

Orlando: New Technologies, New Concerns, New Hopes for Economic Development

This year's FTTH Council meeting focused on filling the pipe with content that gets customers to open their wallets. Technical deployment advances sweetened the mood.

By Masha Zager and Steven S. Ross ■ *Broadband Properties*



Kathy Harriman, Senior VP, EPB Telecom and Chairman of the FTTH Council board.

Attendees at this year's FTTH Conference came away with renewed faith that no matter how much bandwidth they might provide, content providers will be able to fill it. They were offered less assurance about whether customers would be willing to pay. But even on that point, they saw many possibilities. Only a few have to pan out for network operators – and their vendors – to strike gold.

That's especially evident as costs for building fiber networks continue to decline. Corning Cable Systems unveiled more details about its nano-Structures bend-insensitive, staple-tolerant fiber. Competitors like OFS counterpunched with fiber that can't be bent as much, but that is armored to take more abuse. Prices for network electronics



Photos by Steven S. Ross

Mike Hill, Chairman of the 2007 FTTH Conference and President/CEO of OnTrac. Mike was recently named as the Chairman of the FTTH Council board for 2008.

ORLANDO COVERAGE AT A GLANCE

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and passive components continued to fall. And new ideas for outside plant deployment abounded. Put them all together, and overall network costs and time-to-build took a deep plunge.

Proponents of video, interactive gaming, telepresence, telemedicine, security, online education and a myriad of Internet-based services ranging from customer relations to auto sales all attracted attention. But so did the stumbling blocks – lack of an overall national broadband policy, an un-

certain real estate market, and worries about a looming credit crunch.

Conferees were buoyed by the knowledge that fiber is more a solution than a problem. Fiber can help sell homes and help lift local economies.

Digital Rights Management

Is the DRM issue an insurmountable barrier to bringing more content to fiber-based networks? Sony is known as perhaps the biggest “hawk” when it comes to pushing for DRM. But Mark Rizzo, VP for Technology at Sony Online Entertainment, demurred. He said there are “two requirements Sony has for future advances in computer gaming: One is bandwidth... and the second one is bandwidth.”

The broadband market is still limited, especially upstream, he said, “and it inhibits what we’d like to do. The typical game size is 5 to 7 GB, delivered on DVD, because direct-to-download is a painful process.”

Nevertheless, there are 4 million Sony Playstation3’s installed, and they do more than just play games. Each has an 8-core processor, gigabit Ethernet port, Blu-Ray disc drive, HDMI 1080p, and up to an 80 GB hard drive. The raw computing power is immense – more than 20 times that of a typical PC. The distributed computing folding@home

project, which investigates protein folding problems (see folding.stanford.edu for details), has software versions that individuals can download for Windows, Mac, and Linux machines as well as for the PS3. The 175,000 Macs and PCs in the project achieve 157 TeraFLOPS [trillion floating point operations per second]. The 38,000 PS3s achieve 958 TeraFLOPS. So the Sony game stations together, with less than a quarter of the CPUs, have six times the computing power.

Independent film producers could use the same technique to push their rendering out to a user community. There is a group focused on this, Rizzo said.

Rizzo added that Sony sees “dynamic, user-generated content, streaming game experiences, true high-quality video communication, and much more.”

Some network administrators and designers are worried that Sony’s insis-



Mark Rizzo, VP for Technology at Sony Online Entertainment, said bandwidth is limiting what the company can do.

tence on super-strong digital rights management could clog networks with the need to verify every packet or stream. But Rizzo said “Sony is still up in the air on DRM.”

Copy protection is not inevitable, said Ed Templeman, director of marketing at Pannaway, who predicted that the “digital rights management” model will become “more shaky” because it “restricts the market, and adds to cost and complexity.” He noted that BMG and others are going DRM-free in Europe and that Edgar Bronfman, head of Warner Music here, who had been saying “no way” to dropping DRM, has now said he’s “thinking about it.”

If going DRM-free helps grow music markets, Templeman said, “movies and TV will follow. After all, IPTV just started a few years ago.”

He noted that traditional TV is losing both ad revenue and viewers, so that providing a similar product over an IP network makes little sense. “Apple TV was not a model, because of some machinations between Jobs and the networks,” he said. (The Apple appliance for downloaded video has sold only about 400,000 units, commercial sources say.)

