

Verizon to Build in 100 NJ Communities; France, Korea and Japan Jump

By Masha Zager ■ *Broadband Properties Telecom Editor*

Verizon (www.verizon.com) announced a deal to expand its fiber-to-the-home network, FiOS, to a new luxury condo being built in Tampa, Florida. The company also announced the introduction of its FiOS TV service to communities in California, Massachusetts, New York, Virginia and New Jersey. New Jersey will see the most rapid expansion of the service, with about 100 municipalities getting FiOS TV after the New Jersey Board of Public Utilities approved the first state-issued video franchise agreement.

Verizon also said that the FCC's recent order streamlining the municipal television franchising process would "fast-forward the delivery of new choices, lower prices and better services to consumers" by allowing faster rollout of FiOS TV services.

Municipal Deployments

In Tennessee, the **Tullahoma Utilities Board** (www.tub.net) is considering installing a fiber-to-the-premises network. After visiting utility providers in other Tennessee cities that have installed FTTP networks, including Bristol and Morristown, the company's managers proposed a feasibility study by an independent agency. The study will be conducted by Uptown Services of Duluth, Georgia. A 2004 study conducted by Angelou Economics for the Tullahoma Industrial Board called a fiber optic network a "critical component" for Tullahoma's economic development.

We reported in the November issue of *Broadband Properties* that the city of **Wilson, North Carolina**, was considering a plan to build a citywide FTTH network. The City Council has approved the plan, and the city is moving ahead with the procurement. Wilson already has a fiber backbone serving mu-

nicipal offices, and it has installed free WiFi service in public spaces. The new network will provide triple-play services to all homes and businesses.

The long-running case of the **Lafayette Utilities System** (www.lus.org) in Lafayette, Louisiana, has arrived at its final stage in the State Supreme Court. The court has now heard arguments supporting and opposing the city utility's attempt to issue bonds to finance a FTTH system. The FTTH Council filed a brief in support of LUS's fiber-to-the-home plan, and LUS has also obtained the court's permission to file an unusual post-argument brief. A decision is expected early this year.

Major Deployment for France Telecom

France Telecom (www.francetelecom.com/en), which does business in France as Orange France, announced the second phase of its FTTH plan. This phase, running from 2007 to 2008 and costing about \$350 million, aims to pass 1 million homes with fiber in Paris and a dozen other cities. It would provide triple-play services (Internet access with symmetrical speeds of up to 100 Mbps, several high-definition TV and PC channels and unlimited telephone calls) to between 150,000 and 200,000 customers.

In the first phase – its 2006 pilot project – France Telecom passed 11,500 homes with fiber and signed up about 500 customers, a launch that the company says compares favorably with its successful introduction of ADSL in 1999. The pilot phase allowed FT to refine its approach to deployment and draw up a "quality charter" for the installation of fiber cables in buildings, allowing for the possibility of sharing fiber cables with other operators. (The

GPON technology that FT uses facilitates sharing fiber connections at the base of the building.)

After Phase 2 is completed, France Telecom plans a broader deployment of fiber to the home in 2009 and beyond.

Other International News

In **Russia**, competitive provider Golden Telecom (www.goldentelecom.com) announced that it was purchasing a majority share in the Corbina Telecom Group, and cited Corbina's fiber-to-the-building network in **Moscow** and other cities as a major reason for the acquisition. Corbina's FTTB network covers approximately 2.4 million apartments in Moscow, or two thirds of all households in the city, and serves approximately 110,000 broadband Internet customers. Golden Telecom's CEO noted: "FTTB is one of the best platforms to meet current and foreseeable future needs such as VoIP, instant messaging, video conferencing, IPTV, Video-on-Demand and rapidly growing value added services such as interactive entertainment." Golden Telecom recently announced its own FTTB project in the Russian city of **Nizhny Novgorod**.

Details are beginning to emerge about **Korea Telecom's** massive fiber-to-the-home project, which we reported on last month. In the Seoul metropolitan area, KT (www.kt.co.kr/kthome/eng) intends to use a GEAPON solution from DASAN Networks (www.dasan-networks.com), based on a chipset from PMC-Sierra (www.pmc-sierra.com). DASAN, which provides Optical Network Terminals for customer premises equipment and Optical Line Terminals for the central office, expects the number of subscribers under this deployment to reach 800,000 in the 2007 calendar year.

