victimization on the rise: 94 percent of data center operators reported attacks, and 90 percent of those reported operational expenses as a business impact. There's no surprise here considering that the bad guys like bank robbers are going to where the money is.

Mobile providers continue to be reactive: 60 percent do not have visibility into the traffic on their mobile/evolved packet cores. This is very troublesome; but, as Arbor noted, the economics of consumer subscriber networks do not incent providers to implement security until a problem occurs. The company also noted that, "We believe it is only a matter of time before botnets and DDoS become more prevalent within mobile infrastructure." And, in terms of BYOD creating new challenges, 63 percent of respondents allow BYOD devices on the network, but only 40 percent have the means to monitor those devices.

The graphic to the right is illustrative of why mobile operators need to up their game.

DNS infrastructure remains vulnerable: 27 percent experienced customer-impacting DDoS attacks on their DNS infrastructure – a significant increase over last year. Plus, 71 percent reported good visibility at Layers 3 and 4, but only 27 percent reported Layer 7 visibility. This lack of visibility coupled with a lack of dedicated security personnel create an ideal environment for attackers to exploit. Attackers now have many targets from which to create reflection attacks.

A big pull out from the report given the explosion of BYOD was the following observation: "Only 10 percent of respondents have seen DDoS attacks impacting their mobile Internet (Gi) infrastructure. However, this low number may be partially explained by the fact that 45 percent don't know if they are being targeted or not – potentially demonstrating a lack of monitoring and threat detection capability." The report also notes that 65 percent of mobile operators do not have full visibility of their back-end networks.

What does this all mean?
In search of context for the findings I reached out to Dan Holden, director of security research for Arbor Security Engineering Response Team, and Carlos Morales, vice president of global sales engineering and operations, for some further insights on the state of the DDoS landscape in particular but on cyber threats in general.

Morales noted that, "DDoS has gone from what started as a hobby to all out warfare. Vulnerabilities abound, including in critical areas like keeping state on TCP, which can be exploited. And, because of the nature and dynamism of DDoS, firewalls and anti-virus solutions in many cases cannot pick them up."

His recommendation to security professionals is a layered approach that includes cloud-based anti-DDoS capabilities and the ability to serve as an automatic backup for traffic offload in the face of a large-scale attack. He also said, "Intelligent mitigation inside companies is key for dealing with app exploits."

Holden pointed out what was a major theme at RSA.

"Visibility is a huge issue," he said. "As the report points out, it starts with knowing what you have in terms of what is in and on your network and the level of risk that is associated with it. Most companies, regardless of sector, have poor visibility."

He added, "DDoS does not stand still, which is why you need to be dealing with a vendor who specializes in dealing with these types of threats just as companies rely on specialists in the firewall and anti-virus areas."

While there are DDoS best practices that are available, he added that the bad guys are constantly moving the chains, and that, "BYOD changed the use case for looking at cybersecurity in general and there are serious implications as a result of BYOD in regards to DDoS and APTs."

"The game has dramatically changed," he added. "We all need to be thinking about cybersecurity differently. It is time to stop looking at the effect and pay more attention to the cause. You have to know what you are defending against."

Holden and Morales both hit three important notes that should resonate in the industry. First, there is a significant and critical context gap (inventorying, classifying, monitoring and analyzing sessions and behaviors of apps as well as people) between the internal sphere and the external, i.e., the Internet. Second, better knowledge means enabling IT to create better policies and therefore provide better protection. And third, security needs to be viewed from the standpoint of risk mitigation and management of business assets rather than as an IT problem.

The third item may be the most important of them all. As boundaries for vulnerability disappear, the level of maliciousness escalates, putting more critical assets at risk, and those with bad intentions start using things like DDoS attacks as distractions for other activities designed to steal secrets, crash networks, and disable business processes and operations. That said, understanding the business context for the purpose of getting executive buy-in on risk mitigation solutions is vital. IT

Peter Bernstein is senior editor at TMC, INTERNET TELEPHONY's parent company.

Key Findings

34% Suffered a customer-visible outage due to a security incident, a 64% increase over the prior year.

57% Do not know what proportion of subscriber devices on their networks are participating in botnets or other malicious activity.

60% Have no visibility into traffic on their packet cores, resulting in unseen threats that cannot be prevented or contained.

45% Do not know if DDoS attacks are targeting their Internet Gi infrastructure.

28% Observed DDoS attacks targeting their wireless network, while 25% don't know if such attacks occurred due to lack of visibility.

Source: Arbor Networks 8th Annual Worldwide Infrastructure Security Report

By Ben Volkow

Why LTE Needs Diameter Signaling Management

As LTE networks are rolling out worldwide, there are many discussions going on about the critical need to manage signaling, in particular Diameter signaling. There are also discussions, and it's even fair to say some controversy, over the different methods to manage and control Diameter signaling in the most effective way.

Before we get into the nuts and bolts of Diameter management in LTE, to understand Diameter protocol better let's look at legacy signaling protocols in the early days of the addition of IP to networks.

In 1980, the signaling protocol SS7 was introduced by the International Telecommunications Union to control telephone call sessions through point-to-point connectivity. Only after scalability and management issues became apparent, the need for centralized management was clear and a new network entity called the signal transfer point was introduced to manage, connect and route SS7 traffic.

SIP, the communication protocol to support voice calls over the Internet, has similar origins. Originally SIP was intended to connect network entities point-to-point, which lasted a while until management, interoperability and routing requirements evolved and the session border controller was introduced in 2003 to handle and solve SIP management issues.

Beginning in the 1970s, the data plane was also initially designed on point-to-point connections. Few people imagined that there would be so many connections, and much data and signaling traffic to render this architecture obsolete. But, as we know, data and signaling traffic increased, which expedited the need for switches, routers and load balancers to support signaling traffic management and scaling.

When Diameter was first introduced by the the Internet Engineering Task Force, it included the concepts of Diameter agents that can proxy, route and balance Diameter traffic to provide scalability and management requirements. However, when the 3GPP promoted Diameter as the foundation for signaling in IMS and EPC architectures, it left Diameter Agents out, perhaps thinking that the introduction of a distributed architecture would avoid the need for Diameter signaling management.

But history repeats itself, and the same issues that affected legacy signaling protocols arose around Diameter in IMS and EPC. As a result, the 3GPP, the mobile broadband standards organization, went back to the drawing board and proposed the use of a Diameter Agent to support Diameter signaling traffic. The group named it Diameter Routing Agent and agreed that it's needed around the PCRF (which stands for policy charging and rules function).

