



International Broadband Leaders:

A Close Look at Key Companies' Strategies

New technologies and partnerships provide new ways to make money with broadband

BBP Staff Report

Environmental activists have, for many years, been told to “think globally but act locally.” The same advice seems to fit for companies in the broadband business. The bulk of the money spent building networks is spent locally. The economics of super-fast networks varies from region to region. But the technology adheres to ever-evolving national and international standards such as 802.3ah and Ethernet. Investment funds cross borders at the speed of light. So does programming. And happenings in one country soon serve as templates for advances in another.

How are companies tackling the local vs. national vs. international nature of the business? We looked at a select group for some models.

ADC

Providing network infrastructure equipment and services is the road to ADC's success; it recently acquired KRONE.

www.adc.com

ADC grew internationally last year with a new “Go-To-Market” name and strategy. In its 2004 fiscal year, ADC refocused itself to become a leading provider of network infrastructure equipment and services. Today, ADC provides the connections for wireline, wireless, cable, broadcast, and enterprise networks around the world. One key action: ADC acquired KRONE Group, with a history of serving customers in the Europe/Middle East/Africa, Asia and Indo-Pacific regions of the world. ADC had previously done business mainly in the Americas. The combined company now operates in 150 countries. In the fourth quarter of 2004, almost half its sales were from Europe, Canada, Latin America, Africa, and the Asia-Pacific regions.

As ADC integrated its business with KRONE in 2004, it became apparent that the strength of the KRONE brand needed to be maintained. Customers know the company now as ADC KRONE in Europe, the Middle East and Africa (EMEA), as well as in Asia and the Indo-Pacific.

ADC KRONE employs approximately 1,700 professionals in the EMEA countries alone. Headquarters are in Berlin, with additional offices in Austria, Belgium, France, Hungary, Italy, Norway, Poland, Russia, South Africa, Spain, Sweden, UK and United Arab Emirates.

ADC's EMEA manufacturing facilities are in Berlin, and Cheltenham and Scotland in the UK. In the EMEA, ADC KRONE sells a complete portfolio of network infrastructure equipment and services including DSL and carrier Ethernet products, fiber to the premises or to the curb, wireless infra-



Sumitomo's bend-insensitive PureAccess fiber is usually found in drop cables, pigtails and jumpers where access is tight.

structure, broadcast, enterprise network, and fiber Storage Area Network (SAN) solutions.

Recent sales successes include an agreement to supply connectivity equipment to Poland's leading telecommunications operator, Telekomunikacja Polska (TPSA), to complete the digitalization of the service provider's high-speed network. ADC KRONE continues to demonstrate its commitment to the channel with recent agreements in Denmark, Finland, Ireland and Sweden. Bell Telecom Systems (BTS) is a distributor for ADC KRONE's connectivity products throughout the Middle East.

Since the introduction of its CopperTen™ structured cabling





Splicing machines like these from Sumitomo have been one key factor in sharply lower fiber deployment costs worldwide.

system in March 2004, the first to include 10 Gbps capability over unshielded twisted pair (UTP), ADC KRONE has successfully launched the product in the UK, France and Germany, and has sold the system to major customers in the UK and South Africa. It has also introduced a shielded twisted pair (STP) version of the product, providing a high-performance, cost-effective and future-proof alternative for shielded markets.

Other European customers include the Bank of England, Bouygues Telecom, BT, Cegetel, Deutsche Telekom, France Telecom, Morgan Stanley, O2, Orange, Rolls Royce, Toll Collect, T-Mobile and SFR.

Key objectives for 2005 include defending core businesses where products and services have sustainable competencies and scale; maintaining the number one or two positions in the markets they serve; creating new products and services with proven customer demand; entering new markets; and acquiring new products and entering adjacent markets to satisfy customer network infrastructure needs and extend global presence.

ADC KRONE is looking seriously at emerging markets and cites India, China, Southeast Asia, Eastern Europe, and Russia as "all very attractive growth markets for the future." Service providers and public networks in these regions will be enhancing their networks in order to deliver more high-speed services as cost effectively as possible, company officials say. Each will require a different strategy.