Finally, Japanese telecom provider **KDDI** (www.kddi.com/english) will be using GEAPON equipment from Teknovus (www.teknovus.com) to deploy triple-play services in FTTH and FTTB networks. KDDI says that its fiber customers are rapidly upgrading to video services and that GEAPON is required to meet their increased bandwidth needs.

100-Gig Ethernet Demonstrated on Live Network

BBP Staff Report

SUNNYVALE, CA – A first-ever demonstration of 100-Gigabit Ethernet (100GbE) technology by Finisar, Infinera, Internet2, Level 3 Communications and the University of California at Santa Cruz showed that 100GbE technology is viable and capable of being implemented in existing optical networks with multiplexing – each wavelength carrying 10 Gbps.

The system successfully transmitted a 100GbE signal from Tampa, Florida to Houston, Texas, and back again, over ten 10 Gbps channels. This is the first time a 100GbE signal has been successfully transmitted through a live production network.

100GbE is expected to be a critical

technology to accommodate bandwidth growth and support bandwidth-intensive applications from telemedicine to high-energy physics to high-performance grid computing. The largest IP backbones are currently using multiple 10 Gbps links between core sites, and will soon demand 100 Gbps connections to keep up with fast-growing bandwidth demand. Many service providers prefer to support 100 Gigabit Ethernet links using their current transport network infrastructures. This demonstration shows that today's 10 Gbps transport networks can support 100GbE services.

Jack Waters, CTO of Level 3, explained that this approach to providing 100GbE service over long distances

uses LAN [local-area network] Ethernet protocols in the WAN [wide-area network] environment. He commented, "Compared to other methods that have been demonstrated, this is a practical, economical solution that operates over the wide area using existing DWDM [dense wavelength division multiplexing] technologies."

Finisar (www.finisar.com) provided the optical transceivers for this demonstration. Infinera (www.infinera.com) provided the DWDM system and project management. Internet2 (www.internet2.edu) was involved in developing the methodology and supporting the demonstration.

Level 3 Communications (www.level3.com) provided the ten 10 Gbps channels from Tampa to Houston. UCSC (www.ucsc.edu) designed and implemented the network interface including the packet resequencing scheme.

JDSU Ships 10,000th ROADM – Building-Block for the Agile Optical Network

From BBP Wires

MILPITAS, CA – Network equipment provider JDSU (www.jdsu.com) marked a major milestone with the shipment of its 10,000th ROADM. ROADMs, or reconfigurable optical add-drop multiplexers, are network elements that allow operators to deliver on-demand services such as video on demand, IPTV and online gaming. They have become important in the last few years in helping service providers build agile optical networks, as they enable greater service delivery and network flexibility. With the increasing prevalence of on-demand applications, bandwidth and traffic

patterns have become increasingly unpredictable, and effective traffic planning has become difficult. As bandwidth-hungry applications are adopted, service providers are looking for ways to roll out these new services quickly, cost-effectively and seamlessly.


ROADMs, because they are remotely reconfigurable, let service providers manage optical bandwidth by "point and click." Each of the 10,000 ROADMs shipped by JDSU is capable of carrying and dynamically switching 1.6 terabits' worth of traffic.

Tenvera Announces Fiber in the Home

From BBP Wires

FRANKLIN, TN – In 2009, digital television will become the mandated standard, and traditional copper wiring in homes and businesses will have difficulty handling the floods of digital data. Televisions, computers, gaming and home automation systems will be sluggish at best and crippled at worst. The new System 5 Fiber-in-the-Home solution from Tenvera (www.tenvera.com) was developed to move huge amounts of information from the fiber-to-the-home cables into the walls of the home for the bandwidth demanded by HD televisions, media servers and other electronic equipment.

Fiber-in-the-Home provides almost 100 times more bandwidth power than the copper wiring in most homes will carry. It is easy to install and use, and makes outlets interchangeable for different uses.



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Broadband Ventures and Partnerships Without Borders

Companies large and small announced partnerships this month, driven by the need to keep up with price cuts, speed increases, and Asian demand.

PacketFront Acquires 42 Networks for VoIP

From BBP Wires

STOCKHOLM – PacketFront (www.packetfront.com) has acquired Swedish VoIP company 42Networks, with which it has cooperated for the past four years. The acquisition will enable PacketFront to offer a VoIP solution as part of the company's suite of FTTH network management services. 42Networks VoIP is incorporated among other products in the DRG (Digital Residential Gateway) system. The DRG series, which allows operators and service providers to deliver multiple broadband services with enhanced security and high quality IP-telephony to residential and enterprise customers, has been on the market since 1999, and is now in its fifth generation. Like PacketFront, it was first developed within Ericsson but spun out to the employees who developed it.