Today we are witnessing the same Diameter issues that arose around the PCRF, now appearing in other network locations. Therefore, we believe it won't be long before the 3GPP will issue another announcement around Diameter management enlarging the scope of the DRA's network deployment.

Six Reasons Supporting the Need for Diameter Signaling Management

Here are six reasons why it is imperative to deploy Diameter Signaling management solutions in an LTE, or any IP-based network. This list is not exhaustive but reflects the primary reasons.

The growth of Diameter signaling

Operators are moving from a voice-centric to a data-centric environment. Unlike voice, which did not generate much signaling during a session, data creates a lot of signaling. Furthermore, the amount of signaling associated with data sessions differs from application to application, and depends on configuration and usage patterns. In some cases signaling is up to 50 times higher in a data session in comparison to a traditional voice session. We know from customers that some operators are experiencing a monthly growth of Diameter signaling of 25 percent. With this drastic and fast growth, operators find themselves plagued with the required management and scalability requirements needed to prepare their networks before the inevitable Diameter tsunami hits and brings down their networks. Gradually, they are arriving to the conclusion that they must deploy Diameter traffic management solutions in their networks.

The fragmentation of networks

Networks are much more fragmented today than in the past, meaning that they are built with many more boxes. This occurred because the 3GPP introduced new concepts for IMS and EPC that evolved from the definition of physical devices to conceptual functions to fulfill more finely-tuned requirements to handle policy management, session control, charging, media and other functionalities such as I-CSCF, P-CSCF, S-CSCF, vPCRF, hPCRF, MGCF and others. As a result, today we have almost twice the number of defined network boxes than we had a decade ago.

Of course, this fragmentation dictates the need for additional signaling interfaces and connectivity, which results in much

more signaling traffic and complexity. Another trend that influences the fragmentation of the network is the growing number of data centers intended to reduce costs and bring the network closer to the subscriber.

However, the increase in data centers requires more signaling connectivity across and between them. It's clear why this growing fragmentation requires much more signaling management to control the increased number of network functionalities, sites and interfaces for complete reliability and assurance in network performance.

The growth of usage patterns

We have many more usage patterns today than operators would encounter in the past. When we primarily used our phones to make voice calls and simple data usage with three to four well-defined services like WAP, MMS and minimal Internet surfing, keeping in mind that these were temporary connections to the data plane the user had to open a new PDP session every time he or she wanted to use data and once finished, the user would close the connection.

This is nothing like today's smartphones and all other net devices usage behavior through which users are constantly connected. This constant use means we are sending signaling messages all the time. In addition, each application presents different signaling behavior and usage patterns, both of which are serious management challenges to operators.

The need to support new use cases

The over-the-top trend is making life difficult for operators. The growing market competition and customers' freedom to easily move between operators affect revenues. To make up for this loss operators have turned to service differentiation, offering compelling new packages and services to subscribers, such as family plans, shared data plans, policy, QoS and so on. All these new services require signaling solutions for support of the service itself and to support the additional signaling created during its operation.

There are a few more trends related to the growth of use cases that increase signaling volume. Another one worth mentioning is the growth in pre-paid subscribers both in developing and developed countries. Pre-paid billing creates more signaling compared to the traditional postpaid billing.

Every new use case requires close management of the Diameter signaling in the network, and moreover, requires context-aware signaling solutions that can access a wide array of databases to enable those services and applications.

Diameter signaling characteristics and the move to all IP networks

Unlike legacy signaling protocols, which were predominately circuit-switch based, Diameter protocol is always packet based and uses TCP or SCTP as a transport protocol to enhance reliability. However, TCP creates twice as much network traffic due to the need to ACK all messages (meaning every message must send a receipt message). Sending a receipt automatically doubles the number of signaling messages.

As clearly seen, the move to an all-IP network significantly increases the amount of signaling. Although the move from circuit switch to packet switch will bring many other advantages, it generates tons more data traffic, and data is one of the major forces behind growth in signaling. Operators need to confront the blitz of signaling from a multitude of fronts never seen before and must be managed before damage is caused to their networks.

New Specs and Trends

LTE and the EPC core offer fresh architectural concepts and are made possible thanks to Diameter signaling protocol. Diameter is completely different from the existing legacy signaling protocols. Due to its relative young age and unfamiliarity in the market, Diameter challenges operators to architect and secure their networks properly.

Since the beginning of LTE rollouts, we have already witnessed a few Diameter signaling related outages around the world, and operators can't afford any others.

But the challenges do not end with Diameter knowledge in a typical LTE network. We have completely unprecedented emerging trends and technologies such as virtualization, software-defined networking, VoLTE and machine-to-machine technology. Each one of them introduces its own architectural concepts, and each generation of technology brings different Diameter behavior patterns and requirements. Together they present daunting tasks in designing, scaling and safeguarding networks.

VoLTE, for example, represents a move from traditional circuit switch-based voice to packet switch data-based voice, and subsequently due to the nature of IP, generates massive signaling. This results in quality of service issues that must be handled by Diameter signaling management.

M2M represents the introduction of signaling-centric networks on a scale never seen before, with billions of devices generating signaling. It's not only the amount of signaling that requires a new way to approach signaling management, but also the different signaling behavior of machines when compared to traditional networks with human subscribers. Just imagine about a million ATMs sending updates to the network all at once or a city-wide system of reporting on waste removal or fleet management.

These new trends require finely-tuned Diameter management, overflow control, signaling routing and load balancing to be successfully launched and maintain network reliability. IT

Ben Volkow, formerly CEO and co-founder of Traffix, is vice president of product development at F5 Networks (www.f5.com).

By Paula Bernier

Tekelec Introduces ThinkingNetworks Vision

Tekelec says it can help service providers evolve to be "digital lifestyle providers" and, as a result, become more relevant in today's environment. Its strategy on this front involves four overlapping phases, including what Tekelec calls the New Diameter Network; Cloud XG, which involves network virtualization; mobile social; and ThinkingNetworks.

The company has been rolling out product and messaging around various parts of this strategy over time, notes John Lenns, associate vice president of product management for Tekelec's policy management solutions. At Mobile World Congress earlier this year Tekelec introduced the ThinkingNetworks piece. Tekelec defines ThinkingNetworks as the phase at which networks become self-aware and automatically adjusting to the needs of services and applications.

Policy is the brain, Diameter is the nervous system, and SDN is the network architecture that allows the network to be flexible.

If this concept sounds familiar, it's because it is. You've heard this description already under the heading of SDN, or software-defined network. Indeed, Lenns says OpenFlow and SDN are involved in this concept. But he explains that Tekelec is not a provider of SDN solutions; rather it's Diameter solutions will work together with networks based on SDN. Policy is the brain, Diameter is the nervous system, and SDN is the network architecture that allows the network to be flexible.

