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Editor's Notes

Broadband Stimulus & USF Reform

by Paula Bernier

I did a whole lotta interviews and session coverage at the recent ITEXPO. And I can honestly say that I took something away from each and every meeting, speech and panel. But one of the more fun interactions I had was with Rick Peppers, president of engineering firm Telplexus.

Peppers talked with me candidly about the experiences of his firm and its clients relative to the broadband stimulus.

It's no secret that living through the broadband stimulus has been a rocky ride for many service providers, and helping telcos as they work to build networks based on those funds continues to be an interesting experience, says Peppers.

While the Murfreesboro, Tenn.-based outside plant design firm helps to smooth the broadband stimulus terrain for its independent telco clients (four of which are broadband stimulus award winners), Peppers explains that some entirely new concerns have cropped up along the way for broadband stimulus fund awardees and their partners.

For example, the broadband stimulus money comes with Davis-Bacon wage requirements. That means that contractors have to pay union scale. However, prevailing wages for jobs like fiber optic splicers are not defined, says Peppers. That means service providers and their contractors are required to define wages for such workers, he says, but that can be a tough proposition, particularly given the fact that once those wage levels are defined the involved companies have to stick with them over the course of the job.

Another tricky aspect of the broadband stimulus process has been the NTIA's environmental assessments, says Peppers, who says the ones by RUS are less intrusive. With the NTIA, he explains, broadband stimulus award winners and their partners have to determine the carbon emissions of vehicles used on the network construction site. The tricky part is that these estimates have to be submitted to the NTIA prior to any construction, so the construction folks that will be using the bulldozers, diesel trucks and other vehicles aren't even at the table yet. The NTIA offers some guidelines to arrive at the estimates, but arriving at the actual numbers can be time consuming, Peppers says.

I also asked Peppers about whether he thinks President Obama, who during the State of the Union address talked about the government investing in IT, might be considering an additional broadband stimulus program. Peppers didn't comment on that, but he did say that rather allocating more funds for broadband network builds, the government should focus on spelling out its plans around the Universal Service Fund. Uncertainty around the USF and related issues, he adds, is in some cases causing service providers to hold back on new network investments. And, as TMC has reported in the past, the broadband stimulus program itself led some service providers to delay network investments.

Looks like Peppers' wish may just be granted, as the FCC last month issued a Notice of Proposed Rulemaking on USF reform.

The reform is clearly aimed at moving the nation more fully into the broadband era, in which voice is just another application, and away from the legacy, circuit-switched network and the existing regulation that continues to prop it up. In fact, I'm told that AT&T and Verizon are pushing for the end of POTS completely.

Unplugging POTS would be a good thing for a big carrier like AT&T, which continues to support costly legacy systems while its cableco competitors have newer, potentially more feature-rich and cheaper to maintain VoIP networks. Of course, USF reform and abandoning legacy networks is a scary notion for many telcos in rural areas that get significant funding via the USF.

But wherever you stand on all that, it's clear that the existing USF regulatory structure has a lot of problems, including – as the FCC notes – inequity of funding between rural areas and service providers; rules that reward companies for losing customers; and others that have produced a rural-rural divide. **NGN**

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Expanding Reach and Relationships

by Rich Tehrani

Over the past decade, hundreds of companies have benefitted from TMC's Community program, attracting a laser-targeted group of potential customers who are looking to learn about a specific topic area. TMC populates these communities with thousands of articles per quarter – which in turn attracts millions of interested viewers a year to our sponsors.

Sponsors can then offer these viewers more information about themselves – offer them coupons, a chance to visit them at a trade show or road show, or whatever else they are looking to communicate to this group.

The most common question I am asked lately is how to build online communities. Moreover, companies in many new industries ask constantly about how TMC can help build these content-generated microsites for them.

As a result of these requests, we are now making these online communities available in multiple industries, and we have a new free webinar you can attend titled "Building Communities Online: Reduce Marketing Spend While Boosting Sales, Search and Social Initiatives". You can attend on March 30 from 2 p.m. to 3 p.m. EST.

I think you'll find this webinar quite valuable, as it will cover how to improve your marketing ROI by integrating results currently driven by search ads, SEO, social media and thought leadership into one integrated campaign. The webinar will also cover:

- how the concept of targeted marketing has evolved;
- how to build a news-generated, search optimized community online;
- how your online community is more cost-effective, and powerful, than search click ad campaigns;
- the common reasons why some online communities fail; and
- why it is essential to partner with a respected editorial team when building your community.

On an altogether different note, last month at ITEXPO the rumor on the street was that PAETEC may be doing a deal in India soon since Chairman and CEO Arunas Chesonis was in the country. Well it seems if this is the case it comes on the heels of another purchase – XETA Technologies, which was just picked up by the company.

PAETEC sees strong synergy here as XETA is a large reseller of Avaya, HP, Juniper, LifeSize and Mitel gear, with a strong focus on the health care, financial and retail markets.

For XETA, the move makes sense, as its long-term chart looks like the Manhattan skyline just after the Empire State Building was built – basically, a massive valuation around the Y2K/dotcom time frame when most companies were installing new gear. Other than that, it has been mostly in the $2 to $3 range for the last five years or so. As of this writing, the stock is up $1.58, or 41 percent to $5.42.

So for XETA an exit makes good sense and for PAETEC, it gets a chance to add to its cloud services as XETA offers managed solutions in security, training, telephony management, end user support and more.

Still at a P/E of 41, the valuation of a company making most of its living rolling trucks seems high. But then again a pure-play cloud company like Salesforce.com trades at a sky-high 244 times.

For PAETEC, this purchase is about expanding its reach and relationships as well as the managed services aspects of the deal. Moreover, the company has a large new channel that will carry the Allworx product line. Chesonis says that this move is partially motivated by the vertical markets XETA focuses on: hospitality, education, health care and government. But this is enough verticals to make the company a horizontal reseller. Sure, manufacturing is left out, but what sane businessperson is focusing here if he or she doesn't have to?

This move is smart for both companies, and so far PAETEC's stock is up 3 cents to $4.15, which means the street probably likes the news, or they don't think it is big enough to make a big difference. **NGN**

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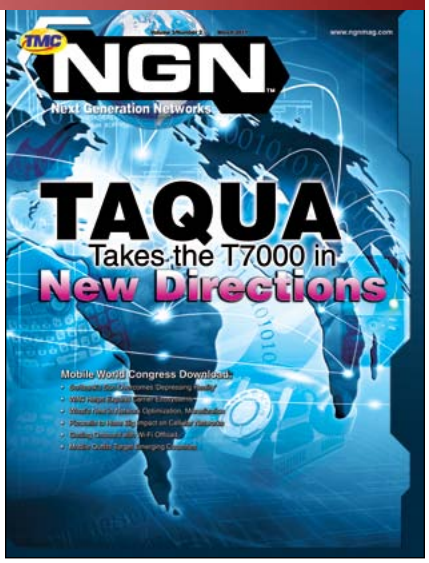

In Every Issue

Columns

Feature Articles

http://tmcnet.com/58626.1

NGT Acquired by Comcast

Comcast is buying NGT in an effort to capture more of the SMB and enterprise business market. When reached by TMCnet, the website affiliated with NGN Magazine, Comcast provided this statement: "NGT is an innovative company that has expertise in developing, deploying, and managing voice and unified communications services that we plan to make available to our business services customers. Doing so will not only enhance the services we offer today, but will also enable us to deliver them more quickly and cost effectively." NGT claims it is the largest provider of wholesale hosted and trunk-based business class VoIP solutions in the United States. The company offers telephony features, phone service, unified communications, audio and web conferencing, desktop fax services and E911 service.

www.comcast.com

http://tmcnet.com/58627.1

Bresnan Contributes to Cablevision Gains

Cablevision Systems Corp. has reported that its fourth quarter net income rose by 45 percent, due in part to its purchase of Bresnan Communications, as well as organic growth in its phone and Internet customer base. The company, which is the U.S.'s fifth-largest cable TV provider, reportedly added a net 271,000 basic cable subscribers during the quarter to bring the total to about 3.3 million. It's important to note, however, that with the Bresnan acquisition taken out of the mix, Cablevision would have actually lost 35,000 basic cable customers. By acquiring Bresnan, the company added customers in Montana, Wyoming, Colorado and Utah to its existing New York-area customer pool.

www.cablevision.com

http://tmcnet.com/58628.1

ARRIS Launches Whole Home Solution

The Whole Home Solution Media Gateway from Arris will be offered by MSO BendBroadband. BendBroadband is a family-owned company serving Central Oregon since 1955. The ARRIS Whole Home solution is comprised of the ARRIS Media Gateway, a converged multiservices platform that provides multimedia entertainment to the entire home, and ARRIS Media Players connected to each television. It enables multimedia entertainment services such as broadcast and narrowcast video, video on demand, DOCSIS 3.0 high-speed data and two lines of carrier-grade voice over IP, as well as Internet over-the-top and media sharing of user-generated content.

www.arrisi.com

http://tmcnet.com/58629.1

European Cablecos Losing Subs

An increasing number of households in Europe are dumping cable television for more sophisticated Internet TV, or IPTV, where content is available directly through web browsers. This trend has left the European cable operators largely insecure, but they are focused on keeping their customers. "With companies like Apple, Google and Amazon entering our markets, the stakes are rising and we need to step up to the challenge. The TV market is ours to lose," says Adrian von Hammerstein, CEO of Germany's largest cable operator, Kabel Deutschland Holding AG, while delivering a speech at the Cable Congress in Lucerne, Switzerland. According to industry estimates, Europe's cable operators' TV revenue rose more than 10 percent in 2010 and is projected to grow to 13.2 billion euros in 2014. However, TVs with cable feeds saw a drop of 0.4 percent last year, and this number is projected to drop another 0.5 percent by the year 2014.

http://tmcnet.com/58630.1

Orange County Gets Juiced by Cox

Cox Communications has completed a fuel cell project in Orange County, Calif., through a partnership with UTC Power, a United Technologies Corp. company. The Orange County installation follows two more fuel cell projects that were announced in January at Cox's San Diego location. The three installations together produce enough clean energy to power 1,200 average-sized homes and generate a total of 1.6 megaWatts.

www.cox.com

http://tmcnet.com/58631.1

TWC 911 Upgrade Goes Awry

When Time Warner Cable upgraded its 911 services system recently, a lot of important information reportedly fell through the cracks. In some cases across various counties, 911 calls were being routed to a call center in Colorado before being rerouted to local dispatchers, wasting valuable time. Occasionally, the emergency information about a caller's location, which is normally available on a dispatcher's screen, was incomplete or incorrect. The company has now launched several system enhancements and improvements to make sure 911 calls are routed correctly.

