

Voice-Over-Cable Has Arrived ... But It's Just A Start

By Eve Aretakis, President, Siemens Network Convergence

Over the past decade, the cable industry has expanded its offerings by adding broadband and voice services to its video entertainment roots. Now mature and “ready-for-prime-time” VoIP technologies have emerged with a key application like voice-over-cable that offers all the quality-of-service, reliability and security we’ve come to expect from TDM dial-tone. These IP technologies have completely recast the economics and market dynamics of cable telephony. Suddenly VoIP and cable telephony have opened up the competitive races again.

The Race for Customers

This time the race is in pursuit of locking customers into the most convenient and cost-competitive bundle of video, voice and data possible, the so-called triple-play. The goal is to reduce customer churn, boost average revenue per user and renew growth in services gone flat, like basic cable, or that are flattening, like broadband.

To this end, all the major MSOs have started trials if not commercial deployments of true next-generation, voice-over-cable applications. But this is only a start. As an industry, we have the opportunity to deliver much more benefit to end users if we fully tap the potential of VoCable.

While delivering existing media over packets may result in substantial cost-savings and greater deployment flexibility for MSOs, it’s hardly differentiated and by itself does not promise new revenue sources. No one will pay more for the “privilege” of getting what they already have, just because it’s being delivered over a new technology. Also, the bundling of separate pipes for entertainment, Internet access and now voice-over-cable is a packaging strategy with value in price and billing convenience, but it too is not a sustainable differentiation. [250](#)

If we consider that packetizing existing media reflects a first-generation IP application for cost-efficient delivery of a media or service, then what would second-generation IP applications look like? We would suggest that second-generation apps will reflect a *blending* of media over the HFC infrastructure in new, valuable and revenue-generating ways.

These applications will do more than provide IP-enabled versions of services subscribers already have. They will change how people communicate and interact with information. As Tanya Van Court, vice president of Operations at Cablevision, told *USA Today* last summer: "We think that a year or two from now, customers won't be interested in standard telephone service. They'll be interested in how to enhance their Internet experience with voice."¹

One simple example of a “never-before” service is individualized cell-phone ring-tones that seem to have come out of nowhere in the past year. It’s now estimated to be a \$3.5 billion global business.² And gross margins on these downloadable, \$1.50, 15-second music snippets are almost 100 percent.

So, new services, new revenues and new profits – that’s what second-generation IP applications can bring MSOs. Let’s look at some compelling categories of these kinds of applications:

- **“Presence-aware” communications** that support real-time collaboration and social interaction by providing a clearinghouse of family, friends and associates’ availabilities.

This middleware was inspired by the instant messaging technology behind “buddy lists” that show who is online at any given moment. It’s now been developed to be context- and role-

¹ *USA Today*, “Calling via Internet Has Suddenly Arrived” by Paul Davidson, July 7, 2003

² Arc Group, cited in the *Toronto Star*, “Ringtones: 10 Percent of the Market for Music” by Tyler Hamilton, Mar. 1, 2004

sensitive, which can play out in many valuable ways.

Take, for example, a premium application that would provide, picture-in-picture, a list of who you know who happens to be watching the same football game or *American Idol* broadcast as you, plus give you choices of chatting online (again, picture-in-picture) or calling that person for a voice exchange. Or, with HFC-wireless convergence, imagine being aware of whom among your friends is actually attending the football game, able to receive a call from you for your own personal play-by-play. 600

- **Managed voice and multimedia communications** that provide traditional voice services plus presence, instant and unified messaging, real-time collaboration, even video telephony.

These services may echo if not include classic telephone features like one-to-one calling, extension dialing, voicemail, call waiting and so forth. And while the telco world often uses the term “IP Centrex” today to describe such managed services, it woefully understates the possibilities (just as the term “horseless carriage” once described a four-wheeled device that’s evolved to deliver the power, speed and handling to a single driver of as many as 700 horses today!).

But because these services are now IP-enabled, they can be integrated with other services such as video telephony and multiparty video conferencing, along with real-time collaborative whiteboarding and document-sharing.

These capabilities, especially the collaborative ones, have obvious business applications that should be important to MSOs interested in commercial markets. One obvious step, as more and more workers find their company’s branch office to be their home address too, is for MSOs to leverage their residential franchise and help companies extend their information and communications interface to their home workers. Another step would be to provide managed voice and multimedia communications to the many office parks and small and medium sized businesses that the MSOs’ cable plant passes.