"We are very excited to acquire

42Networks," said Martin Thunman, CEO of PacketFront. "We have been partners since 2003 and have always been very impressed with the quality of its products. Operators keen to offer a telephony service equal to the traditional analog PTT network are very quality focused, and 42Networks' technology is among the best on the market."

"This technology reinforces our end-to-end solution and gives our customers the option to get leading VoIP Residential Gateways from PacketFront," said Stefan Gustafsson, VP product management of PacketFront. "With this technology in-house, we believe we can further innovate and create future integrated values with our other products. The 42Networks embedded VoIP business will also open up a completely new customer segment to us."

Terawave and K-micro Partner on GPON Component

From BBP Wires

SAN JOSE, CA – Terawave Communications (www.terawave.com) and K-micro (www.k-micro.us) announced that they have worked together to deliver a physical layer ASIC (application-specific integrated circuit) built specifically for optical line terminals, or central-office equipment,

in GPON fiber-to-the-premises systems. The device improves system performance by enabling extremely low GPON physical layer overhead. It supports an extended temperature range and can be used for both indoor and outdoor applications. The Terawave TW-800 OLT, an op-

tical line terminal that will be generally available in Q1 2007, is the first product to incorporate this technology. Terawave is a supplier of GPON technology to Fujitsu for its BT21C network.

Alphion, ImmenStar Invest in Asia to Meet Growing Demand

From BBP Wires

NEW DELHI and SHANGHAI – Components manufacturer Alphion Corporation (www.alphion.com) is establishing R&D, customer support and manufacturing centers in India to support Asian demand for FTTH products, which is expected to grow exponentially over the next few years. Alphion sells to service providers as well as OEM customers; its Qlight family of products, including central office equipment, customer premises equipment and fiber distribution equipment, is used in GPON networks.

ImmenStar (www.immenstar.com), which also designs and supplies FTTH components, announced the expansion of its R&D facility in Shanghai, China, saying that by the end of 2007, its Shanghai base would be larger than its U.S. operation. The company plans to sell its integrated xPON chipsets to Chinese-based equipment manufacturers such as ZTE and Huawei. China's broadband use has doubled in each of the last three years, and the country now has more broadband subscribers than the United States. High forecast growth figures, along with China's stated objective of deploying fiber to the business and to the home, were key factors in ImmenStar's decision to increase investment in China.

TXP Finalizes License Agreement With Siemens

From BBP Wires

RICHARDSON, TX – TXP Corporation (www.texasprototypes.com) announced that it has licensed more than 15 patents from Siemens Networks Germany for optical network terminal (ONT) technology supporting both BPON and GPON standards. TXP

will now focus on commercializing this ONT technology, which is used in customer-premises equipment for fiber-to-the-home systems. Siemens is also transferring all of its related assets, which will allow TXP to ramp up quickly to meet anticipated demand from carriers.

LodgeNet to Acquire StayOnline

From BBP Wires

SIoux FALLS, SD – High-speed Internet access has become a “guest-critical” application for hotels, as travelers come to expect the same level of service that they have at home. Two providers of Internet service to hotels are now joining forces as LodgeNet Entertainment Corporation (www.lodgenet.com) announced that that it will acquire substantially all of the assets of StayOnline (www.stayonline.net) for \$15.0 million in cash. The acquisition

will increase LodgeNet’s hotel room base to 175,000, five times what it is today.

LodgeNet, which also provides interactive television service to 1 million hotel rooms, says that the acquisition presents opportunities to integrate applications between the interactive television and IP-network platforms.

Tut Systems, another broadband supplier to the hospitality industry, had already been acquired by Motorola.

Pannaway Technologies Lands \$10M in New Investment

From BBP Wires

PORTSMOUTH, NH – Pannaway Technologies (www.pannaway.com), which develops converged IP broadband systems for telecommunications companies, closed an additional funding round of \$10 million with participation from over 30 private investors. The funds have been earmarked to expand the company’s product suite and capitalize on the increasing new opportunities in the market.

