

The Super-Fast Bandon GPON Project

ComSpanUSA and Leducor Technical Services are rolling out fiber to the premises in a small coastal city in Oregon. Pre-selling the services helped ensure a successful outcome.

By Scott T. Wilkinson ■ *Hitachi Telecom (USA), Inc.*
and John Stadter ■ *ComSpanUSA*

Bandon, Oregon, is already known as home to one of the top golf courses in the United States, Bandon Dunes. Now this city of 3,000 residents, about five hours from Portland on the southern Oregon coast, claims the country's fastest communications network for the delivery of data, video and voice services.

The Bandon project is the first commercial deployment of full-rate GPON technology in the United States offering triple-play services to both residential and business subscribers. Full-rate GPON delivers services from the central office to the subscribers at a combined data rate of 2.4 Gbps for each 32-subscriber line. Each subscriber can receive up to a gigabit per second of peak bandwidth, depending on the level of service ordered.

Fiber to the premises (FTTP) deploy-



Often, the municipal government itself or a local public power utility would build the FTTP network and provide the service in the community.

Smaller communities still tend to be underserved today, especially those that are

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ments have been gaining momentum for several years both because fiber can carry vastly more traffic than copper and because it allows service providers to consolidate voice, high-speed data and high-definition video communications on a single infrastructure. While national service providers such as Verizon are now rolling out FTTP service in many communities, the first FTTP deployments were typically small communities that had been historically underserved by broadband services (DSL or cable modem).

remote from large metropolitan areas. Bandon, Oregon, is an example of how such a community can lift itself onto the leading edge of communications technology.

Citizen Task Force

As in many small cities, Bandon was underserved by the large service providers. Dial-up Internet access was the norm, DSL was extremely limited and cable broadband was nowhere on the horizon. Since both the copper telecommunica-

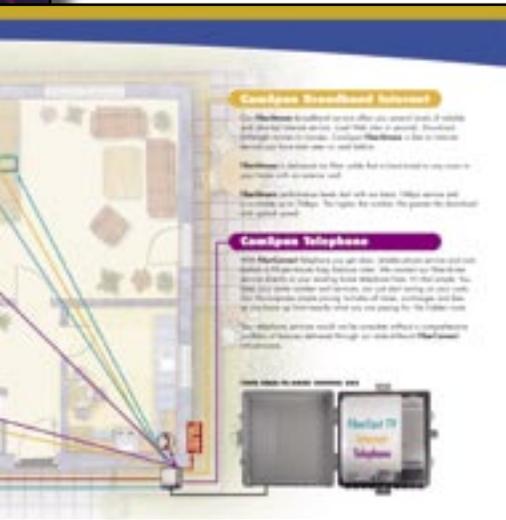
ComSpanUSA prepared this marketing brochure to explain the benefits of high bandwidth fiber – and to help Bandon residents ready their home networks to take advantage.

tions access network and cable television networks were outdated, the community formed a Telecommunications Task Force to investigate upgrading the system. Through the efforts of the Task Force, City Manager Matt Winkel, and the Oregon Economic Development Commission, a feasibility study was funded.

The study indicated that the city had several advantages to offer an FTTP developer:

- A small, fairly concentrated core that would limit the size and cost of deployment.
- The ability to support aerial plant, minimizing the need for expensive and invasive trenching.
- Room for a new competitor offering advanced services.
- Widespread community support.

The committee developed an RFP to solicit building of an FTTP system, intending to obtain partial public funding for the project. The RFP was won by ComSpanUSA (www.comspanusa.net), a facilities-based CLEC based in Roseburg, about 85 miles inland from Bandon, along with its partner, Ledor Technical Services (LTS). Ultimately, the two firms built the system without any public funding. Construction began in January, 2006, and the system went live in June.



Marketing

ComSpanUSA pursued an energetic pre-selling program to achieve a minimum target penetration before starting the build. Three months before the start of construction, it opened a sales office in Bandon, hired a local manager who was a former mayor and lifelong resident of the community, and sent salespeople door to door to talk to residents about the new FTTP service. By leveraging community support and using a personal approach, the company was able to reach its target quickly. Having a pre-sell



The heart of Bandon's central office is the rack of blue Hitachi AMN1220 GPON OLTs (center).

goal prior to full project launch helped ensure that the company had enough community support to be successful.

ComSpanUSA also developed a highly efficient operating model. Rather than duplicate the back-office functions it was already providing in its home community of Roseburg, Oregon, it decided to provide these services to both communities from its headquarters, saving operating expense. For example, high-level technical support is delivered from the Roseburg office, as is network administration, billing, 24x7 customer care, administration and accounting.

Even though back-office functions are centrally located, the local Bandon office

will remain open to handle not only sales but also customer support and in-person payment. Company officials strongly believe that a local sales and customer support person in each city it serves is essential to creating a satisfactory customer experience. Customers respond to and are more loyal to a company that is a part of the community. Customers like to bring their bills into an office for payment, and they appreciate being able to discuss billing or service questions in person. Having a local office helps move the value proposition from being totally price-based to service- and price, thus differentiating the company from its national competitors.

Having a single source for design, construction and integration was another important part of the plan. Ledcor Technical Services is the design, construction and integration partner in the project as well as a financial partner.

Playing off their individual strengths, ComSpanUSA operates the network that LTS built. This partnership provides the best quality build while assuring a competitive price for the project as well as ensuring that the total lifecycle of the network is considered in the deployment process.