“Vudu may be the holy grail – 5,000 movies on the box,” he said. The Vudu appliance and service for renting video content stores the start of every movie in

America's National Broadband Strategy



Sean Stokes, attorney at The Baller Herbst Law Group, got a good laugh with this slide.

its catalog in the home device, so users have instant access. It then streams the remainder on demand. Paid services like Apple TV tend to require downloading, which can take hours before a video is ready to view. Free services like YouTube tend to stream content to users, typically at lower quality.

Consider new headend investments with care, Templeman said, as content is already starting to bypass traditional headend sources. Vudu uses distributed peer-to-peer transactions to cut download time, he noted. "Peer-to-peer with substantial bandwidth demands is new. Joost distributes full-screen SD. But HD is coming there. There can be a chat session going on between viewers watching a clip, which builds up a social network."

Where does the money to run the network come from? Templeman suggested upstream ad insertion, third parties sponsoring bandwidth as part of promotional packages, and more product placement within the content. He said it is possible that consumers will pay for premium tiered bandwidth service. "You will be able to have software and systems to do target advertising, and you will be able to charge for the premium pipe at a given QoS. But walled gardens are gone."

When it comes to bandwidth, he said, "Go big, go now [with installing new high-bandwidth networks]. FTTH already has favorable economics versus copper."

Why? "It took 200 years to fill the library of Congress with 57 million documents, 29 million books, and 12 million photos. An equal amount of digital information is generated 100 times a day worldwide," he said. He also noted that new types of equipment, such as ONTs that have a MoCA port for distribution over coax within the house, make it easier to adapt to future needs.

Terry Denson of Verizon put it this way: Verizon FiOS is already offering

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FTTH Chair Kathy Harriman presents Jim Farmer, Wave7 Optics' chief technical officer, with the Chairman's Award, which singles out an individual or organization that has shown tremendous effort to advance fiber. Farmer holds 90 patents, mainly in set-top box technology, including encryption. Last year's winner was the State of Texas for statewide franchising.

Patrick Sims of ADC gets into the Orlando spirit.



The FTTH Excellence Award went to Ron Troyer (left), Outside Plant and Central Office Manager at Union Telephone, which operates in the Northeast, mainly in New Hampshire. Union was the first telco in the state to deploy FTTH. Presenting the award was Steve Hardy.

ON LINE

Exhibitor Photo Scrapbook
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more than 400 linear channels and more than 10,000 VoD titles. But Verizon “wants customers to think we are more important than the content provider. We focus on what the customer wants – VoD allows them to choose the time they watch shows. We offer widgets, interactive TV with polling, trivia, shopping and advertising. We’re bring-

ing in content from the Internet, for hyper niches.”

“We think the distributor replaces the content provider [in terms of power] because the distributor has the best metrics and provides interactive services,” Denson said. It’s not the triple play that’s important. Integrated services are important!

Hewlett-Packard is already selling LCD high-definition TVs with features that make it easier for consumers to pull programming off the Web without a computer. James Sandusky, VP of HP’s digital TV solutions business, agreed with Sony. Home networking so far is PC-centric but that will change, he said, and become more entertainment-centric.

Sandusky also said the TV revolution is happening faster than was originally projected. “It took 27 years to achieve 85 percent household penetration for color TV, but it will take only 11 years for digital,” he said.

Almost 30 million sets a year are sold in the US, and only digital sets can now be sold. Most of those sets are now HD, at least to the 720p standard. Increasingly, consumers are opting for top-of-the-line 1080i.

“TV is a gateway to the Internet and to TV services, AND to the user’s video, audio, and pictures,” he said. “In five years, consumers will get a good share of their content from the Internet, hence the need for a broad pipe into the home, and for a home network.”

In the 30 million networked homes consumers will have 5 TB of data in five years, Sandusky said. But of the 27 million sets sold in the US this year, only 100,000 will be networked, with an Ethernet jack or WiFi built in.

HP has just begun marketing networked TVs, along with its MediaSmart product line. The new MediaSmart server will have up to 12 TB of disk space.