www.timewarnercable.com

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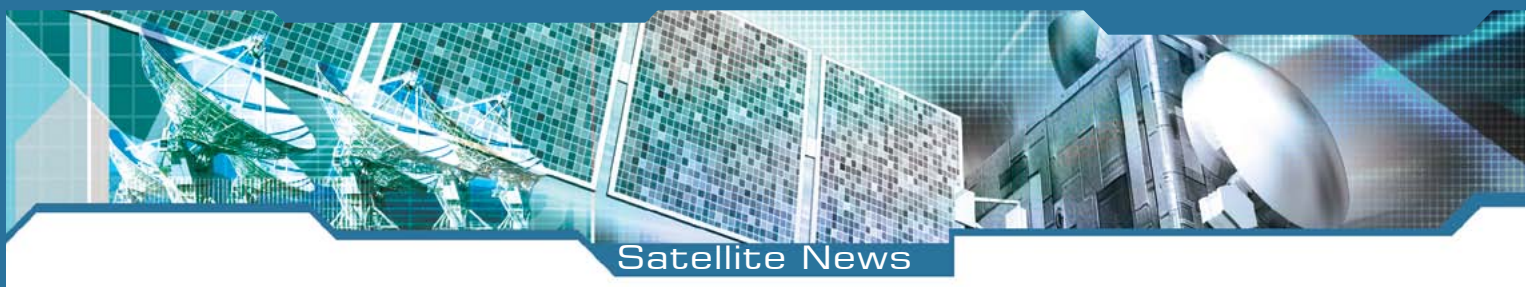

http://tmcnet.com/58633.1

TeleNav Unveils New Navigator

TeleNav has announced the launch of TeleNav GPS Navigator version 6.2 for select Android devices. This latest version offers a faster and more reliable way to navigate, search, and view maps on a mobile device. It offers multiple route suggestions. Users are presented with up to three route suggestions overlaid on a map with route distance and estimated drive times once a destination is entered.

http://telenavtrack.com

http://tmcnet.com/58632.1

Intelsat Galaxy 15 Recovers

Intelsat held a press conference via webcast recently to recap what it called an "unprecedented event" around its Galaxy 15 satellite trouble along with "unprecedented cooperation" among satellite operators to make sure the satellite's wayward drift across geostationary slots over North America didn't affect anyone. It also revealed what it believed to be the root cause of Galaxy's trouble and the steps it has taken to mitigate potential problems in other satellites of the same type. On April 5, Galaxy 15 suffered an "anomaly" in its telemetry and control system, making it no longer able to respond to commands, transmit on-board telemetry, or perform station-keeping maneuvers. However, in one of those good news/bad-news cases, the satellite otherwise operated normally, with its C-band and WAAS L-band payloads operating "nominally," and all other housekeeping functions to keep the satellite running working.

www.intelsat.com

http://tmcnet.com/58635.1

Baker Gets MAPPS Grand Award

Michael Baker Jr. Inc., an engineering unit of Michael Baker Corp., has been named a grand award winner by the Management Association for Private Photogrammetric Surveyors (MAPPS) in its 4th Annual Geospatial Products and Services Excellence Awards competition. Michael Baker Corp. provides architecture, engineering and construction services. It received the award for its performance on the U.S. Bureau of Census - Accurate Coordinate Datasets Collection project. Baker's Aaron Morris, project manager, says that the ACDC project represents the single largest gathering of survey-quality control point data using GPS in the bureau's history and that the project provided an opportunity for Baker to showcase its signature geospatial capabilities and technical expertise.

www.mbakercorp.com

http://tmcnet.com/58636.1

Mayflower Issued Patent for Antijam Filter System

Mayflower Communications Co. Inc. has been issued a patent for a technology that can estimate the interference signals that are received along with the desired user signals in communication systems that employ multiple receiver antennas. The technology can also filter the measured interferences so that the clean filtered signals are subsequently processed for data extraction by employing widely available wireless communication technologies, including MIMO. The antijam filter is especially effective in cases where the number of receiver antennas is more than those present at the transmitter. According to company sources, the patented antijam filter provides modularity, so it can augment MIMI and other similar two-way wireless communication systems, including OFDM, CDMA, and others.

www.mayflowercom.com

http://tmcnet.com/58634.1

TomTom Releases Two New Remote Control Devices

Helping fleet managers save administrative costs and improve efficiency, satellite navigation provider TomTom released two new remote control devices for TomTom LINK. Facilitating fleets to better manage their mobile workers and vehicles, the new Remote LINK Working Time and Remote LINK Logbook products are deployed as part of customizable TomTom WORKsmart fleet management systems. Michael Geffroy, vice president of TomTom Business Solutions, says: "By adding Remote LINK devices to their WORKsmart fleet management systems, managers can gather valuable data about their employees' working hours and mileage, which they can use to boost productivity, increase efficiency and save money."

www.tomtom.com

http://tmcnet.com/58637.1

Glory Earth to Ride Taurus XL Rocket

Orbital Sciences Corp., a space technology company, revealed that the Glory satellite has arrived at Vandenberg Air Force Base in California to be integrated with the company's Taurus XL rocket that was to launch the satellite into low-earth orbit last month. The Glory satellite is the latest in an extensive series of Earth science satellites that were designed, developed and built by Orbital and tested for NASA. The Glory satellite, which was tested at the Dulles satellite production facility, is based on Orbital's LeoStar small satellite bus that has served as the baseline platform for several previous successful NASA science spacecraft programs, including missions like GALEX, SORCE and AIM.

www.orbital.com

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http://tmcnet.com/58640.1

Microsoft, Nokia Announce Blockbuster Partnership

Two of the leading names in high tech have come together to claim their space in the mobile ecosystem. Microsoft and Nokia, which both have failed to take the lead in the new world of smartphones and mobile app stores, are pairing their significant resources and brands in an effort to change all that. The relationship, which involves the two companies working together to create mobile products and services, has Nokia adopting Windows Phone as its principal smartphone strategy. Also, Nokia will help Microsoft expand the Windows Phone to more geographies, market segments and price points as part of the relationship; Nokia Maps, its search services and devices will be integrated with Bing and Microsoft adCenter; and the companies will combine their app stores.

www.microsoft.com
www.nokia.com

http://tmcnet.com/58641.1

Verizon Wireless and Partners Demo Voice over LTE

In February, Verizon Wireless placed the first voice over LTE call over its commercial network. Verizon CTO Tony Melone revealed that technologists at the company placed a live, IMS-based voice over LTE call over the carrier's Basking Ridge, N.J., commercial network using a LG Revolution 4G smartphone. Melone was quoted as saying: "The promise of VoLTE is gaining traction. This isn't about just making phone calls, but about creating high quality all-IP wireless that enables rich communications services such as video chat. This is yet another proof point that the LTE ecosystem is alive, healthy and thriving. VoLTE will quickly become the global standard for delivering voice over LTE networks."

www.verizonwireless.com

http://tmcnet.com/58642.1

Napatech Helps Rev Up Performance

If you're a software outfit seeking to make your solution run faster, or a company with a network element wanting to move to a standard server-based platform, Napatech may have just what you're looking for, says Erik Norup, chief marketing officer. The company offers intelligent network adapters and related software that can be used to create turnkey solutions – such as network monitoring, network security and traffic generation appliances – that operate at gigabit rates and work on affordable, off-the-shelf servers. Improved performance is enabled by the solution because it combines and analyzes upstream and downstream communications, and does traffic balancing among CPUs, before handing the data to the CPU core. The organization recently introduced the Napatech Software Suite, which provides hardware abstraction (allowing multiple adapters of different types to be combined on a plug-and-play basis) and a streamlined API. With this solution, turnkey solution providers can mix 1G and 10G ports as needed.

www.napatech.com

http://tmcnet.com/58643.1

Syniverse Intros Mobile Video Broadcast

Korea Telecom, the country's largest landline telco and second-largest mobile operator, is the first commercial user of the Syniverse Mobile Video Broadcast Service. Syniverse delivers the service on a white-label basis to wireless network operators, doing all the behind-the-scenes work required to ensure end users get good quality broadcast video over whatever broadband connections they have available to whatever devices they happen to be using. The solution does not require end users to download any software to enjoy that experience. The Syniverse service does the necessary transcoding to ensure all the equipment involved works together, adjusts video compression based on the available 3G or 4G bandwidth, and formats the video for the specific endpoints involved.

www.syniverse.com

http://tmcnet.com/58644.1

Chip Giant Talks Wireless

Intel Corp. unleashed a flurry of news last month at Mobile World Congress in Barcelona. That included the fact that the company's new 32nm Medfield phone chip and accelerated LTE solution are now sampling, the introduction of the MeeGo tablet user experience, the acquisition of imaging company Silicon Hive, new RF radio technology that makes what used to take three chips available on a single chip, and the announcement that its low-power Atom technology will be used in Android Gingerbread and Honeycomb devices later this year. Anand Chandrasekher, senior vice president and general manager of Intel Ultra Mobility Group, says the Medfield phone chip is the fastest processor of this sort on the market with the longest use time. It also has super-fast computing time to support applications such as gaming, he said. And leveraging the Silicon Hive acquisition that Intel announced last month, Chandrasekher said it will enable a phone to take a picture even in the dark.

www.intel.com

http://tmcnet.com/58645.1

Hutchison 3G Austria Swaps Out Entire UMTS Network

Rip and replace is not a commonly used phrase these days, but that's exactly what they're doing over at Hutchison 3G Austria. The company plans to replace completely its existing UMTS network – including the transmission, radio and core network gear – with new infrastructure from ZTE. Jan Trionow, CEO of Hutchison 3G Austria, explains that the move will help the wireless service provider better respond to growing mobile data needs while keeping its operating costs relatively (compared to UMTS, anyway) low. He declined to quantify the expected operational cost savings.

www.zte.com.cn

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www.imsforum.org

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These and other topics are scheduled for our Plugfest 9 interoperability test event in Q4 of 2010.

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WWW.NGNFORUM.ORG

by Grant Lenahan

CSP Roles in the Application Revenue Stream

Service delivery platforms: We all vaguely understand that we need one (or know we do). Yet whenever I ask five people for their definition of an SDP, or whenever I ask a similar sized group to describe the business drivers behind SDPs, I get five different answers. I think this reflects very different perspectives on communication service providers' places in the industry. I think it can help us all make better business, technology and investment decisions if we really think through where CSPs fit in the emerging value chain.

Voice and data plans will remain significant – and hopefully stable – sources of revenues. But that business is at best mature. Consequently, I will focus on what roles CSPs can and will play in the growing revenue streams for all of the information and content-rich services that will flow over IP networks.