Pannaway has seen a 625 percent growth in its customer base over the last 18 months. In addition, many of its existing telco customers have expanded their broadband deployments. The company has shipped over 70,000 subscriber ports of triple-play XDSL2+ and FTTH equipment.

RAD Introduces New High-Speed DSL Modem

From BBP Wires

MAHWAH, NJ – RAD Data Communications has premiered a new modem with the next generation in Symmetric High-Bitrate Digital Subscriber Loop (SHDSL) technology to provide up to 22.8 Mbps of bandwidth.

The new ASMi-54 modem uses G.SHDSL.bis technology to transmit up to 5.7 Mbps of bandwidth point-to-point over each copper pair with EFM bonding, which enables each link to sync at a different rate. The modem may be ordered with two, four, and eight-wire options, yielding a total bandwidth of 22.8 Mbps.

EFM bonding ensures that a failure or addition of a link doesn’t drop the the traffic transmitted over the other wires, and that the capacity of the group doesn’t decrease when a new link is added at a lower rate, according to RAD. This capacity is particularly relevant for Ethernet in the first mile in situations where fiber is impractical. The modem is also appropriate for utilities, transportation networks, and enterprises requiring this bandwidth for their own applications.



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In the Technology Pipeline

Following the playbook that drove prices down in the ADSL realm, chip vendors made a number of announcements last month. Look for products later this year.

PMC-Sierra Introduces Advanced Broadband Products

From BBP Wires

HONG KONG – PMC-Sierra (www.pmc-sierra.com) has announced multiservice residential gateway reference platforms for advanced broadband access protocols including ADSL2+, VDSL2, Ethernet and EPON. These platforms allow equipment manufacturers to develop residential gateways for triple-play service delivery of voice, video and data. PMC-Sierra uses a common system-on-chip architecture and open-source software model for all of these reference designs, which deliver:

- High performance supporting gateway-attached storage, remote-access servers, and fixed-mobile convergence;
- Robust quality-of-service protocols to support delivery of carrier-grade IP

services into a multiservice home network, including delivery of video and voice with zero-packet loss and minimum packet jitter;

- Full-rate 802.11n wireless LAN bridging with no system performance impact;
- Integrated high-performance IPsec security engine;
- Dynamic multiprocessing core technology, which allows a gateway to simultaneously perform multiple critical functions.

PMC-Sierra also announced an EPON optical network terminal (ONT) and optical line terminal (OLT) devices supporting algorithms and features for the Chinese telecom market.

Intel Demonstrates Its First Mobile WiMAX Baseband Chip

From BBP Wires

SANTA CLARA, CA and HONG KONG – Intel Corporation (www.intel.com) announced a major step in its effort to provide connectivity for future laptops and other mobile devices: The design completion of its first mobile WiMAX baseband chip. Combined with the company's previously announced

single-chip, multi-band WiMAX/Wi-Fi radio, this creates a complete chipset called the Intel WiMAX Connection 2300.

The chipset design was demonstrated at the 3G World Congress and Mobility Marketplace in Hong Kong, with a laptop successfully accessing the

Internet at broadband speeds over a mobile WiMAX network. The laptop was able to handle content-rich applications without interference from the WiFi and 3G wireless technologies residing on the same system.

The completed design brings Intel a step closer to the integrated wireless system-on-chip that it hopes will help drive WiMAX adoption. Today's small laptops, as well as ultra mobile PCs, consumer electronics and handheld devices, all have significant size constraints for cards and components, so that WiMAX devices are unlikely to be adopted unless they are integrated. Intel hopes to have samples of both card and module forms beginning in late 2007.

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Splicer V-Groove Cleaning Kit from AFL Telecommunications

From BBP Wires

Today's splicing equipment is fast and efficient, requiring minimal maintenance. However, splicing technicians still have trouble with contamination in the v-groove of the splicer, especially when splicing with a fixed v-groove fusion splicer. Dust, dirt, and fiber coating debris, as well as silica deposits generated during fusion, find their way to the surface of the v-groove, where they offset fibers and degrade performance.

To solve these cleaning needs, AFL Telecommunications offers the Splicer V-Groove Cleaning Kit, which includes a scrubber brush with stiff tapered nylon bristles, a sweeper brush with soft bristles, an eye loupe with 3X to 12X magnification, an LED pen light, and environmentally safe cleaning fluid with lint-free swabs. Small and lightweight, the kit fits into the Fujikura splicer transit case or can be carried separately in its own case.

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