New Fiber-to-the-Home Deployments This Month

By BBP Telecom Editor Masha Zager

Verizon Communications (www.verizon.com) continues to be the most active player bringing fiber to the home (FTTH) to communities in the United States. The RBOC deployed its FiOS services recently in the Pennsylvania towns of Jefferson Hills, Kennedy, North Fayette, Robinson Township and South Park. In addition, KSI Management Corp. has chosen to install FiOS services for tenants of more than 7,000 apartments in nearly 20 communities in the Washington, DC, metropolitan area. Over 3,700 of the apartments are considered affordable housing. KSI officials say they believe that installing FTTH will help rent apartments more quickly and, more importantly, retain existing tenants.

This month, FiOS subscribers in New York, New Jersey and Connecticut saw their top Internet speeds increased to 50Mbps at no additional cost. In preparation for still higher network speeds, Verizon announced that it had started to use a new in-home networking router in FiOS installations. The Actiontec Electronics router (www.actiontec.com), built to Verizon’s specifications, will provide connectivity to the FiOS network at speeds of up to 100 Mbps.

These higher speeds will become available when Verizon upgrades its FiOS network from BPON to the newer GPON standard. In a long-awaited announcement, Verizon said recently that it would begin installing GPON equipment from Alcatel (www.alcatel.com) later this year, followed by equipment from Motorola (www.motorola.com) and Tellabs (www.tellabs.com). Initially, the new equipment will be capable of increasing broadband speeds by up to four times downstream and by up to eight times upstream compared to BPON.

GPON does more than enable higher Internet speeds; it also reduces the costs of FTTH electronics by about 25 percent and allows Verizon to upgrade its FiOS TV product. FiOS TV currently uses RF video for services other than video-on-demand. Eventually, Verizon plans to use the newer IPTV standard for all its video services.

Verizon has also been working diligently to obtain cable franchises in order to expand the delivery of its FiOS TV product. It recently announced that it had obtained cable franchises in 15 cities and two counties in the states of Pennsylvania, California, Massachusetts, Maryland, Virginia, Florida and New York. Bucking the trend, Montgomery County, Maryland, has filed court papers to prevent Verizon from offering FiOS TV to county residents.

But Verizon doesn’t account for all the recent FTTH activity. In addition to the independent telco deployments described in this issue, several other projects are under consideration or actively underway.

Eight New Hampshire towns, banding together as the West Central New Hampshire Regional Health and Security Communications Consortium, have hired a consultant to report on the feasibility of developing a publicly owned fiber optic network that would support triple-play services to residents and businesses. Local businesses and schools may also be willing to contribute to the network’s development. The public network would not itself provide services, but would lease the infrastructure to service providers on an open-access basis.

The town of Palo Alto, California, which last year rejected the idea of building its own FTTH network, is now considering issuing an RFP for a private entity to install such a network. The plan was approved by a City Council committee, but has not yet gone to the full Council.

CableOne (www.cableone.net), one of the top ten MSOs in the United States, is building a FTTH network at the new 7000-home Mariposa development in Albuquerque, New Mexico, using the Last Mile Link System from Wave7 Optics (www.wave7optics.com).

In Europe, France Telecom (www.francetelecom.com/en) launched a pilot FTTH project to about 100 customers in and around Paris. During the first two months, triple-play services will be free and customers will be asked to test new applications including videoconferencing, content sharing and gaming.

The Swedish municipality of Vannas is building a FTTH system based on GPON technology from provider Fiberdata AB (www.fiberdata.se).

The municipal broadband debate in the United States has its counterpart in Europe. Recently, the European Competition Commission rejected plans by the Dutch town of Appingedam to construct a FTTP system, on the grounds that the town already had broadband Internet access through other providers.

In Asia, Singapore Telecommunications Limited (www.singtel.com), Southeast Asia’s largest tele-
communications company, selected Alcatel (www.alcatel.com) for the first GPON trial in the Asia Pacific region and also for the first trial of residential Metro Ethernet in Singapore. These deployments complement Singapore’s plans for a Next Generation National Infocomm Infrastructure, a nationwide platform for information sharing and communication.

Chunghwa Telecom (www.cht.com.tw/CHTFinalE/Web), Taiwan’s largest telecom carrier, is budgeting $1.5 billion over the next five years for a next-generation network deployment that will include FTTH.

