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European PTTs Getting Serious About Delivering Video over DSL



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By Fred Dawson

Fred Dawson is principal, Dawson Communications. Dawson Communications publishes the newsletter ScreenPlays and provides consulting and writing services to service providers, suppliers and publications in the broadband sector.

Incredible as it might seem, there are growing signs that the big telcos of Europe are preparing to enter the video business via their ADSL networks, notwithstanding the severe bandwidth restrictions that technology places on delivering a viable service.

These moves, which involve the likes of France Telecom, Deutsche Telecom, Telecom Italia, Telefonica of Spain, Swisscom and many others in a wide range of technical and market trials, have been inspired by a combination of competitive pressures and the emergence of a cost-effective IPTV platform that promises to deliver a compelling set of services, notwithstanding the bandwidth limitations of ADSL. While suppliers and other observers make clear there are a number of barriers unique to the U.S. that will prevent any immediate spread of the IPTV phenomenon to the big telcos in that country, the fact that major players in Europe are taking the video-over-DSL opportunity seriously should serve as a warning against complacent assumptions about the eventual possibilities for use of the technology as a video transport mechanism in America.

"You'll see a small number of PTTs launch video services commercially in 2004 and a significant number doing so in '05," says Derek Kuhn, director of marketing with the Information Communications and Entertainment Group at Alcatel. Activity is most intense, he says, in regions where there is either a limited amount of cable TV service available, as is the case in France and Italy, or cable operators' plans to enter telephony are prompting the telcos to respond by offering video. "In places where cable is a small, focused player in the entertainment business, we aren't seeing as much activity among the PTTs," Kuhn says.

Adequate Infrastructure

Several factors play into the timing behind the sudden surge of European telcos' interest in video over DSL. They start with the prevalence of an infrastructure that's deemed suitable for delivering competitive video in the European multichannel TV market, where a service capable of serving only one TV in the home at one time with no HDTV capabilities is deemed adequate for market needs at this point. As Kuhn notes, this is not a souped-up ADSL2Plus kind of infrastructure but one where, with shorter loop lengths than is typical in North American telco networks, the network is sufficiently robust to deliver a 6 megabits-per-second data stream to the vast majority of people served by ADSL. Where loop lengths are too long to support this data rate, telcos have deployed DSLAMs in remote terminals where the digital multiplexing can be inserted much closer to the users, Kuhn adds.

A case in point is the Alcatel-supplied ADSL infrastructure operated by Telecom Italia, which is leasing capacity to FastWeb, the largest Italian CLEC and by far the largest supplier of video-over-ADSL service on the continent to date. FastWeb, which also supplies video services via fiber to end users in some areas, is carrying all the main terrestrial and satellite TV services now available in the Italian market, comprising about 120 channels, and about 3,500 movie and other VOD titles, says Guido Garrone, CTO at FastWeb. This includes football (soccer) matches and other fare delivered via Sky Italia, he notes.

"We've launched the new video over ADSL services by taking the most ambitious challenge," he says. "Football supporters are among the most demanding video subscribers, and, as a consequence, they require extremely high broadcast quality." The TV service, launched last September, is now delivered to tens of thousands of customers in Rome, Naples, Genoa, Milan and other cities over an IP infrastructure that employs multicasting to the local distribution points and layer-two switching at the DSL access multiplexers (DSLAMs). A single switched-access channel is delivered over each customer's line at a data rate of up to 4 mbps, Garrone says.

Some PTTs Acting Now

One of the first European PTTs to go public with a move to IPTV is Telefonica, which is offering a variety of TV channels, VOD and other multimedia services over ADSL in early phases of what is billed as a rollout in all the major cities. The company has not spelled out specifics of its plans but says the launch is the culmination of two years of collaboration on the multimedia platform with Lucent Technologies. How fast the project will move beyond the early trial phase remains to be seen.

A little further behind in the ramp-up phase to IPTV is Swisscom, which intends to offer a full lineup of video and multimedia services via its ISP subsidiary Bluewin, which serves about 200,000 ADSL subscribers in Switzerland. Most PTT ISP units are exploring delivery of on-demand video services as a complement to legacy broadcast, satellite and cable network services. But Bluewin's strategy calls for delivering the full complement of TV service, from broadcast to VOD, employing the IPTV platform developed by Microsoft. This includes use of the Windows Media 9 compression system, which delivers TV-quality video at a little over one third the rate required for MPEG-2, which means a 4 Mbps MPEG-2 sports channel can be delivered at well under 2 mbps.

