

# Smart's Telecom Trifecta



*(Back row) Mr. Edgar Lazaro, Manager, Transmission Engineering; Mr. Mario G. Tamayo, Head, Technical Services Division. (Front row) Ms. Elma del Valle, Manager, Transmission Planning; Mr. Rolando G. Peña, Head, PLDT and Smart Technology Group; Mr. Ruel Empleo, Senior Supervisor, Transmission Planning*

## ***The Philippines' largest mobile operator uses Tellabs for a backhaul triple play spanning 2G, 3G and WiMAX.***

*By Joan Engebretson*

***When Smart Communications was designing its WiMAX network, the Philippine operator deployed RAN equipment from multiple vendors. Rather than using those vendors for backhaul, too, Smart expanded its existing Tellabs® Managed Transport System and Tellabs® Managed Edge System.***

“Smart has always placed a premium on resource and operational efficiency,” said Rolando G. Peña, head of the PLDT and Smart technology group. “By using the Tellabs aggregator for our WiMAX deployment, we improved our efficiency in managing and maintaining equipment in a multi-vendor environment.”

Founded in 1991, Smart is the Philippines' largest wireless service provider and a wholly owned subsidiary of the Philippine Long Distance Telephone Company

(PLDT). Smart launched GSM service in 1999, GPRS in 2002 and UMTS in 2006. In 2009, it began building a WiMAX network, which launched commercial service in 2010. The WiMAX network targets the residential market and complements Smart's existing fixed-wireless services, branded as Smart Bro.

“Smart's existing 2G and 3G infrastructure is optimized to aggregate SDH and Ethernet traffic,” Peña said. “By using Tellabs devices of varying scale and capacity, we create a configuration of high-capacity fiber rings for our broadband service.”

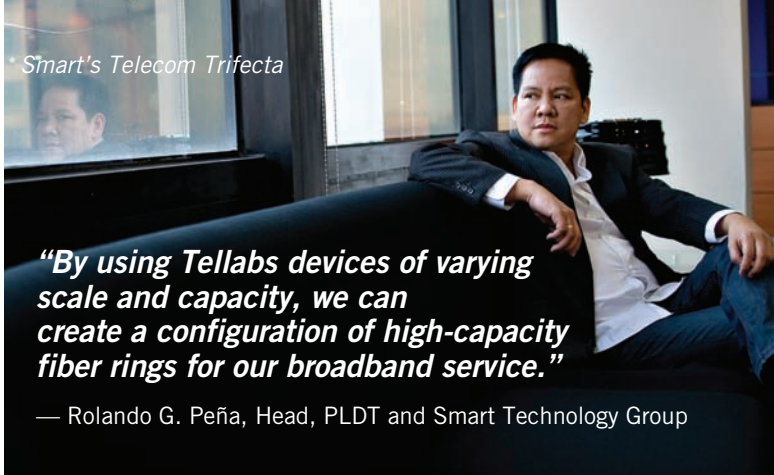
### **Backward-Compatible and Forward-Thinking**

Smart determined that its existing 2G/3G infrastructure could handle the additional WiMAX workload. In metro areas, Smart's WiMAX network design required fiber to each cell site. In those markets, WiMAX backhaul traffic feeds directly to the fiber rings, which deliver it to an ASN gateway connected to the MSAP.

The edge system converts Ethernet traffic from WiMAX cell sites to E1 channels via MLPPP bundling. The connections then feed into another Tellabs managed edge

***Smart launched GSM/GPRS service in early 2000 and added WiMAX in 2010. Its LTE network debuted in April 2011 and offers peak download and upload speeds of 70 Mbps.***





***“By using Tellabs devices of varying scale and capacity, we can create a configuration of high-capacity fiber rings for our broadband service.”***

— Rolando G. Peña, Head, PLDT and Smart Technology Group

switch, which aggregates and feeds traffic at GigE speeds to the ASN gateway. This design meant that the Tellabs system had to support a wide range of requirements.