IEEE Ratifies 10GBASE-T Standard

From BBP Wires

NEW YORK — The IEEE Standards Association has approved the IEEE P802.3an 10GBASE-T standard, which specifies 10Gbps data transmission over four-pair copper cabling. The maximum supported distance in the standard is a function of the cabling performance, and is limited by traditional performance parameters as well as new parameters such as alien crosstalk.

The ratification of the 10GBASE-T standard should drive the mass adoption of 10G-enabled twisted pair cabling, according to Luc Adriaenssens, senior vice president at CommScope, which manufactures cabling compliant with the new standard.

Korea Telecom (www.koreatelecom.com) is going forward with a long-awaited high-volume FTTH deployment in Korea. Starting in the third quarter of 2006, it will be providing triple-play services to subscribers using GePON technology from Dasan Networks (www.dasannetworks.com) and Samsung (www.samsung.com). It will also be deploying dense wavelength division multiplexed (DWDM) access transport technologies from Novera Optics (www.noveraoptics.com), in order to eliminate the need for wavelength-specific optical network units and address problems of bandwidth sharing, bandwidth upgrades, and mixed-service delivery that are typical of passive optical networks (PONs).

Attend The Broadband Properties Summit
September 11-13, 2006
Marriott Las Colinas,
Irving, Texas
Focus on Equipment

GPON announcements for North American deployment have been dominating the industry all spring and summer, feeding off of chipsets that became available at the end of 2005. But others have been active as well.

New Chipsets for Gigabit Fiber Systems
From BBP Wires

One reason that FTTH solutions have become more cost-competitive is the increasing integration of their electronics. Systems that used to be assembled from multiple parts are now available as high-density system-on-chip (SoC) solutions. Several recent examples include:

Teknovus’ new Optical Network Unit (ONU) chips, used in GePON Fiber-to-the-Home (FTTH) access networks, have been in volume production since June, and are manufactured using MoSys’s advanced bit cell technology for its embedded memory. MoSys (www.mosys.com) and Teknovus (www.teknovus.com) have announced the extension of their licensing agreement for next-generation chipset designs.

Vitesse Semiconductor (www.vitesse.com) recently introduced the Vitesse Semiconductor GPON pro family of physical media dependent (PMD) devices. This new chipset enables BPON, EPON and GPON networks with performance that exceeds published specifications for those standards. Vitesse’s new product family includes chips for both Optical Network Units (customer premise equipment) and Optical Line Terminals (central office equipment). While downstream communication from OLT to ONU uses a continuous flow of data, upstream communication from ONU to OLT operates in timed bursts. This places special requirements on the ability of the OLT receiver to interpret these bursts, and designing a GPON OLT to receive burst transmissions has proven especially difficult. Vitesse says its chipset includes the industry’s first GPON OLT burst-mode receiver solutions, which will help enable mass rollout of GPON systems.

BroadLight (www.broadlight.com), AudioCodes (www.audiocodes.com) and Legerity (www.legerity.com) have partnered to deliver a solution for adding VoIP services to customer premises equipment in a GPON network. The platform provides a complete hardware and software implementation of two or four VoIP channels. It includes BroadLight’s system-on-chip, AudioCodes’ Voice over Packet Processor family and Legerity’s telephone line interface solutions.

XAVi Technologies Corporation, a Taiwanese broadband products supplier (www.xavi.com.tw), is the first customer to adopt the VoIP reference design, and the companies expect more design wins to be announced throughout the year.

ECI Telecom Launches GPON Solution
From BBP Wires

PETAH TIKVA, ISRAEL – ECI Telecom (www.ecitele.com) announced a series of GPON offerings that upgrade ECI’s broadband solutions to support FTTx applications. According to ECI, these offerings require a minimal upgrade path while providing maximum savings of capital and operating costs for delivery of bandwidth-intensive video services like IPTV, HDTV and network-based Personal Video Recorder (nPVR). Each port supports up to 128 FTTH users. ECI’s GPON offerings will be available in Q4 2006.

ECI is the only vendor to offer integrated GPON, xDSL, Gigabit Ethernet and ATM aggregation, Cellular UMTS backhauling and voice, all on a unified management platform. This single-shelf solution eliminates the need to add or replace equipment. The interchangeable GPON-based cards can be implemented in ECI’s outside plant and customer-premise products.