Alcatel

The company has high hopes for Europe, but is focusing right now on rapidly expanding fiber markets in Asia.

www.alcatel.com/fttu

Alcatel says the Asian market will continue to expand explosively. It intends to be in the middle of events there. A company official put it this way: "As communications professionals con-

sumed with daily priorities of growing market share, expanding product portfolios, or managing customer satisfaction, it is sometimes easy to become completely absorbed with relevant market dynamics within our geographic scope. However, a more global view often adds perspective and illuminates the path with the experience of others. FTTP (Alcatel calls it Fiber to the User, or FTTU) is no exception to this rule. As such, it is beneficial to learn how operators in other parts of the world are using fiber deployments to accelerate market share growth and deliver a new generation of multimedia services.

"One cannot speak of technology prowess without a healthy evaluation of our brethren in the Far East. As it has done with so many technological products before it, Asia-Pacific is leading the way with fiber deployments. With nearly 65 percent of FTTU deployments globally, this powerhouse represents the fastest growing region worldwide. Paving the way are large incumbents, such as NTT, and competitive local exchange carriers (CLECs) like Usen, each of whom successfully leverages government imperatives targeted at driving FTTU deployments."

Beyond Japan, Alcatel sees significant movement toward passive optical networks (PON) based on fiber access. It notes that Korea Telecom (KT) president and CEO Yong-Kyung Lee used his keynote address to the Optical Fiber Communication Conference to outline the company's plans to deploy FTTU in South Korea. With a vision of delivering 100 Mbps to every household in his country, Lee predicts each will have access to multiple HDTV channels, interactive multimedia, broadband and VPN and telecommuting applications in the near future. He definitely has market dynamics in his favor – with 73 percent broadband penetration and a consumer market with insatiable multimedia and gaming appetites, South Korea is the most advanced broadband market worldwide. With an aggressive plan to launch an FTTU deployment delivering 50-100 Mbps to 73 percent of households by the end of 2010, KT is well on its way to realizing Lee's vision.

Alcatel notes that Taiwan's Ministry of Transportation and Communications (MOTC) has unveiled its targets for further development of the country's broadband sector. MOTC's targets and corresponding efforts by the government-owned incumbent are likely to pay off soon; MOTC will facilitate a program with infrastructure projects and investment, with a focus on FTTU and wireless access and an objective to connect 2.06 million households with fiber infrastructure by 2007.

Alcatel also has high hopes for the European market. In terms of number of homes passed, FTTU has already made more progress in Europe than North America. With 400,000 households connected, the European FTTU market is three times the size of North America. Despite this healthy lead, Alcatel admits the market drivers for European incumbent ser-





vice providers are not as persuasive as those found in North America or Asia. Lack of facility-based competitors, such as multiple system operators (MSOs) in North America, coupled with a dearth of public policy initiatives like those available in the Asia-Pacific region, provide European incumbents with little incentive for aggressive deployment.

Further exacerbating these conditions in Alcatel's view is Europe's underground outside plant infrastructure, which makes overbuilding existing areas with FTTU an expensive proposition. Despite these challenges, Alcatel is encouraged by what it sees is a consensus among most European incumbents that FTTU for new construction offers a promising business case in terms of operational savings and bundled service revenue. Furthermore, these incumbent providers are increasingly aware of the growth of ultra-high speed broadband initiatives being driven by Japan, Taiwan and Korea and its potential impact on European regulators, job growth and consumers.

Notes a company spokesman, "As we have witnessed in our local market, a new breed of competitive players, inclusive of municipalities, utilities, and CLECs, is driving fiber deployment and has substantially contributed to the increase in deployments Europeans enjoy over North Americans today.

"As we take a moment to look globally, we recognize far more similarities than differences. We are all faced with an opportunity to drive a new generation of interactive and multimedia services to a new generation of youth. We are all tasked with the challenge of an aging society that must be re-educated to continue its economic contributions and nurtured through more cost-effective and proactive medical care. We are all eager to protect Mother Earth through the ecological benefits associated with increased telecommuting. FTTU provides the infrastructure to deliver these benefits and more. As we have seen across the globe, we have only scratched the surface of what is possible. While we may not know what the future holds, we certainly have the potential to seize these opportunities today while laying the foundation for the next generation of communications professionals."

