



That's one of the first personal DTV handhelds, introduced by LG Electronics President Woo Paik.

TV industry mobilizing to reach portable screens

Originally published in *Current*, May 27, 2008

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Public broadcasters have devoted millions of dollars and plenty of angst to prepare for digital broadcasts that will put more channels and HD pictures on big living-room screens. But another DTV transition that's even more exciting to some pubTV vets is arriving in viewers' pockets.

Mobile digital TV will use slices of stations' broadcast spectrum to beam live and prerecorded programming directly to cell phones and other handheld screens on the go. Stations will be able to multicast to this new audience while maintaining HD and standard broadcasts to steadfastly stationary sets.

"Moving from analog to digital, viewers can use the same system and the same habits watching TV—it's still a lean-back kind of situation," says Jim Kutzner, PBS chief engineer, who serves on several industry committees working to develop the platform. "Moving into mobile and handheld is an entirely different situation with different devices, different ways of using it and maybe different demographics."

Still in its infancy in the U.S., mobile DTV has thrived in countries such as Japan. A similar Japanese service signed more than 20 million users in its first year of operation, says Anne Schelle, executive director of the Open Mobile Video Coalition. The coalition includes broadcasting companies and associations, including the Association of Public Television Stations, that are working to establish tech standards and business models.

In the States, mobile DTV's development trails that of wireless media services such as MobiTV and Verizon's V Cast.

But broadcasters, eager to dip into the booming mobile-content market, banded together to fast-track its development, establish a technical standard and put devices in the stores by mid-2009.

"Broadcasters are more excited about this than I think they've ever been about a new technology," says Mark Richer, president of the Advanced Television Systems Committee Inc., the industry standards body that last year requested tech proposals for what will be known as ATSC M/H (mobile handheld). "These are the most well-attended meetings we've ever had."

There are several reasons for their enthusiasm. For one, consumers clearly crave mobile video. The coalition estimates that 200 million portable video devices will be sold worldwide in 2008 alone, as estimated by Forrester Research and others. McKinsey & Co. found last year that more than 44 percent of cell phone users are interested specifically in mobile TV.

The potential upshot: mobile DTV could bring in more than \$2 billion annually in new advertising, subscription and partnership revenue by 2012, according to a January study released by the National Association of Broadcasters.

For once, pubcasters wouldn't have to watch the gravy train pass them by. The FCC is expected to regard mobile DTV as an ancillary service, so pubcasters can opt to sell advertising on it or lease the bandwidth for others to use. Or they can provide noncommercial public services as they do on other platforms.

"We want to make it reasonably possible for stations to figure out what works best for them," says Mark Erstling, acting president of APTS. "We need to make a fairly quick decision about what the play is here."

'A lot of momentum'

The mobile video coalition said in mid-May that it gave the ATSC results of this spring's field tests that prove the technology works on the move.

During the same week, Samsung and LG Electronics, architects of the two primary technologies competing for selection as the U.S. standard, announced they will collaborate on the platform, forestalling the sort of format war that bedeviled the high-def DVD player market until recently.

In the same week, Harris Corp. announced it will be ready by November to ship a complete mobile DTV transmission system to broadcasters .

But plenty more meetings and announcements remain before mobile DTV hits the market.

The ATSC still must finalize the standard, and broadcasters have to figure out what content plans and business models — subscriptions? ad-supported? — will help them thrive in the increasingly cluttered marketplace. The mobile video coalition will hold consumer trials this fall to gauge what sort of content users crave, Schelle says.

Of course, consumers won't be able to see the content without new DTV-equipped screens — whether they be handheld, attached to laptops or mounted inside minivans.

Device manufacturers won't start churning out receivers until the ATSC completes the standards process, Richer notes—most likely by the second quarter of 2009. However, gadget companies seem eager to get going, Richer says. "There's a lot of momentum here," he says.

Meanwhile, mobile DTV proponents say the key pieces on their end are already in place and, unlike competing cell-based systems that put video on portable screens, the service can offer real-time local TV.

"Broadcasters have a huge opportunity in the sense that they have infrastructure, spectrum and content," as well as connections to local advertisers and sponsors, Schelle says. "None of the existing providers have all of those components."

Weather, sports, X-rated insects

Mobile DTV, radiated area-wide on broadcast TV spectrum, is fundamentally different from cellular network-based data services such as MobiTV.

In some respects, it resembles more closely Qualcomm's Mediaflo, delivered via UHF channel 55—the backbone of Verizon's V Cast and AT&T's new mobile TV service. But mobile DTV uses a different modulation standard and has much more channel capacity overall.