TriNet Named Sales Channel for Hitachi GPON Products
From BBP Wires

ATLANTA – Hitachi Telecom (www.hitachitelecom.com) announced that TriNet Communications (www.trinetcom.com) of Livermore, California, has been designated a sales channel for Hitachi’s AMN1220 GPON product family. TriNet Communications is a supplier to RBOCs, independent telcos and MSOs. Hitachi’s GPON system operates at 2.4 Gbps downstream and 1.2Gbps upstream, providing bandwidth to deliver multiple simultaneous HDTV streams. Service providers...
can provide both RF and IP video services simultaneously if needed. For enterprise users, the Hitachi AMN1220 supports DS1 services in native format through GPON Encapsulation Mode (GEM), allowing businesses to continue to use custom T1 services and to use existing PBX telephone systems that are connected by T1 on the trunk side.

**Rural Development Utilities Program Accepts Additional ADC Equipment**
*From BBP Wires*

**MINNEAPOLIS** - ADC (www.adc.com), says its expanded OmniReach product line of fiber access terminals and fiber distribution hubs has been accepted by the Rural Development Utilities Program (RDUP), formerly the Rural Utilities Service, for use in the distribution and access segments of telecommunications systems. Product acceptance by RDUP means that ADC’s equipment can be purchased and installed using RDUP loans or grants. With the addition of ADC’s new OmniReach non-metallic FAT to the list of RDUP-accepted solutions, ADC is now able to offer a complete line of access terminals to RDUP borrowers.

**Fiber Distribution Equipment from APACN and AFL Telecommunications**
*From BBP Wires*

**PLYMOUTH, MN and DUNCAN, SC** – Vendors have been introducing new fiber distribution equipment in an effort to reduce the cost of deploying and managing fiber-to-the-premises systems. This month, APAC Cables & Networks (www.apacn.com) announced its 288-Port Fiber Distribution System (FDS) for central offices, while AFL Telecommunications (www.afltele.com) introduced its Future Access Fiber Distribution Hub (FDH) for outside plant.

APACN’s FDS is the latest addition to its line of high-density fiber distribution frames and panels. The system combines the high circuit density required by new FTTH architectures with a modular “grow-as-you-go” approach. Route diversity, bend radius protection and a hinged/removable front cover offer easy accessibility and faster installation, repair or cleaning.

The 12-port cassette is also the basic component used in APACN’s line of outside plant cabinets. By using common parts for several purposes, providers can reduce their inventory requirements and also speed installation, since technicians are more familiar with the part.

AFL’s FDH is designed to house optical splitters linking feeder cables from the central office to distribution cables serving customer premises. Its compact size and modular platform aid in installation efficiency, while keeping initial deployment costs down. Distribution modules are available in 72-port configurations, so that distribution and splitter modules can be installed as needed.

As an option, the distribution modules can be outfitted with MT-based connectors and adapters, further simplifying the installation of the FDH. Central to the functionality of the FDH is the optical splitter module, which is universal to the line of Future Access FDH’s and available in multiple configurations. The Telcordia GR-3125 enclosure design ensures protection against wind, rain, dust, rodents, and other environmental challenges.
Remote Network Management from Omnitronix

SEATTLE, WASHINGTON – The release by Omnitronix, a supplier of remote monitoring equipment, of its new SNMP-Link model SL12 remote monitoring unit now enables network administrators of small to large-scale Internet, business, telephone, microwave and broadcast communication networks to cost-effectively monitor each and every remote site for environmental hazards.

At the same time, the ability to control remote devices from the headend adds additional flexibility while reducing expensive trips to the sites. A compact, stand-alone shelf unit, the SL-12 can conveniently fit within the confines of pole-mounted, surface, and subterranean enclosures at fiber-network hubs. The clean design of this package works equally well sitting on a desk.

Few telephone networks connect a user base as involved in as many vital services as local governments. In Pierce County, WA, that includes emergency management, the Sheriff’s Department, the jail, courts, public works, parks, Assessor-Treasurer, Auditor, Health Department, and even a portion of the 9-1-1 call center. Because of its vital importance, the modern Pierce County phone system has enough redundancy to enable routing around problems that would otherwise cause outages.

The Pierce County system serves 755,000 county residents and 4,500 direct telecom users. The network includes unmanned remote sites. A key technology is the use of an earlier version of the Omnitronix Data-Link pollable remote access units.