In these new areas – content, entertainment, sports, news, social networking, and commerce –third parties own much of the business. Most apps are delivered by third parties and most content – from movies to music to financial information – is at least created and owned by third parties. So the question is: What role will CSPs play in delivering those services and that content?

In subsequent columns through the year I'll look at specific issues around making money from these new services – from adding value to content, to implementing yield management in terms of data plans – hopefully making all parties happy (and CSPs profitable).

I believe that no single model will dominate. The key to CSPs' success is for them to participate in multiple models – generating revenues from as many consumer and B2B truncations as possible. Let's look at the primary business models.

First, there is the managed service, offered by the CSP. Digital cable TV and IPTV solutions, and their derivatives, are the most well established examples of this model. In this case, CSPs are the content aggregator/distributors, and also manage the service from catalog through delivery, billing and customer support. This is a traditional and comfortable model for CSPs, but one that cannot dominate forever. Yet I predict that this is the surest route to near term revenues, and CSPs should do all they can to make these services as attractive as possible in the competitive environment that is unfolding.

Already, web based on-demand content solutions are capturing the interest of younger people, who have grown up in the on-demand world of web videos. This creates an alternative model in which services like Hulu, BBCiPlayer, Amazon, Netflix, Fancast and myriad others deliver premium content directly to consumers. While movies and TV come immediately to mind, a similar play exists in online gaming, and online applications such as hosted Microsoft Office – branded Office365.

This second model is clearly led by third parties. It distinguishes itself via global reach (rather than particular to your local CSP), and on-demand delivery – to you and just you, on your schedule. This is a seismic shift, from broadcast to narrowcast to unicast. In many ways it is inevitable, since it is the ultimate continuation of personalization. And it offers the advertisers' Holy Grail – individual targeting and delivery of personalized and maybe interactive ads. Nirvana! The question for CSPs is: What role can they play to make this model better and generate their own revenues? Bandwidth management, direct-to-bill charging, parental controls, QoS, and ad delivery all come to mind, and there are aspects that can be done only by CSPs or be done better by CSPs. But that's a column for another day.

The key to success is being sufficiently fluid to thrive in the flow.

The world of apps (mostly downloaded and used locally, but many client-server) offers a similar, yet distinct model. One reason is the sheer number of apps – hundreds of thousands of them, often created by small developers. The small size of these developers, combined with the fact that even some of the larger ones are far outside telecom, means that they could be eager users of in-app tools if provided. Apps may require low latency (e.g. games, etc.) or authentication of the user (e.g., financial). Maybe they have in-app (e.g. advertisements) that could use improved relevance courtesy of a private, CSP-resident profile. Or maybe app developers simply want an easy way to change micro, in-app charges in real time, with little or no overhead. This is the kind of reliable, secure, high-transaction-rate, personalized stuff that the telecom industry does so well.

The industry will slowly have to either transport the bits or become part of a large ecosystem in the cloud, where some firms own content, some write apps, some provide ads, others perform charging, etc. Just like today's web, which is constantly evolving, the business models will be fluid. The key to success is being sufficiently fluid (not a telco trait, you'll agree) to thrive in the flow.

And that will underlie many of my upcoming columns this year. **NGN**

Grant F. Lenahan is vice president and strategist for service delivery solutions at Telcordia Technologies (www.telcordia.com).

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by Joel Brand

Sorting It All Out

The Cloud, the Network, and the Smart Home

For many, cloud networking is abstract, associated with hosted consumer content such as Gmail and hosted enterprise applications such as Salesforce.com, not with the communications infrastructure. However, this over simplification misses its essence.

Let's start with an example – many people have washing machines, but not everyone uses them at the same time; at any given time many are idle. If we and our neighbors could magically transfer our laundry to and from a Laundromat somewhere else, we would have a much more efficient laundry system. This is unlikely to happen, since moving laundry around is complex and expensive.

Unlike laundry, however, some things can easily be moved around at almost the speed of light. The cloud concept strongly applies to digital media. Books are being replaced by e-readers. Trips to the video store are being replaced by streaming video. Given the richness, complexity, variety, and volume of this digital content, service providers and operators attempting to deliver on the promise of smarter homes for any-device-any-content-any-time, must focus on maximizing the utilization of their resources.

Distributed resources can efficiently perform processing tasks that otherwise would require provisioning each endpoint for peak utilization. The network has to find where resources (washing machines) are available, decide how best to distribute the content requiring remote processing (find available washing machine), and if necessary, figure out how to bring the processed content back to where it's needed (ensure that clothes return to their owners). These functions essentially define cloud networking.

In practice it gets more complicated, since some resources may be unavailable (washer is being repaired) or assigned to other tasks. There may be constraints on the mapping between processing elements and the content (not all washers can handle a large duvet cover), and contents (laundry) may have different priorities (I'm running out of shirts!) or need to be processed in a certain order.

Cloud networking has added significant value to providers of consumer services. Google and Amazon, for example, have implemented clouds. But what about operators of broadband wireless, DSL, or cable networks? They also serve consumers, but they are typically conduits to Internet content, not the application providers. Could cloud networking benefit them too? The answer is yes.

Many services network operators offer are transparent to the end user. Counting the packets sent to and received from each user requires a network-aware device. Limiting the rate of peer-to-peer and video traffic requires an application-aware device. Filtering inappropriate content requires a destination-aware device. To apply such session-aware services in the path of traffic, operators have implemented a complex hierarchical network that includes feature-rich access routers (BRAS, CMTS, GGSN, PDN-GW, etc.), deep packet inspection systems, and application-level proxies such as cache servers.

Instead of leveraging resilient, self-healing routing algorithms to route packets across their networks, operators implemented static routes. This ensures that packets associated with a specific session always flow through the same set of systems, which in turn ensures consistency of services. Reliability comes almost for free with standard TCP/IP routing schemes, but operators doubled and tripled their infrastructure to ensure redundancy in case of failure in the data path.

Unlike standard routing protocols, static routes are more difficult to switch over in case of failure. Operators thus introduced VRRP protocol to switch over IP packets, STCP protocol for session control at the TCP level and, application-aware load balancers to switch over traffic between application servers. They also leveraged service records in DNS to facilitate geographical distribution for further redundancy. The result is a complex, unmanageable nightmare. With video traffic exploding, bandwidth consumption increasing, competition mounting, and consumer expectations skyrocketing, the problem is getting worse by the second.

Cloud networking introduces a revolutionary paradigm. Don't think of physical servers as performing tasks, think of tasks as virtual resources. Some sessions need access to these resources, others do not. The network needs to be smart enough to recognize available resources, automatically adapt to changing conditions, and route each session through the required resources. This is exactly the definition of cloud networking. Whether the operator offers an end user application or an intermediate in-line service, the cloud networking paradigm, implemented using grid computing and grid networking technologies, is the correct way to build a scalable, feature-rich, flexible, and robust network to serve large number of exceedingly capable devices such as smart mobile phones and multimedia devices in the smart home. Their networks are so enormously complex that if operators do not implement cloud networks soon, they will be left in a cloud of dust, far behind the successful cloud-based Internet application providers. **NGN**

Joel Brand is vice president of marketing for ConteXtream (www.contextream.com).

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by Ken Osowski

Mobile Payments – Coming to a Phone Near You?

There has been considerable media coverage of the mobile payments market recently from U.S. media outlets. Smartphones are said to be poised to replace your wallet, and all the cards in it, by performing financial transactions of all types even at point of sale using new short-range wireless technologies such as near-field communication. Here is another case of the North American market lagging the rest of the world, with the news coverage positioning mobile payments in general as a new technology.

But the rest of the world has long ago embraced prepaid mobile calling plans where technology is needed to perform financial transactions on the phone related to prepaid mobile services such as mobile top-up. And with the early usage of mobile payments in the rest of the world, mobile payment technology has matured on 2.5G mobile handsets with limited user interfaces. This has created a fertile landscape already for mobile payment usage in many regional markets with large mobile networks outside of North America.

So before the near-field communication hype using smartphones is realized, how have various parts of the world been able to support mobile payments? For browser-equipped phones, WAP, HTML and XML have seen increased usage. For 2.5G feature phones with a limited integrated browser, the USSD (unstructured supplementary services data) protocol is often used for mobile payment applications. USSD is a message-oriented protocol like SMS, but it is also a session-oriented protocol that can connect mobile phones in real time to data sources that support mobile payment applications. It is highly suited for building the interactive part of the application on the phone, such as menus that enable authentication and function selection as well as for the retrieval and update of information in the mobile payments network.

Mobile payments will become a paradigm shift in the way businesses and consumers interact with each other.

However, SMS is still the most widely used mobile payments technology. SMS mobile payment messages can contain short codes or support other means of validation to enable financial transactions. It can also be used, for example, to alert consumers of low account balances, transactions taking place, or communications with the financial institutions. According to Research and Markets, SMS accounted for 76.4 percent of mobile transactions in 2009 with only a slight decline in usage to 58.7 percent forecasted for 2014.

Even though the smartphone phone push for mobile payments is on, SMS represents a highly scalable and profitable way for mobile operators to implement mobile payments in their networks today. Smartphones will still require the building of specific phone environments for mobile handset applications, slowing down the adoption of smartphones for mobile payment services. Also, since near-field communication is an open industry standard, vendors can still find ways to implement the standards to their advantage to differentiate their products, creating possible market fragmentation that slows down widespread usage of near-field communication-enabled smartphones.

The mobile payment opportunity will also evolve to support a value chain of application developers in various vertical markets that use SMS, USSD and other mobile payments technology. Banking, financial services, retail, gaming, and other vertical markets will begin to rely on mobile payments to enhance their revenues. This will become the basis for mobile cloud services to emerge. The value chain in this environment will include the mobile network operators, businesses, application developers and the consumers all tied together. To get to this point, service providers will emerge to give access to mobile payment resources such as USSD and SMS that can be readily accessed by application developers.

Today this value chain is not here, but as in the case of USSD and SMS protocols, APIs are emerging based on the HTTP/RESTful web services model that simplify development of mobile payment applications. To currently build USSD and SMS mobile payment applications, developers either have to use a third-party mobile payments platform or be aware of mobile network protocols such as SS7 to develop these applications. By using a RESTful API, application developers do not need to understand complex SS7 protocol interactions, opening up the value chain for development of mobile payment applications by web developers already serving vertical business markets.

So don't throw away your wallet quite yet. There is no doubt, though, that mobile payments will become a paradigm shift in the way businesses and consumers interact with each other – just as fundamental as how mobile phones have impacted our lives. And, of course, plan on getting a new smartphone this year. NGN

Ken Osowski is director of service provider product marketing at Dialogic (www.dialogic.com).