At the same time, these features can prove valuable to the residential market for two reasons: one, households with family members and friends far away will presumably value being able to have these services in the home (multiparty videoconferencing, as just one example); and two, household members would also value the unified user experience of an integration between their home and work communications.

- **Blended information, communications and entertainment** that mix the triple-play in some ways like what’s described above but in other ways, too, both in synchronous real-time and asynchronous modes.

One example is the idea of combining RF-sensitive LCD television screens with video-embedded URLs, or Web links, for real-time, interactive programming. Using the remote control, viewers could point at an actor in a show or movie, click and invoke a sidescreen with the star’s complete entertainment bibliography (and biography, for that matter). A second point and click with the remote could either switch full-screen to another show or movie by that actor or picture-in-picture. In short, IP would enable this combination of synchronous and non-synchronous entertainment, along with the associative and directive power of web-based information.

This example can extend to advertising as well. In place of toll-free numbers and web addresses (or in addition to them), viewers could point their remotes and click on the commercial or even a product placed into a show or movie and retrieve information about the goods presented. Click twice and they could invoke a voice call from the advertiser’s contact

center to provide that additional information, schedule a trial or test-ride or, best yet, take an order. 1082

Each of these application categories will be compelling on their own, but when combined into a package across a single network domain that unifies HFC and wireless, home and business, they'd be a blockbuster winner today. And, if the cableco's competition succeeds with its fixed-mobile convergence initiatives first, the unified concept may well become a competitive imperative tomorrow.

Challenges of Meeting Pre-Set Expectations

Much if not all of business is managing expectations, from customers on Main Street to the analysts on Wall Street. And so it is with the debut of voice-over-cable telephony as a start and the basis for second-generation IP applications. In fact, there's a whole raft of expectations about voice services, in particular, that has been set by a telephone system with roots going back more than 100 years.

These expectations and their implications can be grouped as follows:

Service expectations – When people in the developed world pick up the phone, they expect dial-tone immediately, just as they expect the sun to rise in the morning. They expect that they can speak to another person without jitter, echo, cross-talk, buzz or a faint or fading voice on the far-end of the line. And they also expect their conversations to be private.

In the TDM circuit-switched world, engineers have had decades to figure out solutions to these issues, so much so that customers today take for granted 24x7 availability, quality-of-service and security. VoIP, on the other hand (and well inside a single decade), is just now mature enough as a technology to qualify as “carrier-grade” in these areas.

That's not been an easy feat, given the wide-open, time-sensitive and asynchronous nature of the Internet Protocol plus the latencies induced by packet addressing, loss and resends. And despite the progress to date in such areas as forward error correction, inverse multiplexing and encryption, much work remains to be done in the areas of IP network performance management, technology interoperability and especially dynamic provisioning and billing. 1350

Territorial expectations – One of the most fundamental changes IP-enabled delivery of the triple-play brings to the market is the ability of service providers to deliver IP services anywhere there's Internet access, even outside their traditional service territories. SBC, for example, is planning to extend its recently announced PremierSERV Hosted IP Communications Services to all 50 states 2004.³ Other major providers are planning to follow suit.

What this means for MSOs is both a challenge and an opportunity. On the one hand, they won't have just the local telco poaching their customers but soon any ILEC or CLEC with the resources to do the poaching. On the other hand, MSO's that may have been bound by their own municipally defined territorial franchises can now explore greenfield opportunities outside their traditional operating areas.

But while IP networks may enable cablecos to transcend many geographic constraints, it will not help resolve last-mile/first-mile issues nor a lack of wireless offerings. Some “co-opetition” among cablecos and telcos seems inevitable, for what cablecos have in content and broadband penetration, the telcos have in mobility and business connections.

³ SBC Communications, “SBC Communications Introduces IP Product Portfolio To Serve Enterprise Customers Nationwide”, press release, Nov. 20, 2003

For consumers and business, all this means many more choices and, most likely, lower prices. The first will require service providers to differentiate; the second, bring margin pressures that will reward cost-efficiency and scale.

Regulatory expectations – State and federal regulations will always have some role to play in defining the playing fields of the information, communications and entertainment industries. And, as they blend, the regulatory uncertainty may well grow.

