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Also Inside:

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Leading Telecom Technologists Join Forces to Get a Handle on Convergence

Leading Telcos Aim to Fill the Gaps

By Paula Bernier

Convergence. The word has been batted around the telecommunications and cable TV industries for years. More than a decade later, it's still unclear just what it means. However, top technologists from leading telephone companies now are working in earnest to define convergence and address the standards gaps around it.

"Convergence has a new urgency," said Susan M. Miller, president and CEO of the Alliance for Telecommunications Industry Solutions (ATIS), a U.S.-based organization committed to rapidly developing and promoting technical and operations standards for the communications and IT industries worldwide.

Recognizing the "urgency to deliver full convergence in a consistent and standardized manner," the ATIS Technical and Operations (TOPS) Council in August 2006 formed the Exploratory Group on Convergence (EGC). The EGC developed a convergence road map document. Work based on that report moved into committee toward the end of last year and currently is ramping up.

"ATIS has 22 different committees," said Miller. "So the work that was identified in this [convergence] road map has been moved out into real standardization efforts within the committees. That is ongoing right now. This work was just moved out early in the fall last year, and we're already producing standards that address the component parts of the report."

The ATIS committees working on convergence cover a wide variety of topics — from network equipment issues to things like billing and OSS — to provide "an end-to-end view," continued Miller.

Miller said ATIS knows it's on the right path with its standards work on convergence because the group has interfaced with all its counterparts around the globe, such as IEEE and ETSI. "We've gotten feedback that no one's looked at it at the layers that we're looking at it," she said.

xchange recently spoke with Miller and ATIS Board officers/top industry technologists Chris Rice of AT&T, Matt Bross of BT, Pieter Poll of Qwest and Mark Wegleitner of Verizon about this convergence effort and why it's happening now.

Poll, Rice and Wegleitner will be on a keynote panel, moderated by Miller, during the ATIS TechThink event colocated with NXTcomm08 this month in Las Vegas. Following that, xchange's Paula Bernier will moderate a TechThink session on convergence.

ATIS is considering both network convergence and applications/service convergence. The idea is to provide the industry with a common approach by which to collapse multiple networks and service silos, and make services access- and protocol-agnostic. That is intended to produce capital and operational savings at the telcos while enabling them to bring new services and packages to market more quickly and efficiently.

"A rationalized set of standards in the convergence space will provide opportunities to improve how quickly we can build things, get them to market and fix them," said BT CTO Bross. "Simplification and reusability are key drivers for BT."

Before this ATIS work, "convergence was a cloud," said Rice, AT&T Inc.'s former CTO, who's now executive vice president of Shared Services. (See related story "Chris Rice Talks About His New Gig" on Page 13).

"Everybody was talking about convergence," said Rice. "It was the buzzword for everything. But no one knew what it really meant. … So the EGC was able to get together and say 'What do we really mean by convergence? What has to happen? What interaction needs to take place? How do these things hand off? What's the user experience? What kind of user element needs to be done?' I think it was getting the definition around a lot of it. That, then, helps move things forward instead of just being an industry buzzword."

Poll, vice president and CTO at Qwest Communications International Inc., and chairman of the TOPS Council at ATIS, added: "What we're really trying to do is focus on some of the large business problems that members of ATIS face and figure out some answers around where we need work and where there's probably already a sufficient effort in other places, because we don't want to duplicate things and create another standard."

The IP Multimedia Subsystem, better known as IMS, is one of the existing technologies upon which the ATIS convergence effort is building.

Wegleitner, senior vice president of technology at Verizon Communications Inc., said the ATIS work puts the multimedia aspect of IMS into clearer focus. "It puts the M in IMS, I think, because [IMS] was a wireline/wireless initiative for the most part, but everyone realized even when they made it that there was an entirely new dimension to what had to be done here. I think the report and the work that we've done with ATIS has really amplified that."

Four or five years ago, Wegleitner explained, suppliers were talking to Verizon about video solutions and IMS wireline/wireless products as two separate conversations. "I don't think we were the only ones who said this, but we were certainly very vocal with them. We said 'Look, we're trying to create a seamless entertainment, information and communications environment for the customer here that involves more than voice, it certainly involves multimedia. You've got to bring this under one umbrella.' And to some suppliers that was a revelation because they had two separate control infrastructures — one IMS-based for voice and another one handling multimedia or video applications," Wegleitner said. "Even though IMS carries this inner IP Multimedia Subsystem, we tended to think of it as wireless/wireline convergence vehicle initially. And now, in this report and in our thinking in general, multimedia plays an equal role."