From the outset, ComSpanUSA and LTS wanted a standards-based system that would allow it to grow into the future. It wanted a leading-edge product – but one that was proven. After looking for equipment manufacturers that had a proven track record in FTTP deployments and could make a long-term commitment to the market, they selected Hitachi Telecom (USA), Inc.

Equipment Selection

In the equipment selection process, the selection of a passive optical networking (PON) architecture was a critical decision. The most compelling reason to choose PON was that it requires no active electronics in the field. The overall maintenance cost associated with active field electronics were an important concern, and PON offers a lower maintenance cost solution. In a coastal city such as Bandon, the salt air could corrode active electronics in the field. PON has additional advantages that were important in ComSpanUSA's selection of a technology for FTTP. PON is a proven architecture, with millions of units deployed worldwide. GPON, the most recent advancement of the standard, is relatively new but is based on a core architecture that is widely deployed. The new GPON standard provides the fastest available upstream and downstream speeds, which is an important future-proofing requirement. Finally, the PON equipment selected had a well-designed element management system (EMS), or user interface, which is critical to keeping operating costs low.

As ComSpanUSA began to roll out triple-play services, its managers were surprised that most customers could not yet envision needing more than 1 Mbps of

Bandon, Oregon GPON project

Cost, according to local press reports: About \$6 million.

Vendors

Harmonic, Inc., www.harmonicinc.com

Video transmitter

Hitachi Telecom (USA), Inc., www.hitel.com

AMN1220 GPON Fiber-to-the-Premises platform: Optical Line Terminal (OLT) central office equipment, Optical Network Terminal (ONT) subscriber terminals

MetaSwitch, www.metaswitch.com

Integrated broadband Class 5 switch

OFS, www.ofsoptics.com

Single mode optical fiber cable

Tut Systems, Inc., www.tutsys.com

Astria content processor platform and IPTV integration.

Kasenna, Inc., www.kasenna.com

LivingRoom middleware platform, MediaBase video servers

SecureMedia, www.securemedia.com

EncryptoniteONE System conditional access/digital rights management software for broadcast and VoD content security

Tyco, www.tycoelectronics.com/fiberoptics/

Outside plant cabinets, splitters and splice enclosures

Internet access – there are only so many “Gadget Guys” in the marketplace. ComSpanUSA had to educate customers about new products being developed, such as high definition television (HDTV), that require large amounts of bandwidth. The company also explained to Bandon citizens the high-bandwidth experience in other countries, where subscribers have demonstrated that they will find ways to consume as much bandwidth as can be provided.

ComSpanUSA is considering taking advantage of the available bandwidth to offer additional applications in the future, such as home security.

Most experts agree that access to a converged communications network combining voice, data and video traffic

is ideally handled via fiber optics. Copper-based solutions are at best an interim solution to meet economic criteria in certain installations. The data rates provided by GPON support the anticipated bandwidth demand growth, much of it generated by the increasing prevalence of IP-based HDTV. As the Bandon, Oregon, experience demonstrates, GPON service can be economically provided to small communities using a business model that is based on a first-to-market approach, joint venture funding and a local service-provider presence. **BBP**

About the Authors

Scott T. Wilkinson is Vice President, Hitachi Telecom (USA), Inc. John Stadter is CEO, ComSpanUSA.

A Town Party to Light Fiber

Bandon's fiber was lit June 21. Here's the schedule for the town party. Although the town attracts wealthy visitors, median household income in Bandon was \$29,492 in the 2000 census, only three-quarters of the national median at that time, \$41,994. The population is older than the national average as well – almost

30% of the residents were 65 or older in 2000. There are 1,600 households in Bandon itself (average household size, less than 2, is below the national average), of which a third are rentals (in line with national averages). ComSpanUSA expects about 2500 households and businesses to sign up for fiber eventually.

How Bandon Introduced FTTH

Please join us as we celebrate Bandon's new status as one of America's first cities to benefit from fiber-optic driven residential & business communications and entertainment services.

Wednesday June, 21
ComSpan Bandon Office
Bandon City Hall
575 Hwy 101

Student Open House

8:30 to 11 a.m.

Interested Junior and Senior High School students will be introduced to our satellite and broadcast feeds, the Hitachi GPON technologies, city-wide phone switching, Internet and television distribution systems.

"Lighting Up Bandon" Ceremony

11:30 a.m. to Noon

Join us as we officially light up our fiber optic network and hear brief comments from local officials about how this new technology will benefit area residents and businesses.

Public Open House

12:30 to 4 p.m.

Stop by for refreshments, demonstrations and public tours of our state-of-the-art facility and technology. This is also another chance to learn more about, or sign up for ComSpan Bandon's fiber-optic telephone, TV and Internet services.

Bandon Business Wine & Cheese Open House

5:30 to 7:30 p.m.

Members of the local business community are invited to tour our facility and learn how this investment will enhance the Bandon business infrastructure.

Don't miss this opportunity to celebrate becoming one of America's most advanced communities when it comes to communication and entertainment services.

We'll see you there!

Hear John Stadter
 ComSpan USA CEO
 Speak at the Summit

WHO Should Attend This Conference?

EVERYONE involved in the wholesale and large-scale buying and selling of broadband services and technologies, including:

- Real Estate Developers
- Property Owners and Managers
- Independent Telephone Companies
- Municipal Officials
- Private Cable Operators
- Town Planners
- Economic Development Professionals
- Architects
- Builders
- System Operators
- Investors

Broadband Properties Summit
 Dallas Marriott Las Colinas
 Irving, Texas – September 11 – 13

Big Broadband for the First Mile
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