Allied Telesyn International

ATI's key market differentiator is its strong experience in video, especially in TV over DSL.

www.alliedtelesyn.com

Allied Telesyn, like some others mentioned here, offers end-to-end networking solutions. But unlike the others, it has a particular reputation in the TV market, including TV over DSL. At the European TVoDSL conference in Paris in late January, the firm demonstrated its live Triple Play solutions. Allied Telesyn's European Business Development Director, Rami Houbby, who chairs the Market Development Committee of the Fibre To The Home (FTTH) Council Europe, moderated



Hitachi's AMN1200-series Ethernet Terminal Unit is used like a cable modem inside fiber homes; it is widely deployed in Japan.

a session (with the European market research firm IDATE), on the current landscape of the TV over DSL market in France.

"Allied Telesyn has live TV over DSL deployments throughout the world enabling us to provide in-depth guidance to the TV over DSL community on how to implement Triple Play services over DSL and FTTH networks throughout the entire network infrastructure," said Houbby.

Allied Telesyn International is part of the Allied Telesyn Group, founded in 1987. The group has offices throughout the world, with over 3,000 employees and over \$600 million worldwide annual revenue. ATI cites four key elements in its strategy to achieve a leading position in the enterprise, operator and connectivity business segments:

- Its business focus on networking technology for professional markets, where ATI can provide a total end-to-end solution at an attractive price/performance ratio.





- The ability to handle every aspect of its own products from design to marketing.
- Development of components and solutions that accommodate flexible, efficient and reliable network construction
- Offering of generous warranty terms to highlight quality services.

Hitachi

The Japanese giant has leveraged the experience it gained building PON in its home country, but offers much more.

www.hitachi.com/wwn/americas/link/hitel.html

Japanese-based giant Hitachi has enormous heft worldwide. Hitachi FTTH equipment is deployed and in service throughout Japan as well as in Australia, the US, and (to a lesser extent) in other countries. Deployments of Hitachi's next-generation Gigabit PON products are beginning throughout Asia. Dr. Scott Wilkinson, Assistant Vice President of Hitachi Telecom (USA), says this widespread success has allowed Hitachi unique insight into the different requirements and expectations of worldwide customers for FTTH technology.



Hitachi's single-family unit access point provides legacy triple-play services with connections for video coax, two RJ-11's, two RJ-45's.

Passive optical networking has become the predominant method of providing fiber to the home worldwide. Starting with pre-standard ATM-PON and STM-PON systems de-

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ployed in Japan in 1996, through the FSAN-standard B-PON explosion worldwide in the last few years, and looking forward to Gigabit systems in the near future, Hitachi has the longest continuous development and deployment of PON systems in the world. Hitachi currently has over 800,000 ONUs in service worldwide, by far the largest installed base of any vendor of PON equipment.

Hitachi's initial PON deployments in Japan were a pre-standard ATM-PON, which is still widely deployed today to carry private line ATM circuits. The experience gained from early PON deployments allowed Hitachi to quickly respond to the needs of network providers when the move was made to FSAN standard B-PON deployment.

In Japan, the majority of FTTH deployments are now based on ITU G.983 standard B-PON, which operates at 622 Mbps downstream and 155 Mbps upstream and uses a passive splitter to put up to 32 end users on a single fiber. The FTTH service offered in Japan is typically a data-only, 100 Mbps bi-directional, best effort connection. IP-based services (VoIP, IP VoD) are offered on top of the data service, usually by third parties. Japanese end users do not have the same service type expectations as US users, and do not demand RF video, voice (POTS) interfaces, or other service-related features that are now common in US FTTH deployments, however.

The combination of a standards-based system and a limited feature set has led to a very low-cost FTTH system in Japan and very low per-Mbps monthly rates for end users. The result has been an explosion of demand, and over 800,000 end users now served by B-PON in Japan.

Hitachi's experience in Australia has not been the same, due to different service requirements of its Australian customer. In the customer's service area of Victoria (a state in southeastern Australia), the customer expects delivery of telephony (POTS) and video as well as data. However, the US requirements for a hardened device on the outside of the home and delivery of RF video are not present, so the solution looks different from US deployments. In Hitachi's Australian deployment, the network provider places a home gateway inside every residence to provide separate interfaces for IP video and standard telephony. This gateway is placed next to the indoor ONU, and the network provider manages both elements. The addition of a home gateway device allows the network provider more flexibility in service offerings, and allows it to capitalize on the same "service bundling" trend that is now popular in the US. For the near-term future, Wilkinson says the IEEE version of Gigabit PON, often referred to as GE-PON or just E-PON, is gaining popularity in Asia, although deployments are not yet widespread. The GE-PON standard is a relatively simple one, based on Gigabit Ethernet transport and geared primarily toward the transport of IP-based services. Whereas B-PON is asymmetric

and operates at speeds below 700 Mbps, GE-PON is designed to operate at 1.2 Gbps bi-directional. Hitachi introduced its initial GE-PON system in Asia in 2002.

