

WiMAX Use of Cable Tech Sheds Light on Key Players' Strategies

Cable and wireless service providers are exploring ways to leverage the PacketCable Multimedia (PCMM) standard to enable delivery of quality-sensitive content and applications over WiMAX networks.

While interest in the possibilities appears to be widespread, the concept is especially revealing as a clue to what the participants in the cable-Sprint joint venture may be cooking up beyond the boundaries of their current deal. JV participants Comcast, Time Warner Cable, Cox Communications, Advance/Newhouse and Sprint Nextel recently bid \$2.37 billion for 137 wireless spectrum licenses in the FCC's Advanced Wireless Services (AWS) auction but have offered little information on how this new spectrum fits into the JV strategy, if at all, or how Sprint's recently announced "4G" wireless venture employing WiMAX over another swathe of licensed spectrum will play in the JV.

PCMM is an extension of the PacketCable standard that enables cable hybrid fiber coax (HFC) networks to deliver IP voice services. A leading participant in the WiMAX PCMM exploration, Camiant, Inc., is already supplying many cable companies PCMM policy servers that work with the cable DOCSIS (Data Over Cable Service Interface Specification) platform to dynamically apply bandwidth, latency limits and other parameters to specific IP flows.

Now, says Randy Fuller, senior director for alliances and solutions at Camiant, service providers who want to apply quality-of-service capabilities to content and applications delivered over WiMAX fixed and mobile access feeds have an opportunity to use a WiMAX-optimized version of PCMM, because the WiMAX standard already uses the DOCSIS 1.1 Media Access Control (MAC) scheduling mechanisms to manage data streams. As a leading developer of the technologies underlying PCMM, Camiant has an important role to play in extending the capabilities into the WiMAX domain.

"Going forward I think you will see WiMAX providers leveraging a lot of the technology and infrastructure associated with DOCSIS and PacketCable," Fuller says. "The streaming video, premium online gaming, VoIP and other applications we do for cable operators will all be available to WiMAX out of the chute."

For cable operators who want to deploy WiMAX wireless overlays on their networks, the ability to leverage one QoS platform to serve all access points would be a great benefit in their migration to wireless. This combined with the longer reach of WiMAX over Wi-Fi and the mobility capabilities built into the WiMAX 802.16e standard have swayed many MSOs to look on WiMAX as the better solution for their wireless coverage needs.

At the same time, the fact that Wi-Fi home networking and the proliferation of Wi-Fi in devices, including dual-mode cell phones, has kept much of the cable-Sprint JV's focus on use of Wi-Fi links to serve as the inter-connecting linke between cell and cable services. Further complicating matters is the fact that no standard yet exists for use of WiMAX technology in the AWS spectrum slots at 1710-1755 and 2110-2155 MHz.

It isn't clear whether cable owners of AWS spectrum would push for WiMAX solutions in those tiers, but adjustments to accommodate use of WiMAX network components and devices in the AWS zone would be fairly straight forward. But judging from the work being done with Camiant it would appear WiMAX is the preferred pathway for the cable-wireless marriage, irrespective of what happens with the JV.

Cable insiders at participating MSOs and in other quarters have privately signaled the venture is stalling, despite ongoing public pronouncements of commitment to the strategy. Comcast has said it will launch trials of the JV service in Portland, Me. and Boston by year's end, and Time Warner has indicated its trials will begin in Raleigh, N.C. and Austin, Tex. in the same timeframe. Three other, unnamed markets are also targeted for trials this year.

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Sprint had only a five percent stake in SpectrumCo, the entity the JV members formed to bid in the AWS auction. The big bidders were Comcast at \$1.29 billion, Time Warner at \$632.2 million and Cox at \$248.3 million. In one of the few public statements on their plans, the three MSOs in a press release described their spectrum purchases as creating "a true national footprint covering the MSOs' top cities including New York, Los Angeles and Chicago." They said the licenses will "provide flexibility and strategic options."

Meanwhile, Sprint's discussion of its plans for WiMAX 4G service across its national licensed footprint at the 2.5 GHz spectrum tier has not included mention of the cable JV. Thus, it appears that while the JV will focus on a seamlessly interconnected 3G cellular service with cable, the entities will pursue separate strategies over the AWS and 2.5 GHz spectrum tiers, at least until they get a clearer idea of how well the first phase of the JV is going to work out. Even if it turns out the JV has legs, it would seem that by holding so much new spectrum, the MSOs have put themselves in a better bargaining position in their ongoing dealings with Sprint.

The existence of QoS mechanisms to support delivery of services on a dedicated basis over WiMAX fits with plans of WiMAX players, including the other major spectrum owner,

Clearwire, to provide a multimedia service that matches the mobility capabilities of cellular but with much greater bandwidth and efficiency for delivery of video, music and other content. By being able to allocate specific quality parameters to specific flows on a per-user basis, WiMAX service providers will be able to set higher prices for better-than-best-effort services while ensuring that the right balance is maintained in bandwidth utilization between best-effort and premium subscribers.

"People are looking at providing something between traditional streaming video and TV-quality service," Fuller says. "Devices people use to access this content will have smaller screens with lower resolution than PCs and TV sets, but they'll be more suited for viewing than mobile phones."

At present the use of PCMM technology with WiMAX is limited to bench tests insofar as more work needs to be done to establish a standardized set of interfaces for PCMM to work with the WiMAX DOCSIS mechanisms in field deployments. The "hooks" are there in the DOCSIS MAC for engaging policy controls, but the way RF distribution works over a wireless platform is very different from how it works over HFC. In wireless the network has to be able to apply controls to the portion of spectrum a mobile user is operating on at any given moment.

A couple of WiMAX system vendors have established some proprietary interfaces that enable activation of some PCMM controls, Fuller says, but there needs to be broad agreement on the entire set of interfaces with eventual incorporation of those components into the 802.16 set of standards. "The WiMAX Forum has an initiative on policy controls," he says. "I think we'll have a fully baked interface for PCMM by the middle of next year."

At that point service providers can begin deploying the QoS capabilities that will allow an altogether new type of wireless multimedia service to get off the ground. Whether the public will embrace portable media as a must-have in the mix of telecom services remains to be seen, but, clearly, major players believe there's a big market there.