TV or not TV

Jim Farmer, CTO at Wave7 Optics, said cable companies are clearly having trouble accommodating new services. “We’ve seen the pendulum swing back toward IPTV as it gets closer to being competitive. Most of our customers are planning RF for the basic tier so that subscribers won’t need STBs, and some are putting premium tiers and VoD on IPTV. The vast majority are still going broadcast, with IPTV as the premium tier.”


“The cablecos told Wall Street they were finished with their upgrades. A lot of them are trying to solve the problem with switched digital TV. It will work, but it doesn’t save a lot of bandwidth if

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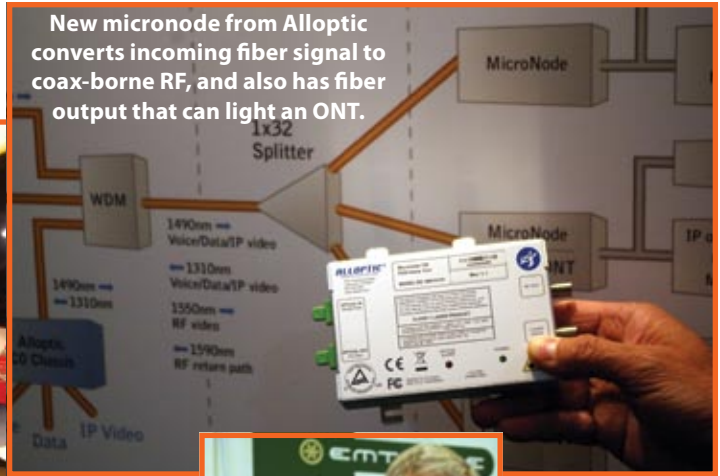




Fiber that can be stapled, thanks to its flexible but tough Kevlar armor, from OFS.



Corning displayed its Evolant line and its new bend-insensitive fiber at the show.



New micronode from Alloptic converts incoming fiber signal to coax-borne RF, and also has fiber output that can light an ONT.



This duct being modeled by Emtelle's Dan Graff is designed to be inserted into surface-grooved pavement, then cemented over.

you have a lot of channels on the analog tier. You could put the traditional 70 analog channels onto SDTV for people who have set-top boxes, but you're still not saving a lot.

"It's also fairly expensive. To get real benefits from it, you have to reclaim a lot of analog channels. Comcast is doing this, but TWC is not. How far they can go, no one knows. It's a Band-Aid that will hold off FTTH for another five years. They know they'll have to do it eventually – it's a matter of when, not if.

"They're counting on DOCSIS 3.0 but that doesn't really get you there, it's still orders of magnitude away. With DOCSIS 3.0 you can provide 100 Mbps to an individual customer, but not to a lot of customers. And there's no upstream bandwidth – it's much more crippled upstream than downstream."

Copper to Fiber

Kabel-X exhibited a clever way to deploy fiber in densely populated environments: Push fiber through a copper cable. Well,

not literally. Kabel-X uses a biodegradable fluid to pull the copper out and push the fiber in. The fluid formula is adapted for each project. It's been available since 2003, used in Europe, Asia, and Africa. The company recently found a partner in the US and launched operations here.

First, you find the buried cable, and pull out one end. You pump the fluid in, and when it emerges from the other end the cable is ready to be pulled out of its insulating shell. Fasten a winch, extract the copper core, then pull or blow the cable in.

It supposedly works for any size cable. Fiber is narrower than the copper cable being replaced, so fiber network builder might want to use ducts to fill the void.

The approach does not need permits, machines for digging, or labor. It is also much faster – each crew can do 2000 feet a day.

In practice, a crew might start at the beginning of a subdivision, and replace a

small amount of copper at a time. The fiber builders maintain services with wireless. They would establish a connection for each customer, put the wireless in before they start, then replace the copper, and swap over to fiber. They leave the wireless in place, so it can be used for fixed-mobile convergence, or for upgrading mobile phone service to data.

Kabel-X expects its US customers to be mostly telcos. There are no North American sales yet, but they claim they are getting a lot of interest from smaller telcos.

Telcos can also recycle the copper. Usually (without Kabel-X) the copper just stays in place, taking up space in the manhole runs.

It might be time to recycle those preconceived notions about what TV is, and what products might fill the pipe. **BBP**

Contact the Authors

Masha can be reached at masha@broadbandproperties.com; Steve at steve@broadbandproperties.com.