Wilkinson says GE-PON is an attractive solution in Asia for several reasons. First, the standard is complete and a number of vendors are working on equipment, leading to a low-cost solution. Second, many Asian networks, especially in China, are in their infancy and do not have to support any legacy protocols (T1s, for example, or standard telephony). The networks can be built from the ground up to exclusively support IP-based services such as IP video, VoIP, and high speed data.

Hitachi sees the requirements for GE-PON deployment in Asia as remarkably similar to its experience with B-PON in Japan. In general, there are no requirements for RF video, no requirements for POTS voice, and no requirements for hardened equipment. The network provider sees GE-PON as a method of increasing data rates to end customers at attractive prices as well as providing a more symmetrical access plant for applications such as P2P networks, file sharing, and gaming. GE-PON also offers a solution that is available and standards-based now, allowing them to begin their buildouts quickly in the highly competitive Asian FTTH market.

ITU G-PON is clearly the coming attraction in Hitachi's strategy. The same groups (FSAN and ITU) that standardized the widely successful G.983 B-PON are completing a standard for Gigabit PON. This standard is known as ITU G.984 G-PON, and pre-standard equipment is just starting to appear. The G-PON standard offers many features that were left out of GE-PON for expediency, including support for legacy signals (e.g. T1 and other TDM-based signals), a wider range of upload and download speeds, and more robust management capabilities. These expanded capabilities should make G-PON an attractive option for networks in North America in particular, although network providers in other areas of the world will probably adopt G-PON as well due to its improved efficiency and capabilities.

"G-PON is a natural migration for Hitachi in our nearly ten-year commitment to the FTTH market," says Wilkinson. "Hitachi continues to tailor our FTTH products to the demands of each segment of the international market, as the only vendor in the world to commercialize every type of PON equipment from A-PON to B-PON to E-PON to G-PON."

PacketFront

World-class network management software is this Swedish firm's competitive edge; it's just opened a US office, too.

www.packetfront.com

Sweden-based PacketFront capitalizes on its experience delivering triple play and open-access FTTP networks. PacketFront





has broadband solutions that support various types of business models for property owners, utilities, communities, CLECs, Cable TV operators and ILECs. Company officials insist that open-access is the future. But PacketFront is not limited to computer-industry standards. Its chief competitive advantage is its network management software.

At the heart of PacketFront's solution is BECS™, its award-winning control and provisioning system that allows end users to self-provision services from the service provider of their choice. The high level of automation in BECS allows network owners to manage the network with a minimum of resources. PacketFront's solution also includes a series of broadband routers, all-IP DSLAMs and a series of multi-service customer premises switches. In addition to FTTP and ADSL+/2+, its automated broadband solution supports other access technologies including wireless and satellite. This flexibility provides the network owner with an all-IP architecture that supports triple-play services and open-access business models.

PacketFront was founded in 2001 and is headquartered in Stockholm. It also has offices in Tokyo and is about to open its first North American office, in Nashua, New Hampshire an hour north of Boston. PacketFront's customers are in Europe, North America and Asia/Pacific countries. Big customers include Mälarenergi Stadsnät in Västerås, Sweden (a municipal net run by the local utility company) and Dubai Internet City in the United Arab Emirates.

The Västerås network actually led to the birth of PacketFront. In 2000, it was the first municipality in Sweden to form its own commercial company to build and operate an open urban network. Since then the company, Mälarenergi Stadsnät AB, has deregulated the broadband market by allowing the users themselves to decide which services they want. Mälarenergi Stadsnät has, in turn, connected commercial properties, local and county councils and households. With its 22,000 household connections, Mälarenergi is already a large player on the urban network market. It also has 1,700 companies as customers, all the local state-run schools, council offices, and all of the Västmanland county council healthcare clinics. In 2007, when the current expansion project in Västerås is completed and Byggnads AB Mimer, the town's council-owned housing company, has its 13,000 apartments hooked up to the network, it will comprise no less than 50,000 connected households.

