

# Vetting VoIP

**MSOs and Vendors Tackle Hurdles On the Road to Digital Phone Service**

By Gary Arlen 8/8/2005

Cable's route into voice-over-Internet protocol services is traveling across an awkward amalgam of century-old telephone issues, such as battery-backed power supplies. But there are also futuristic challenges, including "follow-me" integration with wireless/mobile services.

Along the way, the new corps of telephony experts at MSOs and the vendors seeking to sell them voice solutions are confronting multiple fundamentals of today's phone reality.

Their challenges range from deciding how to use the emerging Session Initiation Protocol standard to implement VoIP versions of "E911" emergency access. The VoIP highway also includes detours into IP Multimedia Subsystems and requirements for compliance with the Communications Assistance for Law Enforcement Act (CALEA). An array of soft-switch technology, plus the increasingly competitive market for low-priced embedded Multimedia Terminal Adapters are also part of the VoIP migration.

Not to mention the Next Generation Network Architecture, the industry's vision for future cable technology — now in its early evaluation stages at Cable Television Laboratories Inc. Digital voice services figure deeply into the NGNA agenda.

## **VoIP REWARDS**

Nonetheless, VoIP's complexity has its rewards — starting with the lower equipment price, which can be half the cost of time-division multiplexing (TDM) hardware, according to Jay Rolls, vice president of telephone and data engineering for Cox Communications Inc.

Cox, which has more than 1 million voice customers (most of them using legacy TDM-switched facilities), has set its highest priority for the year ahead to convert all of its switches to hybrid devices, able to handle both VoIP and TDM.

Cox's primary goal for 2006 is "capping our TDM and converting over to VoIP," Rolls says. "That's as big a project as launching new markets for video on demand."

Also smoothing the cruise toward VoIP is the relatively easy upgrades of headend equipment. Cable-modem termination systems can generally be prepared to handle voice services through the installation of software.

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“CMTS went through an evolution,” says Mark Baikes, director of marketing at Cisco Systems Inc.’s broadband subscriber and applications unit. He cites the “ever-increasing capacity for data and voice” as a continuing driver for upgrades.

## **NAT VALUES**

Baikes singles out the value of network address translation (NAT), an Internet standard that enables a local-area network to use one set of IP addresses for internal traffic and a second set of addresses for external traffic.

These translations can sometimes create problems in deploying VoIP, although he cites a Cisco solution that can be installed to resolve such hurdles.

Time Warner Cable has installed Cisco BTS 10200 soft switches at its seven regional data centers, most of which have multiple switches. Time Warner senior vice president of voice Gerry Campbell says the price advantage for VoIP technology is significant, and he expects that “when Comcast [Corp.] more aggressively enters this space, the prices will go down” even further.

Rolls says that at Cox headends, technicians made code changes to the DOCSIS 1.1 (Data Over Cable Service Interface Specification) on CMTS equipment. The process included upgrades to a dynamic quality of service. Easing Cox’s transition is a Nortel Networks “bolt-on” product, which transitions its DMS 500 switches (now used in all Cox’s TDM markets) to hybrid switches, able to handle VoIP.

Motorola Corp., which does not offer its own softswitch, has conducted integration tests with all the major switch vendors.

“You want to have infrastructure that is high-performance and also supports full redundancy, carrier-class implementation and hitless software upgrades,” says Jeff Walker, Motorola senior director of marketing. “You don’t have to take customers out of service [when you] load software into the system.”

Cedar Point Communications’ Safari C3 Multimedia Switching System exemplifies the emerging generation of integrated VoIP platforms.

“We’re integrated into a single device with an interface to the CMTS,” says David Spear, Cedar Point executive vice president of strategy and market development. He contends that MSOs can garner lower operating costs by integrating the call-management system, the media gateway, signaling gateway and CALEA servers in a technology bundle that interfaces with existing CTMS equipment.