The Mobile Social phase, meanwhile, involves what Lenns says is an evolution of Tekelec's Subscriber Profile Repository, which contains subscriber-relevant data. Over time, he says, it will be possible to cache data about subscribers, such as their likes, dislikes, etc. And carriers can combine all that to set policy and deliver customized solutions for subscribers.

As for Cloud XG, it includes components to virtualize and dynamically assign resources to a function. Here's an example of how this might all work: If a network operator has a set of processing elements it can virtualize them via Tekelec's Virtualizer, use Tekelec's Orchestrator to assign a function to industry-standard hardware, and then Flow Manager can see that element and know it's available to accept traffic.

And the new Diameter network, which Tekelec spoke about at last year's Mobile World Congress, introduces controllers (or, as Tekelec calls them, Diameter signaling routers) into the picture to avoid signaling storms by doing load balancing, load shedding, and gracefully introducing new elements to the network,

"We are having tremendous success with DSRs," says Lenns, adding Tekelec's marketshare in Diameter signaling routers/controllers is in the 75-85 percent range. "People are getting it." IT

Ulticom Delivers White-Label Diameter Controller, Enhances Performance

By Paula Bernier

Ulticom now offers a white-label version of its Diameter signaling controller product. Related collateral, such as documentation, also can be branded with the partner vendor's name.

The software-only solution, version 3.0 of the Ulticom product, allows users to customize it down to doing code-level changes. The Linux-based software is used by suppliers of gear that does stuff like central routing; standard load balancing for HSS or payment apps; edge routing for IP PBX and LTE roaming; and policy routing/Diameter routing agent policy control.

Benchmarked on two HP 380 G8 systems, each running an Ulticom DSC Diameter routing instance, Ulticom says this product was able to support 864,000 sustained simple Diameter transactions per second (equating to 1.8M messages per second). This same configuration running Diameter routing agent functionality sustains 580K TPS (1.1M MPS), according to the company.

"Ulticom's DSC underscores our commitment to the evolution of the signaling industry. Smart devices, consumer demand for data centric features, and new network technologies like LTE are placing ever-increasing demands on mobile networks," says Bruce Swail, CEO of Ulticom.

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By Vincent Choi

Ericsson Unveils SDN Product

Ericsson has unveiled the SDN-based Ericsson Cloud System, which will package some of the company's existing applications and equipment in a virtualized format, and pair them with an OpenStack-based KVM hypervisor called Ericsson Cloud Executive Environment. Existing parts of the solution include the Ericsson Blade System and the Ericsson Smarter Service Router, as well as the company's operations support system, which under this new solution is being called the Ericsson Cloud Manager. The company also plans to develop an app store of telecom applications as part of the offer, Magnus Furustam, vice president of product area core and IMS at Ericsson, told INTERNET TELEPHONY. He added that Ericsson Cloud System will be an open environment, so will support both Ericsson apps as well as third-party software. At Mobile World Congress in late February, Ericsson demonstrated network virtualization and service chaining, which will be delivered commercially by Ericsson starting in the fourth quarter.

DragonWave Takes New Avenue to Backhaul

DragonWave Inc. is promoting a new, sub-6gHz point-to-point microwave radio intended for small cell non-line-of-sight deployments. The new solution is part of the company's Avenue Link line of products. Alan Solheim, vice president of corporate development, tells INTERNET TELEPHONY that Avenue Link Lite represents the company's first product in this frequent band. He adds that DragonWave believes wireless network operations need a full toolkit of backhaul solutions from which to choose because each solution has its unique requirements. The new radio is very low power at 15 Watts, says Solheim. These devices support MIMO so you can connect two devices for double the capacity, and they can be daisy chained to minimize cabling needs. Each Avenue Link Lite offers 110megs in a single input, or double that with MIMO. The gear doesn't look like most traditional products, Solheim adds. Unlike dishes, he says, these devices are relatively small boxes and as a result are easier to mount and less unattractive.

XO Launches Intelligent WAN Service

A new service called XO Intelligent WAN provides network performance, security and visibility. It pairs the XO MPLS IP-VPN private, application-aware network service with the ability to monitor network threats and provide secure access to the network with round-the-clock surveillance and unified threat management. Also included in the new offer is real-time application performance insights that help IT and network staff monitor application performance and end user experience. "Increasingly, the executive suite is seeing the network as creating business value and being central to achieving business objectives," says Don MacNeil, chief marketing officer at XO Communications. "The XO Intelligent WAN can help IT and network staff plan better for tomorrow's business environment by providing greater agility for exploiting market opportunities, delivering on customer-centric principles, and conquering the two biggest barriers to cloud services adoption: security and application performance."

Cox, TWC are MSO Leaders in Business Ethernet

The top Cable MSOs selling business Ethernet services in the U.S. are Cox, Time Warner Cable, Charter, Lightpath (formerly Optimum Lightpath), and Comcast, according to Vertical Systems Group's latest research. "Business Ethernet services are a strategic and growing revenue source for Cable MSOs. We're seeing more aggressive marketing as the cable operators step up their efforts against the incumbent carriers and CLECs within their respective service territories," says Rick Malone, principal at Vertical Systems Group. "Cox and Time Warner Cable have consistently held positions on Vertical's U.S. Leaderboard, and continue to expand their Ethernet businesses. However, Comcast currently has the fastest port growth of the providers on the 2012 Cable MSO Ethernet Leaderboard."

Optical Poised for Growth

"After ending 2012 on a flat note, things are looking up for the optical market in 2013," notes Andrew Schmitt, principal analyst for optical at Infonetics Research. "Our conversations with equipment providers continue to trend positive, particularly in North America where 100G spending is about to ramp. The general consensus remains that an optical cycle for equipment in the core is emerging, what we call the 'optical reboot.'" The EMEA region, meanwhile, ended 2012 "with a spending flourish and carriers are cutting dividends to plow capital into general capex," Schmitt adds. "And we are looking forward to our visits with carriers in Beijing this spring to get a good read on the year, but the preliminary indication is it will be a huge year for 100G. China is about half of the global 40G WDM market, and 2013 will be the peak year for 40G worldwide."