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by Brough Turner

4G – An Independent Assessment

Everyone is hyping 4G, but what's really happening?

Originally, the ITU defined 4G as a network delivering 100mbps to mobile users and 1gbps to fixed users. This means significant new technology compared with 3G. As these 4G technologies were developed, anything using 4G technology came to be called 4G, regardless of its current performance; thus, today's WiMAX and LTE are called 4G. Recently, AT&T's marketing department went even further, calling its advanced 3G technology a 4G service. It's not clear that one will stick.

The next point about 4G is it's all IP. That means traditional voice services don't work. New specs for voice over LTE are in development, but widespread deployment is at least three to five years off. Until then, a 4G handset isn't really a 4G telephone. It will fall back to 3G to make voice calls or send an SMS.

The big issue is data performance. Verizon won Block C in the 700mHz auctions giving it 22mHz of nationwide bandwidth (746-757 and 776-787mHz). In LTE terms, this is 10+10mHz of spectrum. With 10mHz of spectrum for downstream (to the mobile device), today's LTE gear can reach a theoretical peak bandwidth in one sector of 59mbps. However, this would be to a single ideal device located very near the cell site. The real world is much more complex. For a reasonable distribution of customers, the average capacity per sector, shared among those customers, is likely to be 16 to 18mbps.

Typically, an individual's demand for data is highly intermittent. Thus, one Verizon LTE sector easily can support 40 to 50 people browsing and doing e-mail, with each person getting Verizon's advertised 5 to 12mbps of apparent performance. Of course, if too many people start streaming Netflix movies to their handsets, performance will collapse.

As a platform for streaming video, 4G will approach the performance of home DSL service, if there are only five to eight Netflix users per sector. Indeed, when Netflix published actual sustained streaming data rate averages for 16 different national ISPs, the only 4G service with a statistically significant number of subscribers (Clearwire) came in just below the poorest DSL provider. Verizon's LTE gear is a couple of years more recent than Clearwire's WiMAX gear, so Verizon has a chance of being competitive with consumer DSL, but no more.

In summary, emerging 4G services provide a significant performance increment while 4G infrastructure costs significantly less than 3G for equivalent capacity, so 4G deployments are a no brainer. But 4G can't approach the capacity of fixed Internet access networks. It's only lame competition for the duopoly. So let's look forward to widespread 4G mobile services, but go easy on the hype. **NGN**

Brough Turner is founder and CTO at netBlazr Inc. (www.netBlazr.com).

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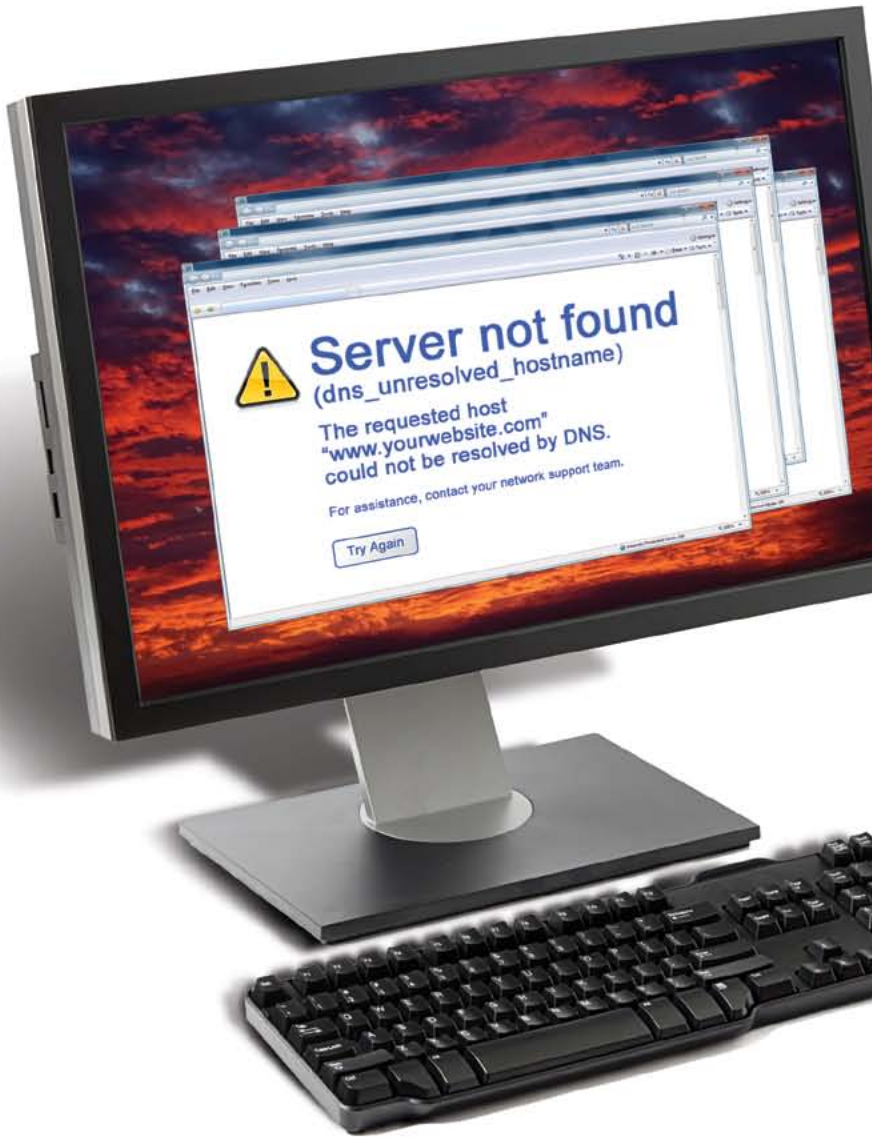

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by Paula Bernier

Mobile Backhaul, Next-Gen Switching

Taqua Takes the T7000 in New Directions

Taqua built its name selling Class 5 replacement solutions to tier 2 and 3 service providers. It still does that today, but now the company is taking the T7000 Intelligent Switching System in new directions. The company is leveraging its popular solution to address converged switching and wireless backhaul – and it's going up market in the process.

Frederick Reynolds, vice president of marketing, said the T7000 is unique in the flexibility it delivers. The product, which is based on a switch-on-a-card architecture, achieved popularity as a TDM-based CLEC/RLEC Class switch replacement. Taqua then added IP to the product. And now it's bringing mobility and other new features into the mix.

As Payam Maveddat, executive vice president of product management, noted, Taqua is all about migrating legacy infrastructure to IP. As a result the company is keenly focused on VoIP, video over IP and other session-related applications, as well as wireless applications, including fixed/mobile convergence and mobile backhaul.

Convergence Switching

TDM to IP migrations continue to accelerate, he added, and one element of that acceleration has to do with IP peering. Taqua recently won a big contract to deliver its next-generation convergence switching solution to a very large peering company, Maveddat said.

The convergence switching solution was created by adding a new card and some new software to the T7000. This product – which can sit at interconnection points between enterprise and service provider networks, or between different service provider networks – is noteworthy due to its very high-capacity switching, resiliency, and wide range of transcoding capabilities, explained Maveddat.

Initially, the product (which is available now and carrying commercial traffic) is being used primarily to help deliver VoIP applications. But it also can support video, which is growing in popularity in the enterprise; SIP-based messaging, which will require peering; and authentication and authorization for converged 4G mobile applications, said Maveddat.

NGN Magazine mentioned that AT&T and BT recently came out with the first inter-carrier telepresence solution and asked if that kind of thing might be a good example of how Taqua's convergence switching could be used.

"That is the perfect example of what we will be doing very shortly," Maveddat responded.

He added that service providers won't want to negotiate with every small carrier for video peering, so they will use this kind of solution to enable more inter-carrier solutions of this nature.

Wireless Backhaul

Taqua also recently unveiled a T7000-based wireless backhaul solution, which it announced in June.

The Taqua W-Series of Non Line of Sight Backhaul Systems are small cell site backhaul products that employ the underused, inexpensive TDD spectrum. Deployed in clusters of up to six, small cell sites are connected to the Taqua Remote Backhaul Module via Ethernet. Each RBM backhauls wireless traffic to a Taqua Hub Backhaul Module. The HBM connects via Ethernet to the carrier's existing backhaul network and can be located at a macro site or anywhere connectivity is available.

The wireless backhaul equipment market has become a crowded one, but Maveddat said that Taqua brings something special to the table because its solution is not based on fiber, microwave or Wi-Fi, as are so many other offers out there. Instead, Taqua's solution – aimed at backhaul for femtocells and picocells – is based on proprietary and non-line-of-site technology and leverages licensed spectrum in the 2- to 3.5-gHz band.

"What's happening in the world is that macrocells are just running out of capacity, and you have reached a point where you can't add large towers cost effectively anymore," Maveddat said.

provide its gateway, media gateway controller and media server for the femtocell solution) to bring this offer to market. Cellcom of Wisconsin is among the service providers that are currently using the joint solution, Maveddat said.

A Bit of Background

Maveddat and Peter Allen joined Taqua in the fall to help expand the company's next-generation convergence switching and wireless backhaul solutions. Maveddat, who has also worked with Mavenir, Tekelec, Nortel and AT&T Bell Labs, handles product line management for all of Taqua's convergence switching and RF backhaul products.

Allen, who is responsible for Taqua's wireless backhaul business development and operations, has been involved in six early stage startups, including four as a founder. Most recently he was the founding CEO of PulseWave RF, a fabless semiconductor company.

Meanwhile, vice president of marketing Reynolds, who is mentioned at the top of this story, has been around since the early days of Taqua.

Taqua recently won a big contract to deliver its next-generation convergence switching solution to a very large peering company.

As a result, wireless network operators are deploying in-building femtocells for wireless offload and outdoor picocells, to add cellular capacity and fill coverage gaps. That means more cell sites. However, Maveddat said that only a portion of those small cell sites will be reachable with fiber-based backhaul.

Where fiber isn't available, another option is to use microwave for backhaul. But Maveddat said microwave is a very high-capacity, high-power solution and requires direct line of site, so may not be the best match for backhauling traffic from smaller and highly distributed radios. Wi-Fi is a second wireless option for backhaul, he added, but it has limited range and can result in network contention.

Taqua's wireless backhaul solution, meanwhile, is very high capacity (up to 60mbps), supports guaranteed QoS and doesn't run into interference issues because it operates in licensed frequencies, he said. The product, which will sell for between $5,000 and $10,000 per line in volume, is targeted at large mobile operators with lots of capacity issues.