“Because we use several WiMAX vendors and wanted a consistent backhaul platform for all of them, the managed edge system needed broad interworking capability, including MLPPP, IP-VPN, IP routing, VLAN and Pseudowire,” said Mario G. Tamayo, head of Smart’s technical services division.

After a careful evaluation, Smart determined that the Tellabs system also could meet the requirements for E1 aggregation and conversion in areas where cell sites use TDM microwave connectivity. Smart also liked the fact that Tellabs enabled bundling of up to 16 E1 connections, enhancing the system’s efficiency.

### Network-Wide Vision

A final element of Smart’s WiMAX infrastructure is the Tellabs® Intelligent Network Manager (INM), which helps maintain and troubleshoot the network.

“It is really helpful to be able to do end-to-end testing from the cell site to the ASN gateway,” Tamayo said.

The Tellabs INM can do packet-loop testing using a built-in test generator and analyzer. It can test for connectivity, label-switched paths and circuits, delay, delay variation, throughput and packet loss.

“In addition, the manager does performance monitoring and reporting, so it provides us with link and interface statistics for various protocols,” Tamayo said. “It also provides us network-trend analysis to help with network planning.”

Those insights will help Smart ensure that its network can stay ahead of burgeoning customer demand.

“Our backhaul network design gives us a competitive cost structure that can help maximize revenues today and support services such as LTE in the future,” Peña said. ■

<b>2G:</b> Second Generation	<b>LTE:</b> Long-Term Evolution	<b>TDM:</b> Time-Division Multiplexing
<b>3G:</b> Third Generation	<b>MLPPP:</b> Multilink Point-to-Point Protocol	<b>UMTS:</b> Universal Mobile Telecommunications System
<b>ASN:</b> Access Service Network	<b>MSAP:</b> Multiservice Access Platform	<b>VLAN:</b> Virtual Local Access Network
<b>GigE:</b> Gigabit Ethernet	<b>OA&amp;M:</b> Operations, Administration and Management	<b>VPN:</b> Virtual Private Network
<b>GSM:</b> Global System for Mobile Communications	<b>RAN:</b> Radio Access Network	<b>WiMAX:</b> Worldwide Interoperability for Microwave Access
<b>GPRS:</b> General Packet Radio Service	<b>SDH:</b> Synchronous Digital Hierarchy	
<b>IP:</b> Internet Protocol		

## LEADING THE WAY TO SMART BACKHAUL AND LTE

When migrating from 3G to LTE, most mobile operators are upgrading their transport networks to packet architectures. Packet-based systems are ideal to cost-effectively support skyrocketing data traffic. To enable that upgrade, more than 150 operators have chosen the Tellabs® 8600 Managed Edge System.

The Tellabs 8600 system consists of devices that can be used for traffic aggregation and optimization of RAN nodes such as RNCs. With the Tellabs 8600 system, operators can select the best available, lowest cost backhaul media and technology. The platform includes scalable management tools and supports IP-VPNs, Ethernet OA&M, ATM pseudowires for 3G and TDM pseudowires for 2G. This flexible design means operators can use the Tellabs 8600 system to support 3G backhaul today, with no changes required when they roll out LTE.

By combining the Tellabs 8600 system with the Tellabs® 8000 Intelligent Network Manager, operators also can minimize the cost of deploying and operating 3G and LTE networks. For example, operators can use mass-provisioning tools to remotely configure infrastructure, while wizards and templates streamline both buildouts and daily operations.

Besides enabling end-to-end service provisioning, the Tellabs 8000 INM helps ensure optimal user experiences by using the unique built-in test generators in the Tellabs 8600 system elements. The Tellabs 8000 INM also provides reports about network usage, SLA conformance and trend analyses to assist network optimization and planning. That combination of visibility and control is why more than 500 mobile networks now use the Tellabs 8000 intelligent network manager.