Ixia Puts Diameter, Lync and Wi-Fi to the Test

Ixia has unveiled an enhancement to its flagship product, IxLoad, to test all Diameter-type devices involved in the control plane/signaling plane. As a result of this new software plug-in, the IxLoad now can test host of devices, including Diameter routing agents, policy servers, HLRs, online offline billing solutions, and the like. F5 Networks uses the product to test its DRA. On a separate front, Microsoft recently announced it has selected Ixia as a partner for qualifying Lync over Wi-Fi. There are tremendous issues with running real-time communications over Wi-Fi, according to Ixia, so Microsoft now feels the need to qualify Wi-Fi access points to ensure they work well for Lync. So Microsoft has tapped Ixia to provide lab testing services for Wi-Fi access point vendors and to share the results with those vendors and Microsoft. Ixia's service will run Wi-Fi access points through a battery of more than 100 tests.

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By Gary Bolton

USF Reform Relief for Rural Rate-of-Return Carriers

In late 2011, the Federal Communications Commission issued the Universal Services Reform Order and created the Connect America Fund to transition approximately $4.5 billion a year of federal subsidies to enable the build out of broadband services to rural communities. Last year, the CAF got off to a rocky start as it unintentionally delayed carriers' investment in broadband infrastructure as a result of the FCC over-rotating on rules and safeguards against spending abuse. The FCC allocated $300 million in the 2012 CAF Phase 1 funding for Tier 1 and Tier 2 price-cap carriers, but the FCC rules and obligations resulted in only $115 million of these funds being claimed – leaving nearly $2 out of every $3 of this funding on the table.

The rural rate-of-return carriers were also negatively impacted by confusion and lack of visibility into year-over-year support due to annual adjustments based on quantile regression analysis benchmarks. As a result, U.S. Department of Agriculture Secretary Tom Vilsack reported to the FCC that 63 percent of Rural Utilities Service funds available for broadband projects were left on the sidelines in 2012.

Good News for Rural Rate-of-Return Carriers

The FCC's recent Sixth Order on reconsideration of Universal Service Fund reforms wasn't just another announcement, but will enable these carriers to provide connectivity to rural customers. Nearly one-fourth of rural America lacks access to high-speed broadband, according to the FCC's eighth Broadband Progress Report. Without these federal subsidies, rural rate-of-return carriers would not have the means or business case to extend broadband service to these areas. Over the years, ADTRAN has witnessed firsthand the benefits that local communities see through reliable high-speed Internet service, including increased business commerce and educational opportunities.

Previous Limitations on Carriers' Ability to Provide Broadband

Because of the high costs for connecting outlaying areas, the FCC previously issued the USF/Intercarrier Compensation Transformation Order, limiting the reimbursement that rate-of-return carriers could receive through the USF and Connect America Fund. This order reduced support if capex or opex spending exceeded an annually-adjusted 90 percentile QRA benchmark based on the spending of approximately 737 other rate-of-return carriers.

Earlier this year, 159 rate-of-return carriers were notified of support reduction because either their opex or capex spending was outside the QRA benchmark. In many cases, the carrier's total expenditures were within the aggregate benchmark, but either capex or opex was not, resulting in reduced support.

While carriers can control their capex and opex spending, they cannot anticipate what their peers may or may not spend. Furthermore, the FCC is not willing to disclose the details of their QRA model, so carriers have no visibility into year-over-year changes that may impact their support.

New Benefits for Rural Customers

The Sixth Order on reconsideration of USF reforms addresses several of these major issues and was effective immediately upon release in March 2013. To help simplify the regression analysis, capex and opex benchmarks will now be rolled into a total benchmark instead of two separate metrics. This modification alone decreased the number of companies subject to reduced support for 2013 from 159 to 70.

Additionally, the FCC directed the Wireline Competition Bureau to increase the time period for evaluation instead of adjusting the thresholds on a yearly basis. While this time period has not yet been determined, the greater time between adjustment will provide carriers greater visibility for budgeting expenditures. For the remainder of 2013, the order is also implementing a 15 percent backstop so a carrier's funding can be reduced by no more than 15 percent.

Future Impact to Rate-of-Return Carriers

Although the new order is a step in the right direction, roadblocks still exist. Even with the changes, over 70 percent of the carriers will find that the 90 percentile QRA benchmark for 2013 is lower than their 2012 benchmark. Additionally, costs per loop continue to increase as mobile adoption grows, resulting in continued line loss throughout rural communities.

While the new modifications will significantly help rural carriers, it is important for the FCC to continue to evaluate the process and refine guidelines, especially in mapping, definitions of dependent variables, evaluation of independent variables and the timing of updates. These parameters all have significant impact on the predictability of ongoing funding to enable build out and maintain broadband services to communities that otherwise would not have service. The FCC continues to address issues with the CAF Phase 1 rules so Tier 1 and Tier 2 price-cap carriers will be able to accept their 2013 allocations and address the unserved and underserved communities. This will enable rural-area residents to experience the educational and economic benefits that high-speed Internet service provides, and will help these small towns grow and thrive. IT

Gary Bolton is vice president of global marketing at ADTRAN Inc. (www.adtran.com).

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GENBAND, Samsung Mobile Partner

GENBAND and Samsung Mobile have formed an alliance to integrate Samsung Mobile's SAFE (Samsung for Enterprise) designated devices with GENBAND's SMART OFFICE mobile UC applications. It is part of GENBAND's recently introduced strategic vision to bring a "SAFE, SMART, and SIMPLE" user experience to the enterprise, and Samsung's desire to be the mobile device provider of choice for enterprises. GENBAND will offer Samsung Mobile devices through its service provider customers and large systems integrator partners.

Polycom Makes Room for Lync

Polycom has a new dedicated room system for Microsoft Lync 2013. With the combination of Lync and RealPresence solutions, employees can launch video collaboration sessions easily and intuitively from within familiar interfaces and normal workflows, from any work environment on- or off-premises. They simply click a name in their Lync contact list to securely collaborate face-to-face via Polycom video at their desktop or in a conference room. "We have long worked with Microsoft to ensure our solutions are interoperable and we're excited to do so again with Lync 2013," said Ted Colton, global vice president of strategic alliances at Polycom. "Today our mutual customers are benefitting from the ability to eliminate the barrier of geographic distance between employees. The combination of Polycom and Microsoft software gives employees greater flexibility and a seamless UC solution for video, voice, conferencing and collaboration, from anywhere, anytime. And with our new dedicated room system purpose-built for Lync 2013, it's only going to get better and drive more value for our mutual customers."

Phones From snom are Lync Interoperable

snom UC Edition IP business phones are qualified by Microsoft as fully interoperable with Microsoft Lync Server 2013. The new snom 710, 720 and 760 IP phones are part of the company's six-phone snom UC Edition family. "snom has a long history of leadership with Lync interoperability," said Michael Knieling, COO for snom technology AG. "We were the first SIP phones qualified for Microsoft Office Communications Server 2007 Release 2 (OCS R2) and Lync 2010, so we're excited to continue our unique partnership as Microsoft upgrades to Lync 2013."