As noted earlier, this solution can also be used in femtocell scenarios. Taqua is working with Cisco (which has tapped Taqua to

The company has seen a lot of changes over the years, but it's been pretty consistent as far as its product line and focus on profitability.

As an organization, Taqua is 12 years old. However, in 2005 it was bought by Tekelec in $95 million deal. GENBAND later bought the Tekelec switching division, of which Taqua had become a part, and around the same time Taqua bought its way back out and became a private, stand-alone company.

Four years have passed since Taqua began its second life as a singular company. It's been cash-flow positive for about three of those years, and although it did use some private equity to refuel, "we didn't need that much runway to get going again," said Reynolds.

Although the company and its investors may consider doing some acquisitions along the way, the organization – in which every employee owns a share – has no aspirations of going public or getting bought.

"It's kind of old school," said Reynolds.

There's no school like the old school. **NGN**

by Paula Bernier

Here Comes the Son

Despite 'Depressing Reality,' Softbank Remains Bullish on Mobile Internet

Depressing reality: Those are the two words Masayoshi Son flashed on the screen during his presentation at Mobile World Congress last month in Barcelona.

Softbank's chairman and CEO was referring, of course, to the situation in which mobile operators find themselves today. And that is between a rock and a hard place – or, as Masayoshi called it, zero growth for mobile services.

Mobile data traffic has gone through the roof and is headed into the stratosphere. Between 2002 and 2011 the average user's mobile bandwidth usage has multiplied 1,200 times. Wireless data between 2010 and 2015 is forecast to grow by thirty times, said Son, and over the next ten years it is expected to increase a thousand times more.

At first glance this might look like a good thing. Growing demand would seem to indicate growing revenues. Yet wireless network operators are worried. Sure, we all love the mobile Internet. But the wild upswing in traffic is not tracking with the cost per bit – far from it. Not only that, but mobile carriers are under pressure to continue to invest big money in next-generation networks just to keep up with demand.

One strategy that businesses tend to look toward in zero- or low-growth situations like this is to increase their numbers of customers. But, as Son noted, that will be a challenge given there's already 78 percent mobile penetration worldwide, so growing the subscriber base much more is not an option. Capturing new customers, in large part, will involve wresting them away from the competition.

Another avenue is to increase average revenue per user. That seems to be what the industry at large is shooting for, but it won't be easy. ARPU for mobile is decreasing – down 42 percent worldwide between 2005 and 2010, according to Son, who said Vodafone Japan is leveraging both of the above-mentioned strategies for growth.

Despite all of these difficulties, however, the fact remains that people have grown attached to their mobile devices and services. The average user spends 2.5 hours on the mobile Internet, according to Son. And the vast majority of high school and college students – the customers of today and the future – strongly prefer smartphones.

That may help explain why Son remains bullish on mobile services. So much so, in fact, that in 2006 Softbank acquired Vodafone Japan for more than $20 billion in cash and has taken on debt as part of the deal.

"Some people criticize me and call me crazy," Son said. He went on to comment that "sometimes craziness gives a great return."

Indeed. Although Vodafone Japan's profit dropped every year since at least 2002, since its purchase by Softbank the company has seen a return to growth. And devices like the smartphone and the tablet are, and will be, the linchpins in driving the success of companies like Vodafone Japan. Son said the company's entire user base now consists entirely of 3G/smartphone subscribers, while worldwide, smartphone users make up just 22 percent of all mobile users. **NGN**

by Paula Bernier

Let's Get Small

Picocells Help Address Coverage Gaps, Bandwidth Demands in Cellular Networks

Cellular networks are growing bigger in terms of coverage and bandwidth capacity. But the infrastructure that makes up those networks is, in some cases, getting smaller.

The case in point here is the picocell, which mobile operators expect to use in the latest generation of their network builds to fill in coverage gaps and increase capacity in areas of heavy use.

Jean-Pierre Lartigue, product marketing and strategy for Alcatel-Lucent's wireless networks business, says the current generation of radio access equipment is not acceptable for all of today's cellular network needs given the site acquisition and other costs related to macro base stations. So picocells have arrived to address these needs.

Alcatel-Lucent has a new product in this space called Lightradio. It's a 2G/3G/LTE solution that's about the size of a child's block and can support up to 48 users.

Lartigue says China Mobile, Orange, Verizon, and two other wireless carriers already have endorsed the product, which will be in trials by the end of the year, and available in commercial quantities starting next year.

Along with Lightradio, Alcatel-Lucent has introduced a baseband unit in the form of a chipset. The unit, which can be located with the picocell, or be placed remotely to serve multiple picocells, creates the digital signal and brings it to the IP network, says Lartigue. Basically, it does traffic conversion and prioritization.

Bringing more and smaller cells into the network, and managing traffic in a way to help optimize cellular operators' resources, requires a more intelligent approach to network and subscriber management, continues Lartigue. He says that picocells and macrocells must have the intelligence to communicate with one another to decide which is best suited at any particular time to take on new users as they traverse the wireless network. Alcatel-Lucent's gear does this using a method called COMP, or co-operative radio, which evolved from MIMO technology. COMP is now part of the 3GPP specs, but came out of the Bell Labs entity of Alcatel-Lucent, he says.

Having more radios in wireless networks also will create new backhaul challenges for mobile operators, Lartigue notes, so companies like Alcatel-Lucent, among others, are addressing that as well. **NGN**

by Paula Bernier

Vendors Offer Mobile Operators Tools for Network Optimization, Monetization

It's no secret that there's been a mobile data explosion. That would seem to be a great opportunity for anyone in the wireless space. Yet because per bit pricing is not tracking with traffic growth, wireless networks are in a tough situation. They continue to invest in networks that they may not be sure yet how to monetize. But billing based on bandwidth and quality of service is clearly the goal, as is network optimization. To enable all that, mobile network operators need to get a better view into their networks so they can more effectively allocate resources based on the bottom line.

There are a lot of different angles to this story, but many of them tie into the themes of network visibility, subscriber data management and policy control.

Alcatel-Lucent offers the Wireless Network Guardian, which looks at traffic end to end, per subscriber, based on endpoint, and related to traffic type, explains Jean-Pierre Lartigue, product marketing and strategy for the company's wireless networks business.

The Wireless Network Guardian currently is in use with more than 15 customers, he says, but at Mobile World Congress last month the company announced that product's linkage with the 5780 Dynamic Services Manager, another existing Alcatel-Lucent solution. This linkage of products now enables network operators to enforce policy on their mobile networks.

Also among the recent efforts aiming to address mobile network optimization and monetization is a partnership between Akamai and Ericsson. The companies at Mobile World Congress last month announced they are developing software that will enable Ericsson gear to interface with a policy control solution that ties into the Akamai CDN.

"It's what we call a mobile content accelerator," says Hans Vestberg, Ericsson president and CEO.

That will allow service providers like the telephone companies to cache popular traffic closer to customers – and within the wireless network. And that will accelerate content delivery, allowing service providers to not only offer a better customer experience, but to justify their investment in the joint Akamai/Ericsson solutions by offering premium services to end users and content companies, and by enabling those network operators to use their network resources more efficiently.

Ericsson declines to specify which of its products will support the Akamai-related software, saying the software might run on existing or new Ericsson "nodes" in the network, or even on networks not based on Ericsson infrastructure. (Vestberg at one point mentioned the word "appliance".)

Nonetheless, Akamai and Ericsson say they've already tested the joint "cloud" solution, as they called it, with developers and expect to introduce it to service providers in the next six months.

"The content owners are ready to go," says David Kenny, Akamai president. He adds that once the companies get enough service providers in a geographical area interested in the joint solution it will be ready to roll.

Another networking giant, Cisco Systems, is also pushing the theme of mobile network monetization and optimization. In fact, these terms help form the name of the company's MOVE (which stands for monetization, optimization, and Videoscape Experience) solutions. Current products under the MOVE umbrella include Cisco Mobile Videoscape, Cisco Service Provider Wi-Fi and Cisco Adaptive Intelligent Routing (AIR).

"MOVE is the next phase of Cisco's Service Provider Mobility strategy, which was introduced at last year's Mobile World Congress after Cisco acquired Starent Networks," says Ash Dahod, senior vice president and general manager of the mobile Internet technology group at Cisco.

Cisco Mobile Videoscape is the mobile version of the Videoscape solution the company's President and CEO John Chambers introduced in January at the Consumer Electronics Show in Las Vegas. At the time, Chambers explained that Videoscape will make the user interface consistent across all user devices. It also keeps all devices in sync so if, for example, a consumer gets a video message from a friend, that message will appear both on the user's laptop, on his TV and his phone.

Jon Morgan, senior manager of Cisco's service provider marketing organization, adds that Mobile Videoscape, which is available now, also allows service providers to transcode and transrate over-the-top traffic and cache it in different formats. He says that allows providers to cache popular content closer to users if they want, and will enable them to have more control over such traffic should network congestion occur.

The new Cisco Mobile Videoscape solution leverages new technology on the Cisco ASR 5000 and Cisco Unified Computing System platforms to link the mobile network to the larger video distribution network enabled by the Cisco Content Delivery Network capabilities of Cisco Videoscape. It also taps the Cisco Videoscape Media Suite to manage content across multiple screens.

As for Cisco Adaptive Intelligent Routing (or AIR), it is delivered via the Cisco ASR 1000, Cisco ASR 5000 and Cisco ASR 9000 platforms and was designed to lower the cost of supporting mobile data traffic. AIR is available now for 3G networks.

Morgan explains that AIR ties the intelligence of the mobile core into rest of the IP network. It leverages the control plane in the ASR5000 and uses that to control existing routers to branch traffic off to existing

nodes, rather than requiring service providers to install new nodes. That's much less expensive and reduces latency in the network. Today, he adds, mobile networks are hierarchical, but with this new architecture service providers can offload traffic at any point in the network without having to traverse a lot of network elements to terminate traffic.

Policy and congestion management solutions are also a key focus for Tekelec.

Randy Fuller, director of strategic marketing, says that many of the major service providers already are using Tekelec's policy management products today. And Tekelec's tools can let service providers decide what they want to look at in the network as it relates to subscribers and other service and network parameters.

"Tekelec has all the pieces to do true congestion-based policy control," Fuller says.

He adds that the company is currently in trials in Latin America and Europe with the solution, which he says is the first of its kind.

Many smaller and lesser known companies are also working various angles of this optimization and monetization requirement.

For example, a company called TheNowFactory offers active subscriber intelligence solutions that allow service providers to see which customers are using what applications when and with what endpoints.

The company offers probes that collect traffic information from mobile networks. But its special sauce is in its software applications, which give marketing; network planning and operations; and customer care folks at the operators new insight into subscriber behaviors and related traffic trends, explains Oliver Finn, marketing director.