These top telco technologists declined to specify the timelines and top priorities of the ATIS convergence initiative, instead pressing the message that work will be ongoing and is too wide-ranging to identify any particular standard effort under this umbrella as the most important.

"There are, in fact, aggressive timelines around when the standards are going to be produced," said Miller. "But convergence, as Mark said, isn't one

Convergence & Network Ownership

By Paula Bernier

Merging wireline and wireless networks, and collapsing various wireline assets, to whatever extent possible while allowing the same services to be delivered over multiple networks/endpoints when desired is one key tenet of this ATIS convergence effort. However, to what extent can convergence happen in cases in which the service provider doesn't own all the network assets?

This question would apply to all four of the telcos central to this ATIS convergence work. All three of the former RBOCs resell DBS services. And, for wireless, BT relies on Vodafone, Qwest resells Sprint (for the moment) and last month announced plans to partner with Verizon Wireless, and Verizon shares Verizon Wireless with Vodafone. But while these companies are trying to whittle down the multiple overlay networks they do have in place, they emphasize that convergence is about more than just the physical networks.

"Convergence is not about the deployment of technologies in isolation, but involves integrating communication services with existing applications — that is why we are a Wi-Fi leader, through initiatives like Wireless Cities and BTfon, and have an MVNO agreement with Vodafone," said BT CTO Matt Bross.

"BT's agreement with Vodafone was designed with convergence in mind and has all the flexibility required to innovate and benefit from new technologies going forward. BT does not need a mobile network given these arrangements. Our relationship with Vodafone UK goes way beyond the normal service provision/reseller deals, and we are uniquely placed to offer our customers real converged solutions by linking the Vodafone capability with our own in BT. We showed this with the world's first, fully converged fixed-mobile service, BT Fusion. We are currently trialing the next generation of Fusion-style devices. Wireless broadband is at the heart of BT's convergence strategy."

Pieter Poll, vice president and CTO at Qwest Communications International Inc., responded that one of his company's strategic pillars is partnerships. "So we have a fundamental belief that Qwest as a company doesn't need to go out and build the seventh or eighth wireless network in this country in order to play in the wireless industry," he said.

Mark Wegleitner, senior vice president of technology at Verizon Communications, meanwhile, told xchange the fact that Verizon is not the sole owner of Verizon Wireless does not impede its move toward convergence. "The processes to do it are somewhat different because there's another key stakeholder that needs to be considered in making those decisions, but I don't think it will have a technological effect."

of those things where you're going to say 'Today we've arrived.' You have to keep reprioritizing the component parts to say 'This is now more important from a use-case perspective than this.'"

The key outputs of the EGC report, said Poll, are the identification of interface gaps, interoperability and operational paradigms. "If you look at IMS, IMS says there are self-defined interfaces," he added, offering IMS as just one example. The problem with that, he indicated, is that every supplier has a different interpretation of the set of core standards that are used with IMS, so "you have to create some layer on the top that tells how you're going to maintain, surveil, provision, bill, etc., what you're defining as a service versus the way that service happens to be split up among the piece parts," he said.

Added BT's Bross: "Once the marketplace smelled that there were line items in carrier budgets called IMS … you got these companies sweeping their product porfolios into an area, calling it IMS, because there was a budget line item potentially over here. So what happened was the demarcation — even within any organization — of these products was unclear." But even once you figure out what products are IMS, they certainly aren't plug-and-play, he said.

Rice concurred, adding that while IMS makes an attempt at standardization, it is still in its infancy. "It's not like the old days when I went out and bought a 5E and it was all kind of interconnected and it all came from Lucent or even the old Western Electric 1A," said Rice. "[IMS architectures] are all made up of routers from parties that are unrelated to somebody who might be doing the architecture of that IMS. It's session border controllers … multimedia resources, the gateway, the call state control function devices" and each of these devices may come from a different equipment supplier.