A New Dimension to UC

Dimension Data is extending its existing managed services portfolio for unified communications to include managed services for Microsoft Lync. In addition to Lync application support - available for both Lync 2010 and 2013 environments - the service also includes hardware support and maintenance, patch notifications, service management and administration. "With compelling enhancements, such as improved enterprise architecture and voice, HD videoconferencing, and Skype federation, expected for Lync 2013, demand for Lync is set to grow within our client base," said Peter Menadue, Dimension Data's general manager for Microsoft Solutions. "In fact, we have already received great interest in the platform. Dimension Data has tremendous experience as a managed services provider, and we found more and more clients asking us to support and manage their Lync infrastructure. This service complements our existing Cloud Services for Lync, Managed Services for IPT and Managed Services for Visual Communications offerings."

UC in Motion

The new Jabra Motion Series headsets, available starting this quarter, were designed for multi-tasking at the office, in the car, or at home using smartphones, tablets or laptops with unified communication solutions. The products feature a built-in motion sensor that reacts to movements and different sound environments.

Using HTML5 to Engage Carrier Customers

IPgallery, a company playing in the IP communications carrier space for over a decade, wants to help service providers become the focal point of this brave new world of social and apps, TMC's Rich Tehrani reports. The company's suggestion is to provide customers with a social communications and hosted PBX solution that integrates so seamlessly with popular web-based services that users will rarely need to leave the comfort of the environment. An HTML5 interface allows a cloud-based service to tap into APIs of a slew of other companies to provide social, mapping and just about anything else a user can think of. Just like a person might use HootSuite as a central hub to interface with numerous social networks, IPgallery helps carriers provide customized user interfaces, which the company believes are captivating enough to keep consumers living inside them.

Dialogic Explains Network Fuel

Andrew Goldberg, Dialogic's senior vice president of strategy and marketing, tells TMC's Rich Tehrani the three pillars of the company's Network Fuel paradigm. One is any to any networking/interconnection, which includes gateways, control switch, SBCs, session-management, signaling management which allows for roaming, etc. Then there's network congestion, which is a rebrand of bandwidth optimization. The company refers to this new area as "amplifying capacity" which includes VoIP, video and more recently, data. Goldberg explains that Dialogic has new products coming which will sit in network core and backhaul, optimize and amplify capacity -- even if the data is currently optimized. He says carriers can build more network or deploy the company's technology and amplify what they have. Finally there is application enablement, which harkens back to the company's long history of being the underlying technology of the app-gen business of the 1990s, which allowed developers for the first time to use a GUI to write telecom applications.

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By Jonathan Shaw

Protecting Enterprises Against Software Audit Risks

Today's IT environments utilize enterprise applications in ways that have evolved beyond those envisaged by legacy license agreements. Multi-core and multi-thread processor architectures and data center virtualization have made CPU and server-based licensing schemes substantially more complex. Tightly integrated application architectures and information portals blur the definition of direct and indirect users. And developments such as globalization, shared service centers and business process outsourcing each risk contravening license restrictions. These factors make it more challenging to remain compliant with license terms; even an IDC survey showed that 62 percent of software providers considered maintaining compliance with their software products to be "somewhat" or "very" challenging.

Beyond the increasing likelihood of out-of-compliance software usage, a difficult economy and decreasing new license revenue have led providers to conduct more frequent audits. While audits previously occurred in response to whistleblowers or suspicious licensing behaviors, many providers now proactively audit all or most of their customers. For Fortune 500 companies, this can potentially result in multi-million dollar liabilities so it is critical to manage this growing area of risk with specific steps at each stage in the software lifecycle – during initial license acquisition, throughout the period of software usage, and in response to a provider audit.

License compliance and tracking should be centralized as a core capability within IT with an assigned executive owner.

Recommended Steps to Reduce Compliance Risk

Negotiating a software agreement can be complicated, and there are a few key areas that require focus. If licensing options are available, the enterprise should select the structure that, in addition to offering cost effectiveness, best enables compliance certainty. A per-user or per-device licensing scheme in an environment with weak configuration discovery and desktop asset and management could be disastrous.

Within the agreement, the enterprise should attempt to remove use restrictions that could constrain possible software use and cause inadvertent non-compliance. Providers' default agreements may preclude third-party use by an outsourcer or business partner, limit geographical flexibility to consolidate data centers or deploy global shared service centers, and restrict sublicensing and assignment.

Audit rights will be outlined in the agreement, and the enterprise should negotiate reasonable constraints that limit audit intrusiveness and duration, as well as providing for equitable settlement in the event of non-compliance. Note that software agreements frequently refer to other documents, such as "Customer Agreements", "Product License Agreements", or "Product Guides". The enterprise should make sure that the agreement does not allow either the agreement or referenced documents to be changed unilaterally.

Establish Robust Software Asset Management

Having established an agreement that helps the enterprise avoid license infringement and protects from the worst aspects of a software audit, the focus then shifts to ongoing operational compliance and implementing a robust approach to software asset management.

License compliance and tracking should be centralized as a core capability within IT with an assigned executive owner. The compliance team should be involved in any license procurement and included in the enterprise change management process to catch any unanticipated licensing implications. The team should also conduct periodic manual audits to confirm the output of any automated discovery tools and verify enterprise license entitlements.

ITILv3 provides some guidance on SAM, but a more detailed source of better SAM practices is the ISO/IEC 19770-1 stan-

dard, which outlines a process framework designed to satisfy corporate governance requirements. In the event of an audit, adherence to processes based on ISO/IEC 19770-1 demonstrates, at a minimum, that the enterprise has made reasonable efforts to maintain control.

With regard to supporting technology, most enterprises are realizing that Excel and manual data entry is no longer sufficient; 75 percent of enterprises support their SAM processes with tools, such as those provided by the software vendors, as modules within a larger enterprise ITSM toolset or third-party standalone applications.

Engage Actively in All Software Audits

In the almost inevitable case that the enterprise is audited, the worst mistake is to sit back and passively accept the audit terms, process and results. This can result in interminable fishing expeditions that consume internal resources for months, settlement demands based on erroneous assumptions and data, and an unnecessarily costly resolution.

The enterprise must understand the provider's audit rights and reasonably push back against any activities that are not mandated. Audit duration should be defined upfront and if non-compliance is not demonstrated in the available time, then the audit must end. Following audit completion, the enterprise needs to review the auditor's report in detail. Auditors, who may be third parties with limited expertise in complex licensing schemes or infrastructures, may not have correctly applied all license entitlements (particularly if product names have changed over time) or classified development or test servers as production machines. Also they may make incorrect assumptions around virtual server pool allocations and CPU types. These need to be addressed before any settlement amount is raised.