Spear also stresses the value of DOCSIS 2.0, now being adopted by more MSOs. “It is very important for increasing the overall bandwidth as it applies to other quality of service [factors] for upstream capabilities,” Spear adds. Comcast, Charter

Communications Inc., Insight Communications Co. and Bresnan Communications are among the MSOs using Safari C3, often at their smaller systems.

Rolls says that about half of Cox's CMTSs have been upgraded to DOCSIS 2.0, about the same ratio as Cox's cable modems.

## **TAKING A SIP**

The move toward SIP is high on the agenda for many vendors and operators, especially since the protocol is being developed for wired and wireless services. Although it is not currently part of the packet-cable technology, cable is evaluating SIP on several fronts.

"The significance of SIP ...is that it can be married to an existing cable modem," Jeff Walker of Motorola explains, emphasizing that "operators won't have to replace existing cable modems."

John Sweeney, Scientific-Atlanta Inc. director of product strategy and management for IP subscriber products, agrees. "SIP is starting to gain traction," Sweeney says, pointing out that at a recent CableLabs meeting, there was movement to put SIP into future devices.

## **ACCELERATING CONVERGENCE**

He adds that although SIP "may not be operating Synchronous Code Division Multiplexing, the systems "give more throughput to increase upstream capacity."

Baikes of Cisco sees SIP as "an accelerator in the convergence of telephony ... and entertainment.

"What's also interesting is that SIP is being adopted in wireless," Baikes adds. He also observes that, "Consumer-electronics companies are beginning to make convergence devices without knowing who is going to run them."

Cedar Point's Spear points out, "We've already built SIP as part of our platform. It just become another access device that we talk to." He says a SIP device could sit behind the cable modem or be embedded within it.

## **BIGGER VOICE**

"MSOs are seeing that they can achieve penetration that is so high they could become the dominant carriers," is the enthusiastic evaluation of Stan Brovont, vice president of marketing and business development at Arris, which supplies VoIP and other hardware to cable operators.

He says that MSOs are "looking for iLEC [incumbent local-exchange carrier] feature parities," starting with the major custom-calling features such as call waiting and forwarding. Brovont expects that "price competition is going to be a fact of life."

Powering the eMTA equipment is a fundamental challenge, to assure that voice customers maintain the always-on voice service they received from telephone companies. Four-hour back-up batteries are today's norm, but most systems are upgrading to at least eight-hour batteries.

For example, Bresnan has standardized an eight-hour back-up battery in the home equipment and at its nodes. At its headends, Bresnan has back-up generators.

### **PREFERRED TERM**

“Digital phone” is becoming the preferred term for cable's telephony service — and it seems to be catching on. Cox, Time Warner, Bresnan and most other large MSOs are selling their VoIP services as “digital phone” to accompany their digital cable channels.

A bigger differentiator is how the voice infrastructure is set up. According to Spear, “Each customer lays out its network in different ways ... [depending] on how many contact points they want to the PSTN [Public Switched Telephone Network].”

He says that many gateways reach about 60,000 subscribers, but he notes that many of the softswitches “are getting pushed out into the network.”

“Regionalization gives groups more control over their offerings,” Spear contends.

Bresnan, which launched its first VoIP service in Grand Junction, Colo., in March, has signed up “several thousand customers” in the four markets where VoIP is now available (including Cheyenne, Wyo.; Billings, Mont.; and Durango, Colo.).

Bresnan expects to have 70% of its homes passed ready for telephony service by the end of this year, and nearly 95% of its customers ready for VoIP service by the end of 2006, according to Lenny Higgins, senior vice president of advanced services for the MSO.

“We'll do some plant hardening, reducing the node sizes to make it tighter for telephone service,” Higgins says. Bresnan partnered with Net2Phone, which handles back office and termination services.

The systems have Cedar Point equipment as well as Cisco UDR hardware, Cisco's primary CMTS equipment, in a redundant configuration. Most of its consumer premises equipment is made by Arris.