Dubai Internet City and PacketFront Sweden AB started working together in 2003. Dubai Internet City was looking for a solution that would help address the residential community within its service area. PacketFront's flexibility and service management, trouble shooting, deployment and security skills led to successful rollouts during 2004. Since then PacketFront has become vendor of choice for all residential broadband solutions and DSL deployments for business customers in Dubai.

Dubai Internet City is a strategic base for companies targeting emerging markets in a vast region extending from the Middle East to the Indian subcontinent, and Africa to the CIS countries, covering 1.6 billion people with GDP of \$ 1.1 trillion. In addition, it has developed programs that can be leveraged by the Information and Communications Technology (ICT) community to explore and expand "Channel Development" opportunities. The burgeoning ICT cluster at Dubai Internet City also offers a high quality of business interaction and networking opportunities that can be used for enhanced problem-solving and knowledge-sharing by the community. The mission of Dubai Internet City is to create an infrastructure, environment and attitude that will enable enterprises to operate locally, regionally and globally, from Dubai, with significant competitive advantage.

Residential customers within the network are offered a "triple play" service package, including digital TV services with more than 100 available channels. Digital voice services and various other Internet services are also available. Business customers, currently served over DSL, are offered digital voice, VPN and various other Internet services.

Telkonet

Data over powerlines is this firm's specialty; it sets up broadband networks mainly within large buildings.

www.telkonet.com

Telkonet has prospered by being a technology specialist. The firm, based in Germantown, MD, is a leader in commercial power line communications within structures. Its latest big customer: A high-speed Internet access system to be installed in all 31 Sandman Hotels in Canada. Four Sandman hotels in Alberta already have Telkonet's system installed, with the remaining 27 due by the end of May.

Salim Kassam, Vice President of Marketing for Sandman Hotels, Inns and Suites, stated, "We were impressed by Telkonet's innovative system as it enabled us to deliver the Internet over the building's existing electrical wiring. Our goal was to find a technology that would provide reliable and secure Internet access to our guests, in a cost-effective manner. The Telkonet solution achieved this in our beta tests at four of our locations. Based on the success of these tests, we have selected Telkonet as our partner in providing this amenity to our guests, chain-wide."

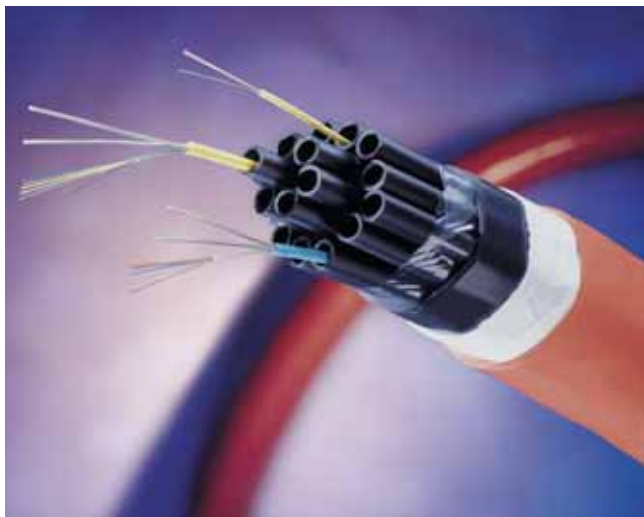
David Powell, Managing Director, International of Telkonet, commented, "Their decision confirms that our system is an effective high-speed Internet access solution for hotels."

Once the system is installed, virtually every power outlet throughout a building is converted into a high-speed data





Sumitomo's DriTube gel-free ribbon cable is rugged and easily spliced for quick installation.



FutureFLEX blown fiber and microducts from Sumitomo; the company sees great room for growth in the US market.

network port. Hotel guests can access the Internet from any electrical outlet throughout the hotel, including guest rooms, meeting rooms, and public areas. In addition, the system is reliable and secure, as data is encrypted, ensuring that no other users can access other users' information traveling on the network.