Finally, the enterprise should treat the initial settlement demand as a negotiation starting point. If non-compliance was inadvertent and reasonable, a possible counter-offer might be based on achieving and maintaining future compliance rather than back-dated compensation, retributory list pricing and other punitive costs. If the enterprise can establish a reasonable and fair position and demonstrate its resolve to contest any larger claim, it may force the software provider to consider the value of the "bird in the hand" in meeting reporting or personal bonus deadlines.

For enterprises with a substantial software portfolio, software audits are now practically unavoidable. However, by actively taking steps to structure licensing agreements appropriately, minimizing compliance uncertainty through robust SAM processes, and vigorously engaging with the provider during software audits, the risks and resultant potential costs from these events can be effectively mitigated. IT

Jonathan Shaw, Ph.D, is a principal at Pace Harmon (www.paceharmon.com), an outsourcing advisory services firm providing guidance on complex outsourcing and strategic sourcing transactions, process optimization, and supplier program management.

By Dinesh Ravishanker

Emerging Trends in Cloud Telephony for 2013

Big Data, Big Analytics and a Big Push Toward Best Practices

Cloud telephony – among the most important recent innovations in telecommunications – is poised for a banner year in 2013, thanks in part of the role so-called big data will play in improving the quality and depth of analytics and telecom applications.

Winners in the year ahead will be those organizations that successfully apply the latest tools to extract meaningful information from massive stores of user data, to foster conversion and improved business decision-making.

Having been in the space for the better part of a decade, my picks among the trends to watch follow.

Phone call data mining/analytics
While analytics tools abound for PPC and general conversion purposes, look for movement toward comprehensive telephony solutions that mine big data and help businesses make better decisions.

Applying call attributes will enable useful conversion analytics in cloud telephony. What call time leads to the greatest number of conversions? In what regions of the country? Among which demographic groups?

Given that there are literally billions of call attributes, in 2013 look for the industry to begin to present this kind of data in a meaningful way.

Push notification in SMS
Geo-location – long a mainstay in SMS text message – has proved increasingly important for deals providers like Groupon, Living Social and the like.

Push notification is likely to be the next realm of innovation left in text messaging – assuming people opt in, that the opt-in request is effective and inoffensive, and that privacy is absolutely respected.

Interactive voice broadcast applications
Voice broadcast applications are typically one way, but that may be about to change.

Determining who is actually responding to a voice broadcast message is key, especially when notifying masses of people affected by an emergency. If you have that data and determine what the individual's status is – via text messages as well as the phone – you can take the voice broadcast app to another level. In the floods in Pakistan, SMS users were able to get more info than voice broadcast recipients because they were mobile. Look for voice broadcast applications to begin to close the loop in 2013.

The death of downtime
With the cloud's emphasis on redundant databases and servers, telephony uptime is increasing exponentially, so in 2013, phone service that simply doesn't go down will become the status quo.

Greater reliability means developers won't have the same worries about infrastructure issues and will instead be able to spend more time architecting more elegant solutions. That in turn will mean that businesses can scale up more rapidly than ever before, and support an unprecedented volume of calls.

The death of downtime really signifies the maturity of cloud telephony.

The emergence of best practices
The era of big data and the death of downtime will make it more important than ever that organizations embrace industry best practices in all aspects of cloud telephony.

In 2013, responsible voice broadcasting will be an absolutely essential first step. As innovation opens up a greater ability to target – and provides greater insights into user behavior, in the aggregate – the bar has been raised.

Every cloud telephony provider needs to educate its customers on the right use of its platform, to protect privacy and to ensure that these powerful technologies deliver on their promise – an especially crucial imperative as the FTC looks at robocall abuses.

While the market may reverberate from a merger out of nowhere, a shift in the regulatory winds, or some unanticipated product or technology breakthrough, these five should shape the contours of cloud telephony well into 2014. IT

Dinesh Ravishanker is CEO and co-founder of CallFire (www.callfire.com) in Santa Monica, Calif.

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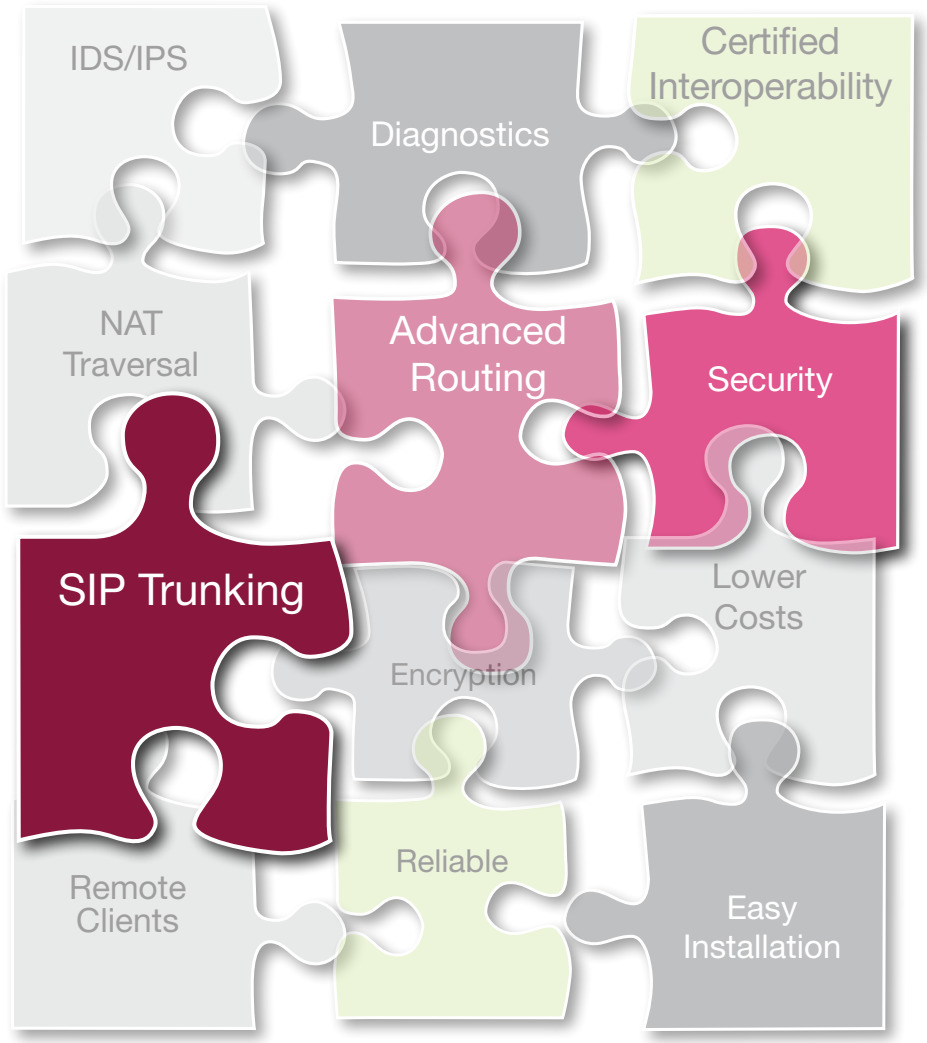