Telcos also need to decide how to implement quality of service, which protocols to use in various instances, how to deliver particular services on broadband connections (VLAN or vis-a-vis CPE?), which video codec to use and how the addition of a new codec could affect the cost and usability of a wireless handset, and much more, said Rice, noting just a small subset of what needs to be done. So, clearly, addressing and trying to create standards around convergence is a multifaceted challenge, these executives noted.

"It's just like in the wireless world when you go to another spectrum auction," continued Rice. "So you have more spectrum, what does it mean? It means another frequency, another chip, it takes my battery life — so it's all-encompassing. What do I need to have in the end-user device? What do I need to have on the access side? What's the core infrastructure look like? What's the management layer look like?

"It's not like there's just one thing," he added.

And while collapsing physical networks is an issue of huge import, convergence as it relates to billing, provisioning and other operational support systems is also key.

"There's a lot of focus on the network convergence," said Rice. "But besides getting to a single instance or a single infrastructure, which does help us lower costs and help the cycle time, the IT cost goes down dramatically. Today, I've got consumer applications, I've got enterprise applications, and I've got mobile applications back at BSS/OSS. Every time I want to do something with one or the other on that infrastructure I'm building multiple systems." But convergence and the ATIS work around it will enable AT&T to "start finally bringing those together and reduce my IT costs as well as my network costs, which is how you get to that cycle time, because some of the cycle time is just in the technology."

That said, the ATIS convergence effort seems to tie into Web 2.0 (although IMS and Web 2.0 are also part of another major initiative at ATIS beyond the convergence effort). Bringing Web 2.0 into the fold allows for "innovation at the speed of life," said Bross.

BT isn't waiting for IMS to solidify to introduce new services, and you don't have to either. You can introduce new multimedia, VoIP and Web 2.0 services today — and move away from the silo-based approach to service creation — via a new approach to service delivery. To hear about BT's experience in this vein, listen to an on-demand Webinar from xchange and Oracle. Visit www.xchangemag.com/webinars.

Of course, none of these ideas is necessarily new. As mentioned at the onset of this article, both service providers and their vendors for years have been talking about convergence. And the themes of collapsing multiple networks, abstracting services from the network layer, and expediting the process of service creation and provisioning to allow for faster time-to-market have been key tenets of this vision pretty much from the start. So why do the nation's top telcos feel such urgency around convergence now?

"I'd like to say the convergence report is some sort of watershed event," Verizon's Wegleitner responded. "But I like to think of it more as a very important cog in a very large wheel that has to be a part of the total process, but isn't in itself going to lead us to the immediate realization of convergence."

AT&T's Rice said because technology has advanced enough that the industry now has at least the basic pieces in place upon which to build a standardized convergence strategy, the key drivers for convergence seem to be falling into place.

"Back in '96 I can remember when we were all creating our ISPs," Rice said. "I viewed that we needed to use the IP network because it was going to be multimedia. But the protocols weren't there. The technology wasn't capable of even doing that. QoS wasn't there. So I think what Mark and Pieter are hitting on is right on the money: The vision was there long ago, but stuff hadn't matured enough; the capability wasn't there. The service enablers and the network enablers are now coming into place. Things are matured, things are advancing, and IMS is a component of how we're getting there.

"The other thing, I think, is that IP has come a long way," Rice continued. "Things that weren't IP-enabled 10 years ago are now capable of being IP-enabled. Video wasn't capable of being IP-enabled 10 years ago for delivery in the way it is today. We couldn't have done IP VoD — in the bandwidth today it would've been huge. Now you're seeing IPTV VoD that's high-quality, high-def, at 5.25 megabits. We see that in the lab today; it's probably going to be in production soon. How far can it go? I don't know. But … the technologies, the compression, are all coming into play.

"This is kind of like the perfect storm, everything is coming together now, and we can begin to implement now," he said. "But it's not easy. It's really complex." XC

Convergence Today

We in the telecommunications industry spend a lot of time pontificating about the future — particularly when it comes to the subject of convergence. But what exactly are the Tier 1 carriers offering today in terms of converged services (even if the infrastructure behind them is not converged)? The answer, in short, is not much. However, there is some early movement on the converged services front. Let's take a look at who's doing what.