The Telkonet PlugPlus™ family of networking and internetworking products offers a cost-effective alternative to the challenges of hardwired and wireless local area networks. PlugPlus products are designed for use in commercial and residential applications, including MDUs and the hospitality and government markets.

Sumitomo

This Japanese giant has turned what once looked like a commodity business – the fiber itself – into an opportunity.

www.sumitomoelectric.com

Sumitomo, like Hitachi, used the quick deployment of Japanese broadband starting in the mid-1990s to become a technology leader. Having jointly pursued the research and development of Fiber-to-the-Home technologies with NTT, one of the largest telecommunications companies in the world, Sumitomo Electric has been a leading-edge force in the development of optical fiber, optical cable, interconnects, fusion splicing, air-blown fiber, and electro-optic interfaces. In other words, it concentrates on the “passive” parts of the network.

To serve its global customers, Sumitomo Electric Industries employs over 80,000 people worldwide, with 15 locations in Europe, 70 in Asia, 25 in the US, along with other local production or service sites in Africa and Central and South America.

Sumitomo Electric Lightwave, in Research Triangle Park, NC, is a subsidiary that serves the US, Canada, Mexico, and parts of South and Central America. Relying on its own resources and that of its parent company, Sumitomo Electric Lightwave has been among the first to introduce into North America advanced FTTH/FTTP technologies that serve to lower deployment costs, increase the efficiency of the access network, and give customers a competitive advantage.

Some of these first-to-market technologies include:

- PureAccess bend-insensitive fiber drop cables for the final drop to the premises.
- Patent-pending locatable drop cables that eliminate costly grounding steps.
- Bend-insensitive PureAccess fiber incorporated into pig-tails and jumpers for easy premise wiring in tight locations.
- DriTube 100% gel-free ribbon cable for faster installation.
- TomCat splicers, the first ‘full-featured’ handheld splicer specifically designed for FTTP applications.
- A broad range of specially designed “easy entry” distribution and feeder cables incorporating Sumitomo’s highest quality optical fibers for application from the central office/headend to the subscribers’ premises.

The company sees growth in North America for its FutureFLEX blown fiber in particular. Among its US customers are CNN, ESPN, the Pentagon, Mayo Clinic, Johns Hopkins University, Starbucks, Dallas-Fort Worth International Airport, and Nissan. In Canada, FutureFLEX has become the preferred LAN infrastructure for the Canadian House





Wave7 Optics Last Mile Core OLT installed at roadside (hence the protective bars) in the Taki-Cho project in Japan.

of Commons, the Royal Canadian Mounted Police, Health Canada, and Bell Canada.

Wave7 Optics

Innovative equipment offerings and pioneering management tools make this outfit a standout world-wide.

www.wave7optics.com

Atlanta-based Wave7 Optics pioneered the first intelligent passive optical network (PON) system with integral management functions. Now others like PacketFront are nipping at its heels and the IEEE is adding more management protocols to its standards. So Wave7 Optics has made its optical line terminal (OLT) equivalent more flexible – it can be deployed either in the field or central office – while its PON-like Last Mile Link FTTP solution still uses standard IP- and Ethernet-based components. The Last Mile Link offers service providers a particular advantage with regard to video in that it supports upstream RF return signals and readily accommodates HDTV. Commercial customer high-speed bandwidth applications can range up to 500 Mbps. The company has also responded to competition by dipping its toe into ATM-PON and by attracting a number of high-powered



Customer-home installation in Japan, using Wave7-Hitachi AMN1200 equipment for triple-play; note multiple connections.

international partners. “Interest in the LML outside the United States is growing rapidly,” said Tom Tighe, CEO of Wave7 Optics. “Wave7 has established a worldwide network of VARS and OEMs and these channel partners are proving very successful in gaining international interest in our solution.” A few examples:

More than a year ago, Last Mile Link was selected to provide super high-speed triple play as well as telemetry and security monitoring services for the 10,000 residences and businesses at the Bosque Real golf course development just outside Mexico City. The first phase of Bosque Real (partnering with Acelera, a Mexican telecommunications service provider) was almost exclusively residential. The second will include school, shopping, recreation, medical facilities and mixed-use commercial development.

“We are designing Bosque Real to be the most technologically advanced development in Latin America,” said Victor Barreiro, VP of Bosque Real Country Club Services. “For this technology showcase, we chose the Last Mile Link from Wave7 as the most economical and technically advanced platform for advanced optical broadband services.”