“Of course, if you have part of the system down and don’t know about it, then redundancy doesn’t help you,” says Terry Schimon, Telecom Network Specialist for Pierce County. “That is the principal reason why we have a series of powerful remote access units that collect network management data and guard against conditions that would threaten our phone system.” The remotes combine the functions of serial data collection, remote equipment management and alarm notification into one flexible unit.

“We installed 13 of the Omnitronix DL880 Data Link units as part of the implementation of a new Avotus [formerly Switchview] Telemanagement Expense Management system,” Schimon said. “Initially the DL880s were used for basic CDR [call data collection] and for all of the Avotus integrations, which are very powerful, especially compared to the homegrown telecom billing system that we were replacing.”

“We were able to use the DL880s in conjunction with the Avotus system for a lot of fault management and network management issues,” he says. “So, I began to consider the various remote capabilities of the Data Link product.”

One of the areas was alarm management, which Pierce County previously handled with dial-up modems. “Automating alarm access and notification was very significant,” Schimon says. “With the old system it was possible for the 9-1-1 system to be out of service without our even knowing it.”

For example, the DL880 and other Data Link models can monitor a serial port from a PBX for trunk failures, T1 outages, environmental conditions or power system problems. It will send an alert if expected data is not received within a specified time, or if the PBX is not working correctly. Alarm notifications can be sent to individuals or groups via printed messages, landlines, pagers, terminals or Internet connections.

“The Data Link units have six serial I/O ports, and we only use a maximum of four of them for the Avotus telemangement system,” says Schimon. “That leaves me at least two, and sometimes up to four ports available for other devices that I need to manage at remote sites. Rather than having a separate modem and phone line for each device, I Telnet into the Data Link unit and access whatever device is connected to it, whether a UPS, CSU/DSU, Voice Mail system or various other types of telecommunications equipment.”

The county’s telecom UPS systems are connected to the Data Link unit I/O port and alarm contacts, for instance. If a unit “sees” a problematic condition, it sends out a notification immediately. “If we get brownouts, surges, low batteries, system failures or a total AC power outage, the Data Link automatically records the alarm in a storage file and then it and sends a message to my group to respond,” Schimon explains.

Although the DL880 model will monitor those conditions, it will not detect excessive humidity, which tends to be a problem in the Puget Sound area where his system is located. This model also has a limited amount of external alarm contacts. For these reasons Schimon has ordered an Omnitronix DL-150, which can monitor humidity as well as add plenty of external contacts.

Two added concerns of Schimon and other Data Link users are avoiding catastrophic equipment damage, especially at unmanned sites, and saving on maintenance overhead.

None of the county’s switch rooms is manned, and there have been occasional high temperature warnings due to air conditioning failures at remote sites, all of which successfully set off alarms with appropriate no-
Telkonet/NuVisions Tests IPTV in New York City

From BBP Wires

GERMANTOWN, MD – Telkonet, Inc. (www.telkonet.com), which provides in-building broadband access over existing electrical wiring, has begun deploying its NuVisions Internet Protocol Television (IPTV) service to beta customers in New York City. IPTV, a method of distributing television content over IP, enables a more user-defined, on-demand and interactive experience.

NuVisions delivers traditional cable TV programming and lets subscribers surf the Internet, receive on-demand content, communicate with building services, and perform other Internet-based functions on their TV sets using remotes and wireless keyboards. NuVisions also plans to add more channels, as well as features such as video-on-demand, movies, games and interactive content, when the service is fully deployed next year.

NuVisions will deliver services over the gigabit network that connects the properties it serves. This redundant gigabit ring in New York City is a virtual fiber optic network in the air.

According to Telkonet, NuVisions IPTV service can be deployed rapidly and at a lower cost than current cable television systems. It offers consumers features such as the ability to record several programs simultaneously without having to add more tuners. The NuVisions IPTV service is seamlessly integrated into a building as it relies on existing telephone wires for delivery to subscribers.

The use of IP technology enables direct communication between a subscriber’s IPTV device, which replaces the much larger traditional set-top “cable box,” and the NuVisions control center. As a result of this direct connection to the control center, functions currently performed by stand alone devices, such as digital video recorders (DVRs), are now incorporated as features of the new offering controlled through the IPTV device.