AT&T

You may recall that AT&T Inc. made a splash at last year's NXTcomm event when Randall Stephenson during his keynote address introduced the launch of a new service called Video Share.

A year later, when you ask AT&T execs what converged services the company offers, Video Share is the main answer. Video Share allows users to send a live video stream to a recipient during a standard cellular voice call.

However, the nation's No. 1 telco is also at the center of the convergence movement as a result of its relationship with Apple, which named AT&T the exclusive provider of service for the iPhone, a multimedia device that allows users to access video and a whole lot more. AT&T's service for the iPhone today is based on 2.5G EDGE, will be 3G later this year, and will move to LTE around 2010/11, the company tells xchange.

On the wireless business services front, AT&T Wireless today offers an IP PBX-based service that provides users with a single number for both their wireline and wireless phones. The company is in the process of building a similar service, in this case based on femtocell technology, for the consumer space, said Chris Rice, executive vice president of Shared Services. Also in the offing is a network-based cellular address book to enable users to more easily upgrade to new devices (so they don't have to reprogram new cell phones or PDAs), he said.

On the IPTV front, AT&T's U-verse subscribers are able to pull up Internet-based content, such as Flickr photos, on their TVs. Pretty basic stuff, the likes of which Apple TV can do today for around $300 and no monthly service fees.

AT&T also promotes its own branded Blue Room music Web site through which wireline or wireless broadband customers can watch interviews, music videos and more.

Of course, AT&T does like to talk about its three-screen strategy. Company executives keep bringing up the concept of enabling users to program their TV DVRs remotely via cell phone, or continue watching a TV program on their mobile device if they need to leave the house. But, in truth, AT&T's video efforts today largely are running on separate rails on the wireless, wireline broadband/Internet and TV fronts.

While AT&T's wireless, Internet and TV video services are separate today, Rice said the goal is to provide subscribers with a more unified experience across the three screens. To make that happen, he added, AT&T needs to build back-end systems to enable that, a task he expects to take a couple of years.

Making video communications more personal is another goal at AT&T, he added. For example, he said, the company has an application in the lab that allows users to create avatars in virtual movie theaters and then comment on the movie. (Think: Mystery Science Theater 300.)

BT

BT has arguably become king of convergence. But that lofty position has had its challenges, as the company's early passes at convergence — such as its BT Fusion effort — have been reported to be slow starters. And the company, which this spring saw a turnover at the CEO level, has been struggling financially.

The company is known for its much-hyped 21st Century Network, which actually involves most of the same basic technologies many other service providers have embraced, such as Ethernet, IP/VoIP, next-generation service delivery platforms (BT calls this its Converged Experience Design Notation initiative), etc.

"We have re-built around 35 percent of the U.K. infrastructure while, globally, the 21CN platform is now available in 164 countries and on towards 170 countries during 2008, with 21CN I-Nodes now available in 31 locations across 26 countries supporting corporate voice-over-IP services," said BT CTO Matt Bross.

"Our real-life implementation experience of migrating end users has made us prioritize the delivery of new services like Ethernet and next-generation broadband ahead of migrating existing services," he added. "This has been an important lesson. We're in the process of launching a range of new 21CN services this year.

"In January, we launched 21CN Ethernet and this spring," Bross continued, "we'll launch 21CN Broadband which, in addition to higher speeds, will give end users greater choice and improved quality of experience. We'll also launch an integrated voice and broadband service later this year that will enable high-definition sound for voice services for the first time."

As for converged services, the company offers BT Vision, Fusion and Digital Vault as part of what it calls an integrated broadband solution.

"For business customers, we've created BT Office Anywhere, a Wi-Fi smartphone device with a Windows operating system, which allows workers to e-mail and access calendars and contacts in real time as well as download and edit Word, PowerPoint and Excel documents," said Bross in an interview via e-mail. "For consumers, we've worked with Sony so that Sony PSP users can use Go!Messenger, the new wireless communications package on their gaming device, to chat to and see their friends.

"We're seeing new public applications as part of BT's Wireless Cities program, such as free information zones on council Web sites for residents, workers and visitors," he added. "Our MobileXpress service is a scalable, cost-effective solution [that] provides remote access for multinational [corporations]. BT Corporate Fusion is also helping our corporate customers improve workforce productivity by giving employees a single device for communicating inside and outside the office with a single point of access to key communication services."