Already it's clear that regulations – by the very nature of the deliberations and time needed to produce them – tend to lag behind the fast pace of both market and technical conditions they try to control. Nevertheless (and despite deregulatory trends), they will always be a factor in investment and operating decisions of interstate business.

Of course cablecos have escaped the onerous unbundling requirements to share their networks with competitors, unlike the telcos which have cried foul for years (even if the cable industry has forced to fight “must carry” rules and be subject to local municipality oversight from the start). Fair-play issues will likely continue as vested industry interests that ride over the HFC plant will continue seeking to gain competitive advantage any way they can.

Standalone VoIP providers like Vonage have so far escaped the weight of the federally mandated Communications Assistance for Law Enforcement Act of 1994 (CALEA), for which regulated service providers, including MSOs, have spent tens if not hundreds of millions of dollars to comply. But it shouldn't be long before they do, given that 9/11 considerations have made compliance all the more critical and urgent.

Enhanced 911 is also a regulatory requirement that escapes the Vonages of the market, but consumers have come to know 911 as the number to call in case of trouble.

The point of bringing up CALEA and E911 is that, for cablecos, voice-over-cable implementations will need CALEA and E911 and, for reasons of cost and operation, it's best to consider onboard solutions to meeting these requirements. 1900

Six Important Steps to Take Out the Starting Gate

As a wide sweep of contenders for customer and market control come charging out the starting gate, cable operators have many of the odds stacked in their favor: 96 percent household connectivity; a commanding lead in video programming; a 750 MHz HFC cable plant with an average of 200 MHz available for two-way digital services; a 2-to-1 lead over telcos in broadband penetration; more mature IP technologies than ever; a market that's more accepting and comfortable with broadband and new technologies than even a few years ago.

Of course, the competition has some big odds in its favor too: Near 100 percent household AND business connectivity; decades of captive voice markets; and, very importantly, a valuable wireless, mobile constituency.

But however favorable the odds are one way or another, a critical key to success will be execution. With our experience of helping deploy one the largest voice-over-cable IP deployments so far, here are some suggestions for cable operators on execution that based on our experience with this implementation:

1. **Define and communicate requirements clearly.** This may be obvious, but everything that follows has time and cost implications for better or worse based on the definition phase. It would be most useful to make a standing practice of listeners' “play-back” of what they heard back and forth among team members as well as among vendors so people don't say one thing, only for their counterparts to hear another.

2. **Qualify your network.** Despite the great efforts by CableLabs to facilitate interoperability, vendors are still far from simple plug-and-play. In addition, the necessary voice-over-cable equipment – soft switches, gateways and so forth – are new to the HFC network's own legacy platform base and compatibility needs to be ensured. Ensure that your OSS, billing and provisioning platforms are ready, too.
3. **Test, test and test again.** Testing, of course, is instrumental in any large-scale network deployment, but among many operators, the pressures to introduce voice-over-cable services are immense these days, and there might be temptations to deploy solutions before they've been adequately qualified. So it's important to find an integration testing lab, which can pre-qualify equipment, releases and patches.
4. **Assemble a skilled, focused and dedicated team.** The skills needed for deploying voice-over-cable successfully are not available just anywhere. During requirements definition, a concurrent activity should be to determine the skills and knowledge required, the roles to deliver those, and who in the organization has them or can acquire them in short order. Then, the team needs to focus solely on a successful implementation, using best-practice project management skills and not distracted with other company initiatives or activities.
5. **Communicate, communicate, communicate.** Not only does the project team need to communicate among itself and with its vendors, but also across the entire organization of the cable operator: billing, operations, marketing, customer service and any other groups that might be touched by the voice-over-cable implementation or need to respond eventually to customers and the market on the receiving end of the implementation.

An Exciting Race to Be Part Of

What's going on today in the convergence of information, communications and entertainment industries has been foretold for decades. In fact, it was 40 years ago this year that AT&T introduced a video telephone at the 1964 New York World's Fair. Since then there have been many fits and starts toward the convergence that IP is finally bringing us today. The hype and bluster of just a few years ago has given way to a practical urgency to move ahead as fast as possible. It's an exciting time and an exciting race among the converging industries' key players. In just a few years from now, the business models and market landscape those industries defined today will be ever so radically changed. Stay tuned. 2600

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