Wave7 started partnering with Finland’s Teleste Corporation, a leading European supplier of network solutions to cable operators (MSOs), almost two years ago. Teleste also sells to systems integrators and national telephone companies worldwide. “Teleste’s complementary headend products and practice of providing the best products and local support to their customers make them an ideal partner to help us increase our worldwide sales,” said Tighe. “We view Europe as a strategically important region for broadband communica-





tions and we are pleased that Teleste has chosen to carry the Last Mile Link.”

Early in 2004, Wave7 Optics in conjunction with Delfcam, a network installer and operator, won the contract to install FTTP in the prestigious Sanctuary Cove residential development on Australia’s Gold Coast, 45 minutes from Brisbane. The two companies expect to connect more than 1,500 homes by the end of 2006. Sanctuary Cove, a Mulpha Australia Limited project, is one of the first Australian developments of its kind to provide FTTP-based services. It uses the Last Mile Link to offer digital video including local over-the-air, cable and satellite television channels, video-on-demand services, wi-fi hotspots, the highest-speed Internet service in the country, multiple telephone lines per residence, a community intercom and security system featuring closed-circuit television and gate access control, and home automation services.

“We were impressed by the team of Delfcam, Wave7 Optics and Sanctuary Cove’s consultants, Right ICT, who were able to configure the network at an economical \$1,950 AUD [approximately \$1,500 US] per home,” said Geoff Grady, Chief Executive Officer, Sanctuary Cove. “One of the most attractive aspects of the Last Mile link is the capability to provide up to 500 Mbps symmetrical service, which gives us ‘future-proof’ peace of mind. We feel the Last Mile Link will make the finest development in Australia that much more attractive.”

Last October, Wave7 announced a major FTTP deployment in Japan, partnering with Hitachi Kokusai Denki, Yagi Antenna Division. In the deployment, Izumo Cablevision is using Last Mile Link in a new network serving the city of Taki-Cho (in the Shimane Prefecture). “The Taki-Cho municipality felt strongly that IP voice and RF video service support were absolute system requirements and that very high-speed data transmission capability would be essential to permit future service expansion,” said Tighe. “As a result, Izumo opted to deploy an FTTP network as opposed to a more conventional HFC system.

“Our partners in Japan, Hitachi Kokusai, were able to offer the LML system to Izumo to meet all the service and bandwidth requirements of the municipality. In addition, the LML provides all of these services over a ‘single fiber’ architecture, which dramatically reduces costs, compared to other FTTP systems.”

The network is also unusual, maybe unique, in that Izumo allows each subscriber to select an individualized package of services on an “a la carte” basis. Izumo Cable provided fiber interconnects to the Taki-Cho government backbone fiber network. From these interconnects, “Last Mile Core” OLTs are deployed in the field in a distributed architecture and



This weatherproof splice enclosure (Wave7 Last Mile Tap) is installed at the Taki-Cho project in Japan.

then connected to “Last Mile Gateway” customer premises devices as part of the first phase deployment. Hitachi Kokusai is responsible for the deployment of the LML and the rest of the FTTP infrastructure, including the multi-layer switches, SIP server and video headend equipment. Taki-Cho is the first triple play FTTP deployment in Japan.

Also last year, Wave7 and Hitachi agreed to be co-development partners for the new Hitachi AMN1200 family of FTTP network equipment for markets worldwide. The AMN1200 SFU supports the full triple play and complies with the FSAN (Full Service Access Network consortium) B-PON specification.

“This agreement with Hitachi represents our market entry strategy into accounts that prefer ATM-based equipment,” said Tighe.

“To that end, we will establish ourselves further in terms of reputation and market share via this agreement with Hitachi, the market leader in ATM FTTH technology.”

“This looks like a classic win-win situation for both companies,” said Michael Kennedy, Principal of Network Strategy Partners, an industry consulting firm. “Hitachi will benefit from Wave7’s unique ‘passive and active’ approach to FTTH equipment and their video expertise to develop a real cutting-edge product. Wave7 has a great chance to grow in the U.S. and internationally. Both companies now have improved their standing vis-à-vis the major FTTH deployments planned by the world’s largest service providers over the next few years.” ♦