One hallmark of BT's approach to convergence seems to be its move toward opening the network to the developer community at large. While this Web 2.0-type theme is discussed across the communications industry, BT actually has publicly committed to it.

"We will introduce an Innovation platform this summer that will enable BT and third parties to add value to BT's new 21CN services through the development, integration and delivery of a range of software applications," said Bross.

Qwest

Convergence may be ill-defined; nonetheless, when you think about a cutting-edge concept liked converged services, Qwest Communications International Inc. is not the first telco that comes to mind. But even this ILEC has been busy working on converged services.


Pieter Poll

Qwest now is trialing in parts of Colorado a new service called qHome, which brings together communications and messaging across wireline and wireless devices, and delivers some other fun little features.

The service, which is based on Microsoft's Live Messenger, provides all of a customer's voice mail and e-mail through a single interface that can be accessed via a PC or wireless device. It also allows the user to log into Messenger from anywhere in the world to see who has called his or her other devices, such as the home phone. Subscribers also can save voice mails as MP3 files for replay. (For example, Mike Gibson, Qwest's director of intelligent networking, who gave xchange an exclusive look at qHome in late April, demonstrated how he'd used this last feature to save a voice mail message sent on Halloween from his young daughter.)

While qHome employs newer technologies like SIP and Parlay within what Qwest CTO Pieter Poll described as a "pre-IMS" architecture, the voice component of it is TDM as opposed to VoIP, said Gibson. "Everyone talks about new services," he added, "but in some cases it's about simplifying existing services."

But beyond just being a nifty new service, which Qwest intends to deliver as a free feature included with consumer bundles to customers it's transitioning from its old voice mail system, qHome represents the first service built on a new framework that will act as the foundation for Qwest's future converged services, said Gibson.

In bringing new services to market, Qwest and the other telcos traditionally have set the specifications for the service, put out a vendor request for proposals, chosen equipment to support the service, deployed that gear and then brought the service to market — all in a one-off basis, noted Gibson. With qHome, the platform was created with a broad range of services and capabilities in mind, he added. For example, Qwest hinted that it may elect to bring a video component to the service in the future.

The move to create this platform began a couple years ago when Gibson, who initially was on the IT side at Qwest, was tapped along with a handful of other folks — some from IT and others from the network side — to work on the convergence effort, he said.

Verizon

Verizon Communications Inc. over the past several years has been surprisingly forward-thinking about network infrastructure and services.

It's spending billions on its network and really stuck its neck out with the FiOS FTTH project at a time when AT&T embraced a more conservative FTTN approach and Qwest was nowhere to be found in terms of fiber-based residential initiatives. And although it may have iPhone envy (it offers an iPhone copycat), Verizon Wireless preceded Apple in the introduction of a cell phone MP3 player and accompanying music Web site.

However, when you ask Mark Wegleitner, senior vice president of technology at Verizon Communications, what converged services the company offers today, he doesn't have a lot to talk about. His only example in an interview with xchange in April was the fact that FiOS TV customers can pull up basic information such as weather and sports from the Internet via an application he referred to as widgets.

In the labs, however, Verizon is doing lots of work on cross-platform gaming, such as allowing an individual working off a set-top box to play against someone on his or her cell phone. Wegleitner said Verizon expects to introduce something along these lines this year or early next. He also talked a bit about IMS-based presence allowing callers and called parties to more effectively communicate and manage their services through TV-based call alert pop-ups, for example.

Perhaps Verizon's converged services are so limited because, as Wegleitner said, the services Verizon does offer in that vein are provided in silo fashion. "It's really the perception of the consumer that you've got a converged service, which is, from a market-based perspective, equally effective," he said. "But it's not necessarily the most cost-effective way from the network perspective."

Wegleitner said an important part of his job at Verizon is to ensure that the money spent on its multibillion-dollar construction program is put to best use. "Strategically, converged networks and converged services will be very high in the priority list of how we spend that money," he said, adding that Verizon expects true convergence (a la ATIS) to result in at least a 50 percent gain in efficiency over the next four to six years in terms of increased services and better time-to-market.