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BRINGING IT ALL TOGETHER

By Paula Bernier

Evolution Platform for Enterprise Lets Content Run Everywhere

UIEvolution Inc. has launched the cloud-based Evolution Platform for Enterprise. The HTML5-based product offers what UIEvolution says is an efficient and economical solution for delivering cross-platform applications across screens – whether those screens are on a mobile phone, a tablet, a TV or within a vehicle. That enables simple, cross-platform experiences for end users, and allows for more affordable and efficient application creation, because software developers can write once and run their apps anywhere with UIEvolution.

UIEvolution is focused on the automotive, hospitality, and media industries. The Evolution Platform is great for hospitality industry, says Cami Zimmer, director of communications, who met with INTERNET TELEPHONY at the recent Mobile World Congress in Barcelona.

Hotels used to make lots of money on room rental movies, she notes, but now people bring in own devices with their own media. But this UIEvolution solution can help hotels recapture some of that lost in-room-media revenue by offering value-added video, meaning people can start a movie in their room and take it with them on their mobile devices if they need to leave before they're finished viewing. Zimmer says the solution also can be used to support digital signage applications in the hospitality and other verticals.

UIEvolution has been around for 13 years, and counts among its customers such major brands as AT&T, Disney Mobile, Hikari-TV, Microsoft, Mitsubishi, Samsung, and Toyota.

"Our customers realize that digital business is moving quickly beyond mobile into connected screens," says Chris Ruff, CEO and President of UIEvolution. "They need a solution to manage complex enterprise applications across multiple screens and platforms that will allow them to innovate, not merely keep up. The Evolution Platform allows them to do that. UIEvolution is more than just a platform company; we partner with our customers to help them develop ambitious plans for development, innovation and collaboration in the digital space." IT

Sony Mobile, Telefónica Get Closer

Telefonica recently noted its support for Sony Mobile's 2013 Xperia Android device portfolio. The two companies also announced a joint technical collaboration to explore the development of a handset running Mozilla's Firefox OS open source mobile platform. Sony Mobile and Telefónica are long-term partners and Sony Mobile has in the past year steadily grown its portfolio of premium Android-based smartphones available on the Telefónica network, including the Xperia T, the Xperia Z smartphone and Xperia Tablet Z. "At Sony Mobile we continue to evaluate innovative technologies that can help deliver the premium user experiences that Sony's consumers expect," says Bob Ishida, deputy CEO and Head of Products Business Group at Sony Mobile Communications. "Our engineers are now working with Firefox OS Mobile and HTML5, evolving technologies which show great potential. In addition, we continue to work with our operator partners, including Telefónica, on a development project with an ambition to bring a product to market in 2014."

Intel Expands Hadoop Efforts

Intel is expanding the availability of the Intel Distribution for Apache Hadoop software to the U.S. market. In a Feb. 26 blog, Ted Willke writes: "the only thing I hear more than people touting Hadoop's promise are people venting frustration in implementing it. Rest assured that Intel is listening. We get that users don't want to make a career out of configuring Hadoop… debugging it… managing it… and trying to figure out why the 'insight' it's supposed to be delivering often looks like meaningless noise." Intel previously announced an open source scalable graph construction library for Hadoop, called Intel Graph Builder for Apache Hadoop software, which aims to make it easy to construct large scale graphs for machine learning and data mining.

Sansay, Plivo Join Forces

Session border controller company Sansay and Plivo, which sells a cloud communications and messaging platform, are partnering to jointly target over-the-top and WebRTC voice markets. "Not only does the Sansay-Plivo partnership simplify go-to-market production environments, it also brings more powerful services to market faster," says Andy Voss, CEO at Sansay. "This partnership gives Sansay operators a real leg up in the marketplace – letting them launch innovative new services more quickly and at more competitive price points than operators using traditional 'big iron' infrastructure." Specific market opportunities in focus for Sansay and Plivo solutions include OTT voice to residential and consumer markets for home phone and cellular replacement; complete replacement of legacy call center infrastructure; pure web-based solutions with no plugins required; and seamless telephony and video for web-centric applications.

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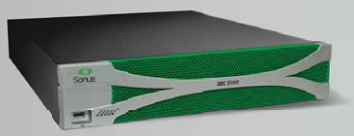
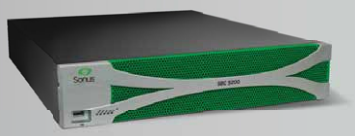
Integration	 Sonus SBC 5100 Up to 10K Sessions	 Sonus SBC 5200 Up to 64K Sessions
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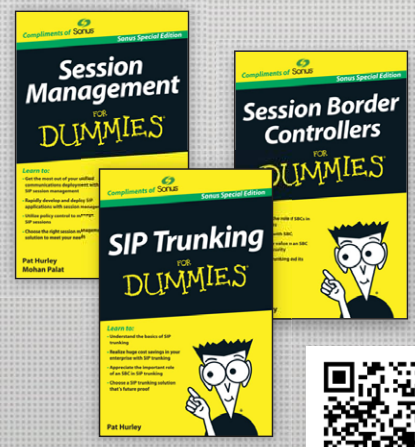

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By Tony Rizzo

Steve Wozniak to Keynote at ITEXPO Las Vegas 2013

At ITEXPO Miami earlier this year, we were graced with insightful words by John Sculley, former CEO at Apple Inc. Today, we look ahead with excitement to the presence of yet another tech and Apple veteran – Steve Wozniak, at ITEXPO Las Vegas set for this August.

Some of us go way back to the early days of personal computing. In fact, we can more or less go back to what is, relatively speaking, day one of the personal computing industry. To qualify, you would've had to actually program an MIT 8-bit computer by actually entering binary numbers through a toggle switch (up for ones down for zeros), then entering the true machine instruction. Yeah, we did that.

Trust us, it sounds tedious but back then this was cutting edge. We did then move on to teletype machines for input and writing BASIC programs.