These applications number six in all and are broken down into the three above-mentioned carrier employee interest groups. They present information in clean, multi-faceted formats – including pie charts, bar charts, matrixes, etc. That can help marketing get a better handle on who's doing what on the network so the department can more effectively customize packages for particular user groups. It can help engineers more effectively do network and capacity planning, including network investment prioritization (to ensure carrier capex is weighted most heavily to serve the highest margin customers and services). And it can provide customer care representatives with the plain language information they need about the network and subscriptions to assist customers that call in for help.

TheNowFactory has 31 customers, including such big names as T-Mobile and Vodafone, in 25 countries.

Another company working to assist mobile network operators in better understanding subscriber usage – and enabling them to act on it – is Tango Telecom. The company sells a data charging and policy solution, which it recently began marketing more heavily in the U.S.

Rory O'Toole, vice president of global sales, says the Tango solution leverages deep packet inspection technology to see what's happening on the network. That information is used to enable service providers to enforce network resource rules on a per-subscriber basis and to do related pre- and post-paid charging.

"We're kind of the best kept secret in the industry," O'Toole says.

He explains that's because Tango delivers PCRF (policy management) and PCEF (DPI) functionality in a single, one-rack solution, while others require a multi-vendor mix to do the same thing. For the mobile operator, he adds, a single solution from a single supplier means it's less expensive to support. The offer is low on the capex front as well, he says.

O'Toole goes on to emphasize the feature-richness, which offers such nice add-ons as SMS messaging.

Leveraging SMS messaging technology, a service provider can allow subscribers to almost instantly, and in an automated way, do things like upgrade their bandwidth (either for a limited time to support a specific application, or for the longer term). He adds that network operators could use this same SMS functionality to help support dynamic pricing on their networks based the amount of available bandwidth on the network at any particular time. It would work like this: If the network was congested at a particular time, the subscriber would get an SMS saying the cost for connectivity was higher at that time, and the end user could decide to pay the higher cost or reconnect later. While O'Toole says none of the mobile operators are doing this kind of thing yet, it could certainly go a long way toward helping them balance the loads on their networks and better match up their network cost with revenue intake. **NGN**

by Paula Bernier

Cellular Carriers Are Onboard with Wi-Fi Offload

Mobile network operators that sell services have been trying to figure out for a while now just how Wi-Fi fits into their strategies. Was it a competitive threat to their cellular networks? Was it a way to generate new revenues by offering connectivity within bookstores and coffee houses? Or was there some business model for Wi-Fi that had yet to be discovered?

Now, it seems, they've got it. Wi-Fi is a nifty way for mobile operators to offload traffic from their cellular networks.

"Wi-Fi has proved to be a very important supplement to the cellular network," says Wang Jianzhou, chairman and CEO of China Mobile, a keynote speaker at Mobile World Congress last month.

China Mobile expects to operate 1 million hotspots nationwide in China within three years, he says, adding a directive for all handset manufacturers to offer Wi-Fi as a default function in their devices going forward.

He says China Mobile is talking with KT of South Korea and NTT DoCoMo of Japan about partnering for international Wi-Fi roaming. China Wireless News reported in January that the three companies had signed a data roaming partnership. That story says the threesome also discussed the possibility of expanding on that relationship in the future by creating a "Northeast Asia free roaming region" for Wi-Fi.

With all this interest around Wi-Fi offload, it comes as no surprise that equipment vendors are pushing solutions in this vein.

Cisco says its new Wi-Fi solution allows service providers to free up capacity on their networks by moving some traffic to Wi-Fi, and delivers seamless security/authentication that can help carriers to support various new revenue-generating services.

"We are committed to improving our user's experience on Wi-Fi," says Philippe Lucas, senior vice president of standardisation and ecosystems development at Orange. "That is why Orange is involved in the Cisco Next Generation Hotspot initiative with other industry players to develop seamless connectivity between 3G and Wi-Fi. We believe that a SIM-based authentication model will bring simplicity and enhanced security for customers, especially when roaming. We currently rely on Cisco's network capabilities to provide Orange Wi-Fi access in public hotspots covering more than 2,000 sites in France."

Jaishree Subramania, senior manager of marketing solutions at Cisco, says that the company's Wi-Fi solution allows for authentication from a single point within the service provider network, helps maintain session persistence, and enables handoff between cellular and Wi-Fi networks – allowing for a seamless and secure customer experience. **NGN**

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By Paula Bernier

That's Totally WAC
Wireless Operators, Vendors Continue Work to Expand App Ecosystem

The Wholesale Applications Community – which launched at last year's Mobile World Congress – last month at the same event in Barcelona revealed that it now has 68 member companies, eight service providers that have on-boarded WAC, five device markers supporting the spec in their products, and 12,000 applications in place.

WAC, an alliance of the world's largest telecommunications operators and device manufacturers, had a stellar group of executives at its press conference at Mobile World Congress. Appearing at the event along with Peters Suh, CEO of WAC, were: Randall Stephenson, chairman, CEO and president of AT&T; Hans Vestberg, president and CEO of Ericsson; Hyun-Myung Pyo of KT; Jean-Philippe Vanot of Orange; JK Shin, president of the mobile division at Samsung; Julio Linares, COO of Telefónica; and Michel Combes, deputy CEO of Vodafone.

The group's aim is to release specifications to help expedite the creation and support of applications that can run on any device, any operating system and any member mobile operators' network. It is also working to avail its service provider members' network resources, such as presence information, to the developer community in a standard way.

"We want to maximize customer choice," said Stephenson of AT&T, talking about the cross-platform benefits of WAC. "Almost half of our customers are accessing the same content on three or more devices."

WAC 1.0, which is HTML 4-based, was released in September. That's the version of WAC on which today's run-time applications are based.

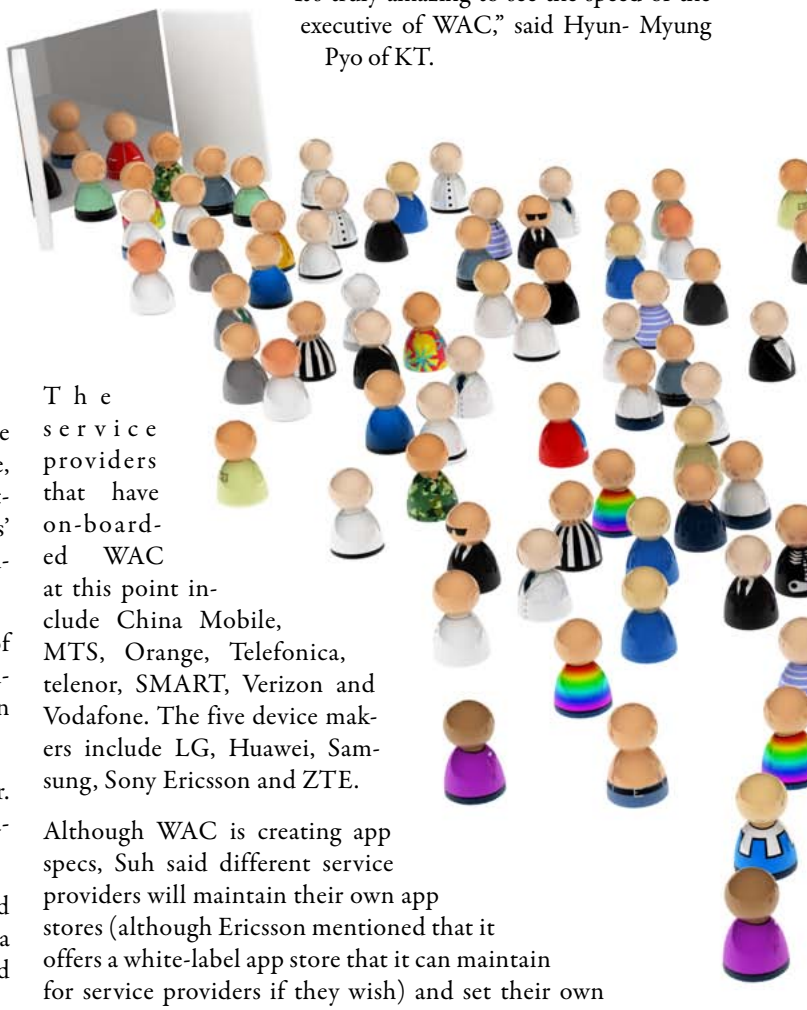
The WAC 2.0 specification unveiled last month at Mobile World Congress is based on HTML 5, so will allow for more rich media web-based applications. WAC 2.0 also offers stronger security and support for file system, calendar and orientation.

Once you open the door to HTML 5, said Stephenson, you develop applications that work on multiple platforms and operating systems.

"That's when the 12,000 [applications] becomes a down payment," he added.

WAC 3.0 is scheduled for release in September of this year. Like the second iteration of WAC, it will be based on HTML 5. It also will add network APIs and support for things like billing.

"It's truly amazing to see the speed of the executive of WAC," said Hyun- Myung Pyo of KT.



The service providers that have on-boarded WAC at this point include China Mobile, MTS, Orange, Telefonica, telenor, SMART, Verizon and Vodafone. The five device makers include LG, Huawei, Samsung, Sony Ericsson and ZTE.

Although WAC is creating app specs, Suh said different service providers will maintain their own app stores (although Ericsson mentioned that it offers a white-label app store that it can maintain for service providers if they wish) and set their own pricing for applications.

Linares of Telefónica said that when his company started its app ecosystem it began by working with developers at the local

level in different countries, but it soon realized that was not the most efficient path to building an ecosystem. So Telefónica began a larger push to create an ecosystem. But the WAC effort takes all this to the global level, he said, so that seemed a logical evolution for Telefónica's efforts on this front.

However, WAC efforts are also happening on the regional level – at least in one case. That effort involves a threesome of Korean service providers.

SK Telecom, Korean Telecom and LG U+ last month revealed they are working together to create a single, Korea-specific clearinghouse that will link to the WAC global application development system. The platform will handle transactions and processing to ensure that global WAC applications are available and optimized for use by the three service providers and their mobile customers.

HP, which has been in the service delivery platform space since its inception, will help the Korean carriers build the application and related integration, said Joe Dyoub, worldwide product solution manager, service delivery platform, HP Communications and Media Solutions.