Bluewin, which has begun testing the technology in preparation for full rollout at an unspecified date, is the third announced customer for Microsoft's IPTV product. The others are Bell Canada and India's Reliance Infocom, both of which are also conducting trials as a first step toward eventual rollout. Microsoft also has a few other customers around the world - "all telcos and well-known names," says Ed Graczyk, director of marketing for Microsoft TV. In fact, he says, "We've got more interest than we can handle at this point."

Microsoft's strategy calls for measured rollouts with a handful of customers so that all the wrinkles pertaining to scaling and integration with legacy OSS systems can be worked out in the field in advance of a more intensive marketing campaign, Graczyk says. In late March the company held a customer advisory meeting to brief people on the status of the product and close to 50 people showed up representing telephone companies from around the world, he adds. "They're all talking about moving to video services, so we're getting a lot of good feedback as to what the market is looking for," he says.

Microsoft's first-phase strategy has entailed putting together an "early adopter package" which, at a price in "the seven figures," takes the customer from a point of initial testing through the consumer trial stage. The consumer trials won't get underway until later in the year, he adds.

Unlike the U.S., where growing interest in video on the part of telephone companies is driven by a need to compete against the emerging "triple-play" bundle of the cable companies, European telcos are getting aggressive about video because they need a new revenue stream to compensate for line losses to other types of competitors, especially mobile operators. "Mobiles have caused a huge erosion in European telcos' revenues," Graczyk says.

Probably the biggest gating factor on the timing of European telcos' entry into video is the cost of set-top boxes, notes Roger Shanafelt, vice president of sales and marketing for Myrio Corp., another supplier of IPTV-over-DSL technology. "Activity began to pick up significantly when the price for an MPEG-2 IP STB dropped below \$200 per stream (channel)," he says, noting that happened a little over a year ago. "Now, given the cost advantages of manufacturing in China, Taiwan and other countries in Asia, we're seeing manufacturers targeting \$100-per-stream prices, and that's what the telephone companies are building their business models around."

Thus, it's likely that the first wave of PTT video service rollouts will be MPEG-2 based, given the fact that the next-generation IP STBs using WM9 and MPEG-4's Advanced Video Coding are just getting down to the \$200 price level. And, in some cases, PTTs anxious to move ahead now rather than waiting for next-generation compression are looking seriously at upgrading their infrastructures from ADSL to VDSL (very high bit-rate DSL), which delivers signals over 3,000 or fewer feet of copper pair at 25 mbps and higher, depending on loop lengths.

A case in point is the Norwegian PTT Telenor, which has been conducting a market trial of IPTV over VDSL in Stavanger, with more than 700 paying customers involved. Officials say its VDSL footprint there extends to 15,000 households. The service includes about 90 channels of TV, another 20 channels of radio and music services and VOD, according to Harald Loktu, assistant project manager for Telenor's Future.dsl unit.

Telenor, which also operates a TV broadcast business reaching about three million households, has made clear it is committed to moving forward with wide deployment of IPTV services. Shanafelt says the carrier is close to making a decision on rolling out commercial service, possibly using Myrio's platform, which has been the foundation for the Stavanger trial. "We think Telenor's response has been quite favorable," Shanafelt says. "We've exceeded our own performance specs, so we're optimistic about the prospects."

As it awaits a final decision on the IPTV middleware platform, Telenor is moving forward with deployment of next-generation DSLAMs to support the high-speed access essential for transmitting video to subscribers in other markets. In March the company said it would soon begin installing DSLAMs from Nokia with the goal of serving 200,000 lines in 2004, including upgrades of existing DSL as well as expansions into new territories in Norway and Sweden. The Nokia product can support virtually any flavor of DSL, including VDSL, allowing the telco to maximize the line rate in any one location based on how far it has extended fiber.

The ISP Play in Video

As the PTTs ramp up to launch video services as part of their core business, they're also moving on a faster track toward delivery of video, including VOD and even regular television programming, through their ISP units. For example, Telenor in January entered into a partnership with TV 2 Interaktiv AS to support direct video streaming, storing, payment solutions and distribution of TV 2's web-TV to broadband subscribers. This service includes news, sports and popular entertainment programming which will be delivered to PCs at "a quality that will be close to DVD," according to Gunnar Stavrum, managing director of TV 2.

Where this trend becomes especially worrisome to cable interests is in instances involving porting of the Web-based video to the TV set. In most cases, Bluewin being the major known exception, the ISPs are creating a value-added TV service that challenges cable on the VOD and interactive services front without delivering regular broadcast programming. In these cases the PTT implements a new user interface and remote control in conjunction with a gateway converter that serves to integrate the Web-based offering with the legacy TV fare, in effect piggy-backing on the latter to create a next-generation interactive TV service.