PANDUIT Introduces OPTICAM Pre-Polished Fiber Connectors

From BBP Wires

TINLEY PARK, IL – PANDUIT aims to reduce the costs of fiber deployment with its OPTICAM pre-polished fiber optic connectors. According to the company, they provide field termination in less than half the time of field polish connectors. With their patent pending re-termination capability, OPTICAM connectors provide yield rates approaching 100 percent. The factory pre-polished fiber stub endface eliminates time-consuming field polishing to reduce installation costs, labor, scrap and the number of tools required. A dual cam design secures both the fiber and buffer in one action to ensure consistent termination results while reducing termination time.

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Belgacom ICS and Siemens
Build Reconfigurable Network
From BBP Wires

MUNICH – The ROADM (Reconfigurable Optical Add & Drop Multiplexer) is a new type of network device that allows carriers to switch wavelengths of light in a dense wavelength-division multiplexing (DWDM) system. ROADMs not only increase networks’ flexibility and overall quality, but also reduce provisioning time and significantly lower costs.

The market for ROADMs began to take off last year in the United States. Now Siemens Communications (www.siemens.de/communications) will work with Belgacom ICS to develop the first ROADM-based telecommunications network in continental Europe. The new fiber-based backbone network, called PEN4FUTURE, will link 16 European telecommunications nodes in seven countries of Western Europe, and enable Belgacom ICS to offer its customers transmission capacity up to n x 40Gbps wavelengths.

PEN4FUTURE relies on Siemens’ Surpass hiT 7500 platform, a future-proof solution that allows the optical transport of applications on regional up to ultra-long haul networks through a flexible DWDM architecture.

Ortronics/Legrand Incorporates iTRACS Infrastructure Management Software
From BBP Wires

NEW YORK – iTRACS Corp. (www.itracs.com) announced that Ortronics/Legrand (www.ortronics.com) will include iTRACS Infrastructure Manager software in its Intelligent Infrastructure Management platform, which features the company’s Clarity brand of elevated Category 5e and 6 copper connectivity products.

The iTRACS software is designed to simplify moves, adds, and changes in complex networks. Together with the Intelligent Infrastructure Management platform, it allows network managers to monitor and report on the physical connection of all networked devices. It supports event notification, automatic alerts and alarms of unauthorized changes, intrusion detection and automated work order processes.

Wireless Mesh Solution from Fujitsu
From BBP Wires

DENVER – Fujitsu Network Communications (us.fujitsu.com/telecom) has announced a new metro wireless mesh solution for North American telecom carriers, cable/MSO operators, utilities and municipalities. This turnkey solution combines WiFi mesh products from BelAir Networks (www.belairnetworks.com) with systems integration from Fujitsu.

Fujitsu will resell BelAir Networks’ entire portfolio of carrier-class WiFi products, including environmentally hardened outdoor WiFi devices, with single-, dual- and multi-radio access points that provide uniform, high-density, and high-bandwidth broadband wireless capabilities. The multi-radio product solution supports a true wireless mesh, the only purely wireless architecture that provides scalable and deterministic services across a wide-area network. Within the same network, carriers can offer applications such as Virtual Private Networking (VPN), VoIP, T1 access and mobility, with multiple service levels that range from casual subscription to commercial grade.

As with similar products in the industry, the IEEE 802.11a point-to-point backhaul radios within the products operate within the 5.0 to 5.8 GHz unlicensed band, providing dedicated and isolated wireless backhaul links. The products
support IEEE 802.11b/g access at maximum power output and optimized sensitivities, and can be mounted on walls, rooftops, towers, poles or strands.

**Huawei Unveils**

**Carrier-Class Metro Ethernet Switches**

**From BBP Wires**

**SINGAPORE** – Huawei Technologies Co., Ltd. launched the Quidway CX series of carrier-class metro Ethernet switches. Huawei says it is the first vendor to provide carrier-class end-to-end solutions covering the core layer, the convergence layer and the access layer. The company expects the Quidway CX to become a key infrastructure product for the fast-growing metro Ethernet market.

The Quidway CX series switches are the first to adopt carrier-class high-availability design with redundancy of key components, including main control boards, switch boards, power modules and fan units. These features are designed to ensure carrier-class protection at each layer and node on the metro Ethernet, so that failure of any single node will not affect the service operation of the system.

The Quidway CX series switches also assure carrier-class reliability for the entire metro Ethernet through the Ethernet over Resilient Packet Ring (EoRPR) feature. This feature guarantees protection within 50 ms so that services are not interrupted but restored quickly in case of a network failure. The switches also provide features that facilitate flexibility in networking and service deployment on a metro Ethernet.

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