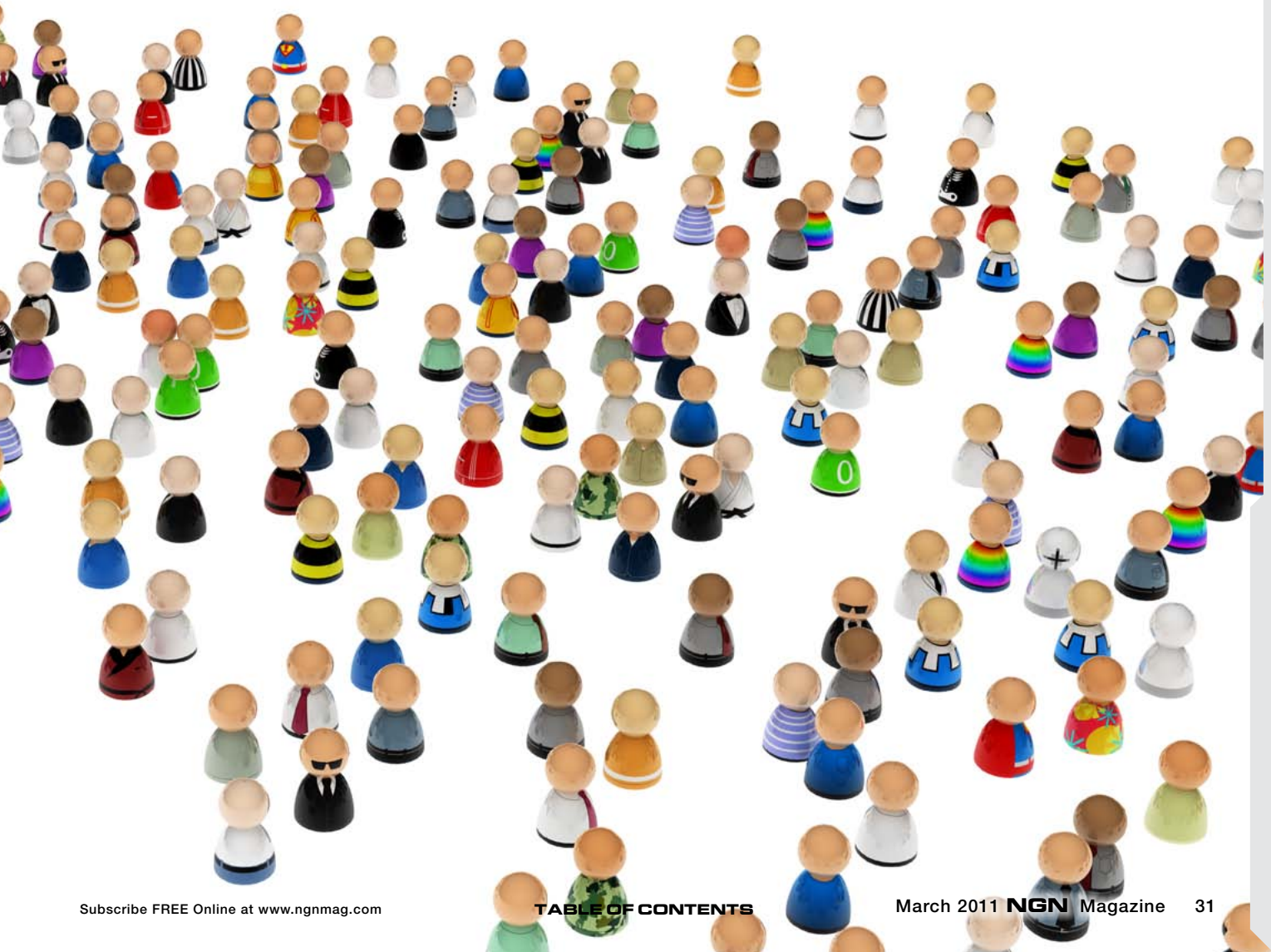
The Korea-WAC platform, which is scheduled to launch later this year, is being implemented by a consortium formed by the Mobile Internet Business Association, or MOIBA, and the three service providers with support from the Republic of Korea.

While WAC got a lot of press at and following Mobile World Congress, Ken Lee, at director of product marketing at Oracle, said that much of what's now being called WAC was already in place under separate initiatives.

For example, he said, WAC 1.0 is essentially a new name for the work that came out of the Joint Innovation Lab formed by China Mobile, Softbank Mobile, Verizon Wireless and Vodafone. JIL and WAC were combined last year.

"So what they announced was really nothing new," said Lee.

And WAC 3.0 is essentially the same thing as GSMA OneAPI, a set of application programming interfaces that network operators can use to make their network resources available to developers. **NGN**



by Paula Bernier

Mobile Players Put New Emphasis on Emerging Countries

Several years ago I attended a trade show at which AT&T's Ed Whitacre talked about bringing wireless phones to remote parts of the world to improve the quality of life by, for example, enabling fishermen to call in their catch to buyers. I remember thinking that it was an odd thing to discuss given I hadn't heard much talk about this from U.S. tech executives in the past – and given the high barriers to reach these kinds of users and the low potential returns. But something interesting happened at last month's Mobile World Congress: Telecom executives began talking about these remote/developing country applications once again.

Why? I'm guessing it's because mobile service providers and handset outfits have pretty much saturated the market at this point, and so they are looking far and wide in their quest for growth. It can also be a good place for a company that is under competitive pressure from new devices like the iPhone and the iPad in the U.S. and other developed countries to place its bets.

In a keynote at Mobile World Congress, Nokia Corp.'s President and CEO Stephen Elop said that 80 percent of the world's population is within cellular range, but only 20 percent are connected to the Internet.

"We can change that," he said.

In a keynote at last month's Mobile World Congress, Nokia Corp.'s President and CEO Stephen Elop said that 80 percent of the world's population is within cellular range, but only 20 percent are connected to the Internet. "We can change that," he said.

Elop went on to say that Nokia wants to "bring the next billion online" and "connect the unconnected."

He talked about Nokia's most affordable handsets, and he mentioned that Nokia aims to expand its Nokia Money and Nokia Lifetools, among other applications, to the low end of the market. In discussing the Nokia Money banking application, he noted that 1 billion people have a phone, but not a bank account.

And, in a roundtable discussion hosted by Alcatel-Lucent at last month's show in Barcelona, Mary McDowell, executive vice president of Nokia, talked about an SMS service Nokia supports that delivers prenatal tips to mothers-to-be in developing countries. Another service gives rural farmers crop information so they can more effectively gauge the value of their harvests, she added.

Movius also talked about how some of its solutions address the needs of users in developing countries.

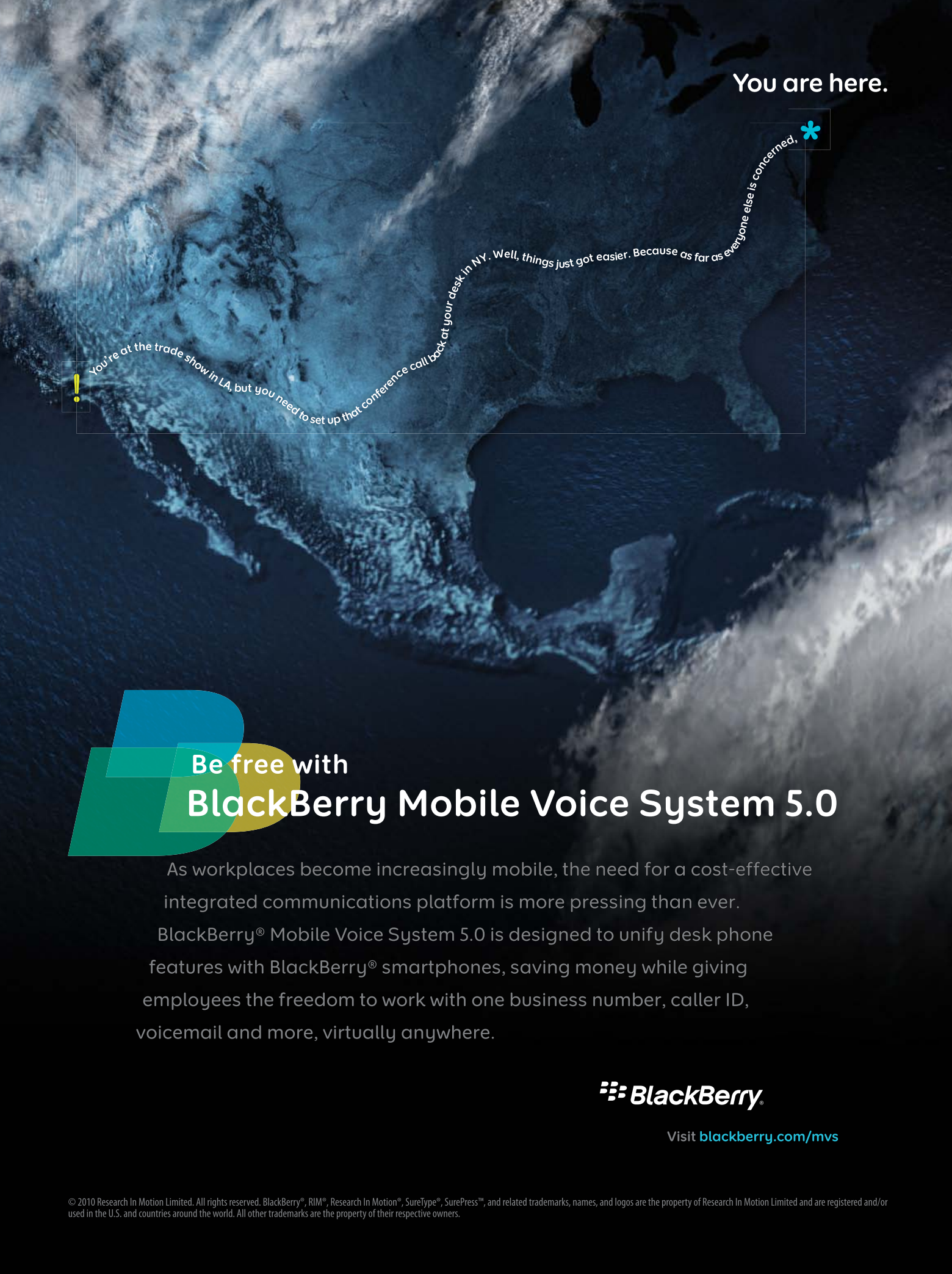
John Boden, CTO and senior vice president of corporate development at Movius, discussed with NGN Magazine the company's Virtual Communicator, which he described as a solution that supplies "phones for people without phones."

This solution is basically a messaging platform (or "drop box," as Boden called it) that allows people to leave messages for one another to be retrieved at a later time. Users of the platform-supported services are provided with bracelets including access codes they can use to get their messages later, when they have access to a phone.