Steve Wozniak is indeed both a transcendent and historic figure. But today, he's just as active and just as passionate, and just as deeply involved in technology as he was then.

We weren't on board with the original Apple, but when the Apple 2 emerged, we were there! We owned one; we fine-tuned our BASIC on it; and then, eventually, inexplicably, we got rid of it. (We want to blame our better half, but we're not entirely sure we can.)

We should have known it would become historic, but the IBM PC had emerged and well, we moved on. We were among the first to use the original Macintosh in a professional editorial environment back then, but somehow the Macintosh and original Apple 2 were different beasts.

The latter was transcendent and truly historic at the time. Why we let it go, we don't know. We also let the original IBM PC go. Fools that we are!

The Macintosh has always been Steve Jobs' baby to us, but the Apple 2 has always been Steve Wozniak's baby. So for us, Steve Wozniak is indeed both a transcendent and historic figure. But today, he's just as active and just as passionate, and just as deeply involved in technology as he was then – though these days advanced robotics are more to his liking.

We're anticipating something historic and transcendent here as well.

We did actually meet Woz once – back in 1988. At the time, we were busy starting up Microsoft Systems Journal, and we crossed paths at a technology event. Looking to shake hands and say hello to a transcendent genius and hero, he looked at our name tag and literally demanded to know why we were wasting our time at Microsoft. Well, we sort of sidestepped the question and didn't mention that we'd gotten rid of our Apple 2.

Today, 25 years later, we're beyond excited to note that Woz will be joining us at our upcoming 2013 ITEXPO event in Las Vegas in late August, where he will be delivering the key keynote of the event.

We're just starting to get our heads around the enormous opportunity this represents, not only for ourselves, but for the entire ITEXPO community of attendees to connect with him directly.

Our just concluded 2013 ITEXPO Miami event was extremely successful – our biggest show to date – and attendees were thrilled to catch our keynote with John Sculley. Now we're moving the goal posts yet again, so to speak, bringing Steve Wozniak to the stage to share his fantastic knowledge of all things computing – historical in some respects, futuristic in some respects, and at all times completely transcendent.

Twenty-five years after our first true encounter, we know what we want Steve to talk about. Everyone at TMC has questions. But ITEXPO isn't about us – it is about you. When we gather in Las Vegas in August, Steve will be there to, first and foremost, speak among our attendees.

Along those lines, let us know what it is you would most like to hear about. What key questions do you have? Send them our way (to trizzo@tmcnet.com), and we will let Steve know.

We look forward to seeing all of you in Las Vegas – and we look forward to connecting, or reconnecting as the case may be, with Woz in person. Be there!

Tony Rizzo is senior editor of TechZone360, a content community within TMCnet, the online entity of INTERNET TELEPHONY parent company TMC. He is filling in for TMC Group Editor Erik Linask, who typically writes the

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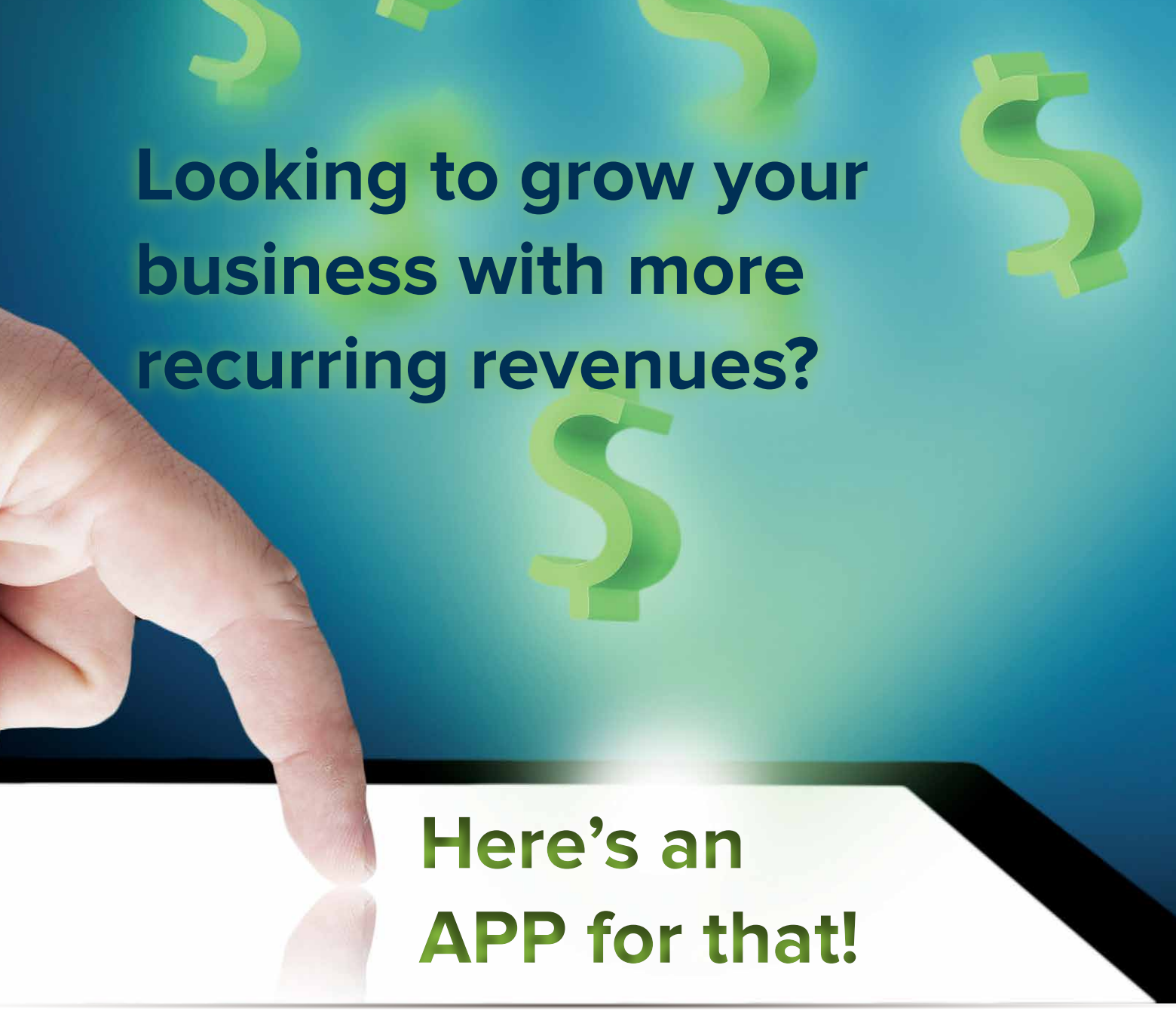

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