Mobile video developments escalated this month. Sprint Nextel partnered with Clearwire Corp. a few weeks ago and announced that Xohm, its previously delayed 4G WiMax network, will launch in Washington and Baltimore later this year. Satellite TV provider Dish Network also announced plans to build a mobile video service from the nearly nationwide block of licenses it bought for \$712 million in this year's federal spectrum auction.

The one thing those services don't offer, Schelle notes, is local programming.

Future versions of mobile DTV may include technology that allows a broadcaster to hand off a broadcast to adjoining stations as a viewer drives through their areas, ATSC's Richer says.

But at least in the early days of mobile DTV, broadcasters conceive the service as a market-by-market affair. Consumers are accustomed to seeking out different radio stations as they drive into different cities, Schelle says.

Such local focus would seem to benefit public TV, which touts its localism more or less nonstop.

However, not everyone is convinced that public TV's specialties translate well to mobile platforms, where short modular features tend to thrive.

"What content do we have that lends itself to that?" wonders Jack Dominic, chief operating officer at CET in Cincinnati. "We've tended not to get into the sound-bite mentality."

Dominic served on the mobile video coalition's committee that tested the tech standards. His station, CET, embraced new platforms with enthusiasm, transforming its website into a deep repository of local online video. But Dominic's not as pumped about mobile DTV's potential for public TV.

"The commercial folks are in a much better situation," he says. "I can see picking up my phone to watch the weather, to see if the Reds win or lose, to get news headlines in two minutes."

"I don't see myself watching the sex lives of grasshoppers on *Nova* on a 1-inch screen while I'm waiting for the bus," he adds.

To be fair, some public TV content already thrives on handhelds. *Sesame Street* has been part of the V Cast service since Verizon started it in 2005, and test results have demonstrated that mobile devices are effective at teaching kids the alphabet and other lessons, says Sara DeWitt, senior director of PBS Kids and PBS Parents.

Shows such as *Super Why!* and *Fetch!* also offer podcasts, DeWitt says, and mobile concepts are increasingly part of PBS's deals with producers of kids' content.

Local pubcasters such as KQED, KCRW, Twin Cities PTV and Kentucky's KET have also experimented with video podcasts.

On a broader scale, PBS hasn't begun to plan content strategy specifically for mobile DTV, though its general philosophy is to be on whatever platforms its viewers embrace, says Andy Russell, senior v.p. for PBS Ventures.

"We're trying to work through what the potential interest is in this," he says.

Budget your bandwidth

Even if mobile DTV doesn't catch fire with viewers, it will demand attention as pubcasters decide how to use their digital bitstreams.

Station managers who cut their teeth broadcasting just one analog TV channel will need to become ever more strategic about divvying up their capacity and their content, says Rick Ducey, chief strategy officer for BIA Financial Network Inc., a media consulting company that conducted the mobile DTV market value study for NAB.

"People have to think hard about their bandwidth budget," Ducey says. "TV broadcasters are just starting to get used to that."

In a presentation during February's APTS Capitol Hill Day, Dan Hsieh, consultant to the mobile video coalition, presented a bandwidth distribution model that broke a station's total bitstream of 19.4 megabits per second into two to four mobile channels, together using 4 to 6 Mbps, data services using 1 to 2 Mbps and HDTV using at least 10 Mbps. It reserved the remaining 3 to 5 Mbps for boosting the HD or adding multicasts.

The HD quality issue, in particular, is a touchy one. PBS's Kutzner, for example, says decent high def requires 14 Mbps — nearly all of the broadcast channel — but "people will argue otherwise," he says.

Each station will make its own decisions about bandwidth allotments, Erstling says.

To provide two ATSC mobile channels, a station would have to set aside up to 4.5 Mbps, Kutzner says.

Because mobile streams are by definition designed to hit a moving target, the signal must carry more error correction than broadcasts to fixed antennas. For every 100 kbps of content, broadcasters need to add another 300 kbps of error correction to “allow the signal to survive the very harsh dynamic environment as people move around with small receivers,” Kutzner says.

As for hardware, stations would need to invest in a new multiplexers and exciters at their transmitters, he says.

Whatever mobile technology the ATSC adopts will be designed to play nicely with a station’s HD and other signals, Richer says.

Though mobile DTV will likely begin life as essentially a simulcast service for convenience’s sake, ATSC’s Richer expects its great potential lies in non-real-time file delivery, which can ease bandwidth pressures by relegating file delivery to off-peak hours, he says.

Of course, changing delivery from simulcast to download could raise rights issues.

“Look, there’s going to be issues with all these new platforms,” Richer counters. “The people who hold rights have an interest in these things, too.”

“But I think it will be a good business for everyone.”