Another Movius solution for developing areas is called Sideline. Basically, this solution turns a single mobile phone into a multiple line product for entrepreneurs. Not only does it allow a single phone to answer calls from more than one phone number, it identifies the line each call came in on, and if messages are left, which line's mailbox they came in to. Boden says this is a good solution for businesses such as cab companies or ice cream shops, as just two examples, in areas like Latin America. In fact, services based on this solution will launch initially in Latin America.

Responding to a question as to why a mobile company would want to target such difficult-to-reach areas and low-margin users, Boden said that it is to position these companies for the future.

"Our carriers are viewing this as a way to create brand preference," Boden says, much as Apple did years ago when it gave away Macintosh computers to schools. **NGN**



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by Darren Pralle

Driving and Managing the Ethernet Operations Revolution

The carrier Ethernet revolution is under way. Ethernet is assuming the role once held by TDM transport technologies and is earmarked to support a globally interconnected world. End-to-end carrier Ethernet services are proving invaluable in today's cloud environment, connecting enterprises, data centers and distributed applications. Additionally, Ethernet plays a key role and serves as the foundation for increasingly sophisticated wireless networks, delivering applications across the mobile packet core and the mobile backhaul. While Ethernet is still evolving and there are a number of hurdles, its impact on telecom networks is significant.

In 2010 several public tests explored the viability of carrier Ethernet, particularly in a global interconnected network environment and relative to the impact of a multi-provider, multi-service scenario on service quality. The main focus of the tests was to determine how well current standards from the Ethernet Alliance, MEF, IEEE and ITU are working together with multiple interconnected carriers to provide services at various QoS levels.

In spite of the complexity, the news from the public test is a resounding yes. There is game-changing progress being made with standards-based protocols for provisioning and maintenance, but there is a significant and somewhat overlooked impact.

It turns out that the demand for more Ethernet is outpacing the ability by carrier operations groups to turn up new services, troubleshoot existing service problems, and manage Ethernet performance to the level of legacy TDM networks. A recent carrier Ethernet global interconnect public test of live Ethernet service conducted by the EANTC came to the same conclusion, noting that "the act of coordinating equipment allocation and service provisioning across multiple providers in multiple locations and time zones proved to be a time-consuming exercise."

The testing team's function mirrored a service provider operations team as they were assigned to provision the services and troubleshoot/monitor service performance. According to the EANTC, "without agreed-upon interconnect agreements among the providers defining the service configuration and SLA levels in advance, completing and testing in three weeks would likely have been impossible." In short, operations teams will play an integral role in the success or failure of carrier Ethernet services.

The basic operational function of service turn up is consuming field resources beyond current staffing levels and extending service turn-up schedules. The explosion of mobile backhaul is a perfect example of this trend, with wireless operators turning up thousands of new Ethernet-connected tower sites each year. Each new installation will require multiple dispatches and, if a third-party backhaul carrier is used, additional time is required to coordinate multiple service provider resources. Deployment schedules and manpower are quickly over run by relying on traditional dispatch models and the ongoing requirement of troubleshooting service calls.


Darren Pralle

Regardless of the service, there is always the need to efficiently troubleshoot and resolve network and service problems. Once again, the legacy model has been to dispatch field technicians to find and then resolve the trouble. But with an interconnected Ethernet service, dispatching may not locate the problem or, more accurately, identify who owns the problem. Relying on a dispatch model or focusing solely on network issues is not efficient or scalable. Remember, the same resources are also tasked with turning up new services in addition to managing service quality.

Ethernet services must incorporate QoS and SLA monitoring to support time-sensitive applications that were supported natively on TDM networks. Whether you are monitoring a best-effort service or a premium service with an SLA guarantee, the effort to monitor and manage service performance falls to operation's resources. This requirement is not really new; rather it's just more complex with an Ethernet service. Once again, progress has been made. Standards such as EOAM (Y.1731/802.1ag), Y.156sam, and TWAMP are providing the network operations team with the necessary test points and standardized test profiles needed to base line services across multiple networks and providers, but getting these tools deployed in an operations environment and using them efficiently presents a challenge.

As with any challenge there are multiple solutions. There are, however, three clear requirements for the carrier Ethernet operations team: reduce the dependency on field technicians to increase scalability and reduce operational expense, address the best-effort nature of Ethernet with QoS-enabled networks, and provide 24x7 visibility into network and service performance. **NGN**

Darren Pralle is product line manager with Spirent Communications (www.spirent.com).

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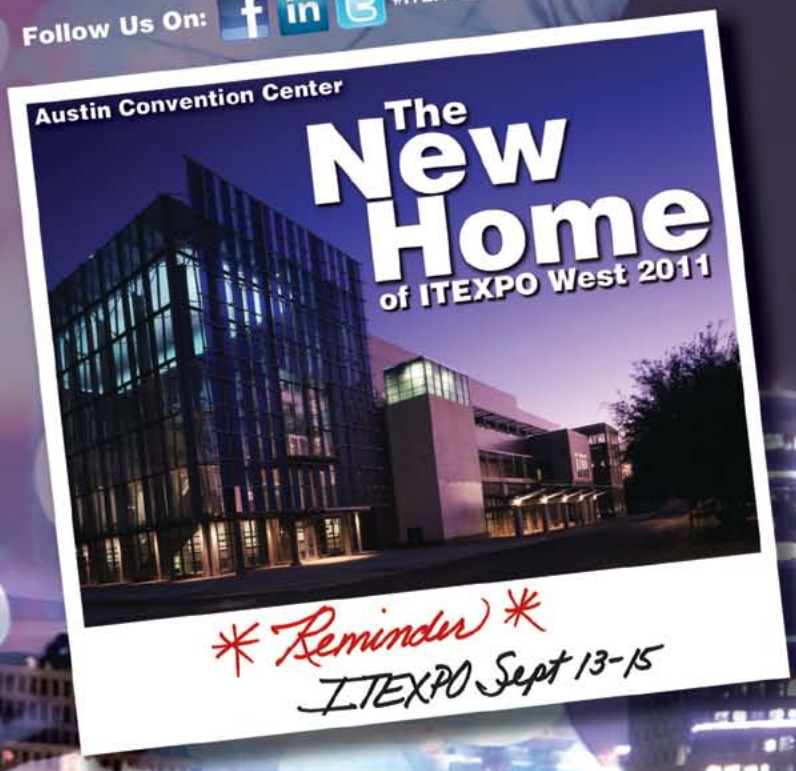

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by Michael Khalilian

NGN Forum 2011 Initiatives for 4G, IMS, Smart Grid and Plugfest

NGN Forum's planned initiatives for 2011 activities will focus on the following areas: applications delivery guideline and architecture implementation; ROI business modeling; and operator challenges, including best practice documents development.

NGN technology and business working group coverage includes IMS, IP video, 4G (HSPDA+ LTE), SDP, VoIP, RMS/RCS, UC and security (IP BSS/OSS). The new Smart Grid Forum and NGN Enterprise/Information Technology working group will focus on application delivery technology such as energy management, M2M, cloud, IP peering transport and integration/implementation, meter data management, billing and security challenges. The Interoperability and Testing working group will resume with a Plugfest 9 test plan for smart grid, IMS, 4G, SDP and IP BSS/OSS/IPv6 application delivery. The marketing working group will continue to enhance its global speaking engagement bureau as well as its media and analyst participation for 2011 working group activities.

The NGN IMS Forum has just completed its Business Models for the Development of Applications over Broadband IP Networks working group document. The forum's technical working group paper examines new business models and use cases for applications running over IMS, 3G and 4G networks.

This working group document discusses over-the-top services, other new options for operators, and freemium business models (where operators offer a basic product or service free of charge such as software, web services or other), while charging a premium for advanced features, functionality, or related products and services.

Other topics covered in this document include:

- network architecture and service classification;
- business models for operators;
- applications over broadband IP networks;
- use cases;
- security issues for applications over broadband IP networks; and
- testing.

In 2010 the IMS Forum also published the following guideline documents on best practices for IP BSS/OSS with security and Diameter implementations:

- BSS/OSS & Security for Services in NGN/IMS Paradigm: Guidelines for Implementation
- Interoperability Challenges in Diameter Implementations
- IMS AAA Architecture: The Diameter Advantage

In 2011 NGN Forum working group documents will develop business models illustrating different technologies such as 4G, IMS, service delivery platform, cloud, M2M and smart grid.

We are also working on the test plan for our next IMS Plugfest and NGN Plugfest interoperability test event, which will test out many of these business models along with others. Registration for this Plugfest and working group is now open to any service providers, integrators, vendors, apps developers, utility companies and governmental agencies that would like to participate (www.IMSforum.org/Plugfest) to determine the final test plan. For additional information please contact Admin@NGNforum.org **NGN**

Michael Khalilian is president of NGN, IMS and Smart Grid Forum (www.NGNforum.org).

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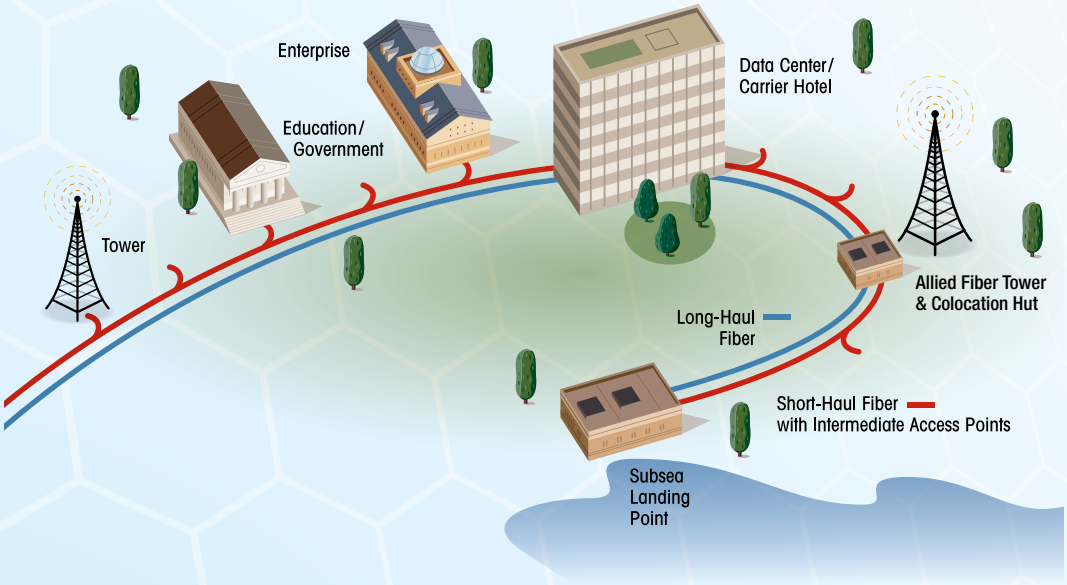

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