### **TARGETS FOR 2006**

The coming year is likely to bring more features as well as increasing appetite for VoIP rollouts. Spear sees home-network integration and mobile virtual network operations as key drivers for voice service in 2006.

Farshid Mohammadi, general manager of switching at UTStarcom Inc., and marketing chairman of the International Packet Communications Consortium, also foresees VoIP expansion “either organically or through third-party wholesale models to reduce risk.”

In 2006, Mohammadi expects “the introduction of a wireless ... to complement the triple play.” He also embraces the follow-me concept, which he calls “Fixed Mobile Convergence,” characterizing it as a major attraction for “the enterprise segment — an untapped market for cable operators.”

## **Alarms and Whispers**

If you need someone to whisper words into your ear, pick up a digital phone. An enhanced caller ID feature will softly say the caller’s name and ask if you want the system to remember it and whisper it to you on future calls.

Or if, early each day, you don’t want to turn on the TV or log onto your Web portal — let alone grab a daily newspaper — your phone can recite a weather report, sports scores and your stock portfolio data the first time you pick up the handset in the morning.

Such are the promises of voice-over-Internet protocol telephony, says Time Warner Cable senior vice president of voice Gerry Campbell, who adds, “That’s the whole purpose behind the bundled price: bundle the services.”

Campbell acknowledges that some of these features may be further down the road, but he is intent on finding advanced “digital phone” services that integrate with cable’s other data and video offerings.

For now, Time Warner’s VoIP ventures are focused on more mundane — but better understood — services such as Caller ID, which is being tested on Time Warner’s Carolina systems. In 2006, the company will evaluate ways to monitor home communications activities, starting with alarm systems and follow-me services.

“They’re white-boarded, but not fully operational business plans,” Campbell says.

Other MSOs and vendors are also accelerating with advanced services piggybacked to their VoIP agendas. The checklist includes voice-activated dialing, wake-up calling, whisper services, follow-me features and alarm compatibility.

Motorola wants to leverage its cable and its wireless phone ventures through services it calls “liquid media;” other companies refer to similar capabilities as follow-me features, which exploit VoIP and other technologies to recognize a handset’s presence in various locations. Motorola’s dual-mode handset can be used for mobile or for cordless service when it encounters a Wireless Fidelity gateway (VoIP terminal adapter).

“The majority of MSOs are interested in offering a lifeline telephony capability,” says Jeff Walker, Motorola Corp. senior director of marketing.

Cedar Point Communications is scheduled to launch a follow-me test using Persona Software. A field trial with an MSO that Cedar Point declines to identify will begin by next month.

IP Unity, an independent company that provides voice messaging and other convergence software, expects that MSOs will deploy its unified-messaging capabilities within the next 12 to 24 months. IP Unity senior vice president Dan Burkland says, “We’re seeing MSOs interested in creating a voice portal, using voice commands and speech recognition” via a speech-integration engine. IP Unity expects to begin initial field tests by next summer.

“A year from now, we’ll be delivering more advanced speech-enabled integration between the TV set and the phone,” Burkland predicts.

Arris LLC is working with alarm companies to make sure that customers’ existing alarm systems work with VoIP. “We don’t think it’s as big an issue as some people contend,” says Arris vice president Stan Brovont.

VoIP also opens up extensive commercial opportunities for MSOs. Scientific-Atlanta Inc.’s John Sweeney sees “the architecture of using 802.11 with a SIP-based protocol [that] defaults to a wireless connection” as very appealing to enterprise customers. But he acknowledges that “a lot of schemes are being thrown around” and many “business issues must be addressed.”

“The technology could go in a lot of different directions,” Sweeney admits.

MSOs are trying to set up their own portals to enable customers to manage the increasing array of voice services by themselves. For example, Comcast has established a portal, and Net2Phone, which manages the voice services for several MSOs, provides end-to-end network monitoring to help support customers. —*Gary Arlen*