Perhaps the most significant development along these lines occurred in March when Deutsche Telekom's ISP T-Online, Germany's largest ISP with 3.2 million customers and 10 million household passings via ADSL, launched its Vision service. The heart of the service is a sophisticated new media gateway product from a joint venture between Siemens and Fujitsu that, along with converting signals for display on TV sets, serves as digital video recorder and media center for controlling access to content to home devices. The entire platform runs on the Windows Media 9 software suite, including the DRM and video compression, notes T-Online CEO Thomas Holtrop. "We firmly believe that features such as digital TV, a digital, remotely programmable video recorder, time-shifted TV viewing, video on demand and interactive television formats will appeal to a large number of customers," Holtrop says.

But he acknowledges that, at this point, the service is targeting "early adopters" who are willing to pay 1,299 euros for the gateway. But while T-Online has taken the high-end, fully featured approach to interactive TV, there are cheaper ways to go, including use of a device from Siemens that performs the Ethernet-to-PAL signal conversion along with support for video telephony and email, among other things, without all the bells and whistles of the gateway used by T-Online. "We're in contact with telephone companies world wide for use of this device," says Siemens spokesman Thomas Schepp, who also notes the company is offering a turnkey package of movies, music, games and other applications to the TV as an incentive to the market. He declined to discuss pricing for the unit.

Combining DSL and Legacy Video Feeds

Another movement along the lines of value-added interactive components delivered via DSL to TV sets was taken recently by Monaco Telecom, which is now offering subscribers a lineup of VOD, gaming and other services that interface via an IPTV set-top with the analog cable services the carrier's cable unit delivers to subscribers' cable-ready TV sets. The technology platform, supplied by Alcatel, is a demonstration of how network components, IP STBs and middleware are being combined by vendors to support a relatively straightforward leap to next-generation services over existing DSL infrastructure, notes Alcatel's Kuhn.

"We've developed on our DSLAMs a number of features that allow carriers to move to these types of services without having to add more equipment," Kuhn says. "For example, we accommodate the termination of IGMP (Internet Group Management Protocol) right on the DSLAM backplane, which means the carrier can efficiently distribute broadcast programming using IP multicast within the existing infrastructure."

Kuhn also notes that the software Alcatel is using supports multiple codecs, which means service providers can aggregate content from multiple suppliers using different types of encoding technology and deliver the package to end users without having to re-encode everything to a single format.

Along with the service-enhancing capabilities that are showing up in DSLAMs from companies like Alcatel and Nokia, network system vendors are supplying a new generation of edge routing devices that combine the multi-service QoS functionalities of a broadband remote access server in a single unit. These components, such as the Marconi access node hub that FastWeb is using in its video service in Italy, provide a means by which service streams to individual subscribers are provisioned across the network, thereby reducing the number of circuit provisioning and managing components that are required to accommodate advanced services.

What all this adds up to is a wide range of options for the telephone industry to tap for providing the enhanced services that existing infrastructure will support not only in Europe but in North America as well. In the U.S., the requirements of serving at least two if not three TV sets simultaneously in the home, one or more of which may be HDTV sets, imposes a near-term limitation on telcos' abilities to launch a full slate of services. But the developments in Europe demonstrate that other options exist for use of existing DSL infrastructure to enter the video market at the advanced service level by offering VOD, gaming and video telephony options to end users.

Much has been made of the Bell companies' pinning hopes of competing with cable by cutting deals with DBS providers, which is easily dismissed as a one-way service strategy doomed to fail against the next-generation of digital TV that's coming online in cable. But the Bells have made clear their goal is to marry the DBS feed with a DSL-based interactive video feed at the set top, using a single user interface to create a seamlessly integrated presentation of all service options to the customer. "The thing we're excited about is the development of the integration of satellite-based services and DSL," says Bill Smith, chief product and technology development officer at BellSouth, which is marketing DBS service supplied by DirecTV. "This is a long-term solution. It's not just wrapping a ribbon and tying a bow around existing products. It gives me a very clear roadmap toward the future as we continue to evolve our network."

In light of what's happening in Europe, the means are clearly at hand to marry the legacy TV services with DSL-delivered enhanced video. No one should expect the capabilities demonstrated by T-Online, Monaco Telecom, Bluewin and others to go unnoticed by a U.S. telco industry that is coming under mounting pressure to recapture revenues lost to voice competition.

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