

Fiber optic Local Area Networks (LANs) help protect condo owners' property values and attract new tenants to luxury high-rise

Tellabs® Optical LAN modernizes and streamlines Park Place network to support multiple advanced services and reduce overall operating costs.



Customer's goals — select a communications infrastructure that:

- delivers multiple high-speed services to condo owners and administrative staff and scales easily to satisfy future bandwidth-intensive applications
- is simple to install and operate — and eliminates the existing hodgepodge of separate service-specific networks and associated equipment and cabling
- strengthens security by minimizing the number of technicians who must come into the building every day
- enhances the stature of the building in a competitive real estate market

Tellabs solution — Optical LAN with Gigabit Passive Optical Network (GPON) technology

- Tellabs® 1134 Optical Line Terminal (OLT)
- Tellabs® 705GR Optical Network Terminals (ONTs)

Business results — Tellabs Optical LAN:

- converged multiple services onto a single fiber, thereby eliminating multiple networks
- reduced network operating and maintenance costs compared to those incurred with traditional copper- and coaxial cable-based networks
- enhanced the building's "green" status by reducing energy consumption and related costs
- supports modern communications and solid connections, thereby strengthening the building's ability to retain existing owners and attract new tenants

Park Place on Peachtree is a 40-story luxury condominium complex in northwest Atlanta. A few years ago, members of the condo's Homeowners Association (HOA) realized that Park Place needed to incorporate new technology to remain competitive with high-end towers in the area. HOA members decided to build a communications network to improve property sales and protect the property values of existing condo owners who had paid six- to seven-figure prices for the units.

They wanted not only to update the diverse mixture of systems in Park Place, which opened in 1987, but also to eliminate the security concerns that arise when technicians from multiple service providers go in and out of the building on a daily basis.

"A newly-installed Tellabs Optical LAN, based on Gigabit Passive Optical Network (GPON) technology, supports a broad range of up-to-date communications services for Park Place tenants."

Today, a newly installed Tellabs Optical LAN, based on Gigabit Passive Optical Network (GPON) technology, supports a broad range of up-to-date communications services for Park Place tenants. Replacing the building's previous mix of communications systems, the Optical LAN simplifies the Park Place communications infrastructure and delivers advanced services to residents and their guests while strengthening building security by reducing the number of on-site technicians requiring building access.

Upgrading a tangled mix of different systems and services

After evaluating the possibility of upgrading all of the existing systems, the HOA invited IP UtiliNET, an Atlanta-based engineering firm, to demonstrate the capabilities of the Tellabs Optical LAN. The HOA awarded the fiber-retrofit contract to the firm and, over a period of four months, IP UtiliNET installed the Optical LAN throughout all 40 stories and 242 units of Park Place.



An Optical LAN requires less equipment and cabling than copper- and coaxial cable-based networks, which makes it a more cost-effective solution.

David Quinn, IP UtiliNET CEO, says that he and his team encountered at the project outset “a typical mishmash” of infrastructure running throughout the building: a cable TV network, coaxial-cable security wires, multiple 2- and 4-wire systems and 3-wire analog telephone systems, with each component running to all units throughout the building.

“A typical copper-based LAN in a commercial building has switches for the data network on every floor, with multiple service providers’ cables coming up through the core of the building,” Quinn explains. “Then you have splitters and amplifiers for the cable-distribution equipment, and you have analog cables — it creates a mess in the facility.”

Making the Park Place infrastructure even more complex was the fact that over the years owners had modified many of the condo units. Some owners had combined two condos on the same floor into a single unit; one owner had combined four units on one floor with two units on another floor and had built a staircase between the two.

A smart solution eliminates the cabling mess

Compared to a traditional mix of communications networks, an Optical LAN is a smart networking solution because it is simpler and easier to deploy throughout a building such as Park Place. It collapses separate service-specific networks, each with its own type of transport medium, into a streamlined architecture that converges voice, data and video services onto a single optical fiber. Because an Optical LAN also requires less equipment and cabling than copper- and coaxial cable-based networks, it is a more cost-effective solution as well.

For the Park Place Optical LAN installation, IP UtiliNET deployed the Tellabs® 1134 Optical Line Terminal (OLT) and, within the

individual condos, the Tellabs® 705GR Optical Network Terminal (ONT), which features four Gigabit Ethernet ports, two analog telephone ports and one RF video port in a single, cost-efficient package. IP UtiliNET installed 306 ONTs throughout the building to serve 242 residential units, along with various business offices.

A 13-strand optical fiber bundle runs from the single Optical LAN equipment rack in the basement up to 13 splitters in the building. The splitters feed a distribution network running out to all condos and offices; each splitter covers three floors — the floor on which it is located as well as the floor above and the floor below. To provide service connectivity, a fiber strand extends from each splitter to the wall-mounted 705GR ONT faceplates in the residential units and offices.

The streamlined Optical LAN architecture allowed IP UtiliNET to eliminate the active electronic switches throughout the core of the building and create a passive core. It also allowed installers to eliminate four telecom closets in the building and all the cabling associated with them.

Optical LAN makes it simple to provide services to the residents

By centralizing in one location all management functions for the entire network, the Park Place Optical LAN allows technicians to configure and reconfigure connectivity and services for individual users much faster and more easily than they could with multiple traditional networks. Consequently, it also enhances building security, primarily by minimizing the number of technicians required to maintain the system and cutting down the frequency of their required visits to individual condo units.



An Optical LAN's fiber endpoints within each condo offer four times more capacity than copper endpoints.

Optical LAN scalability delivers all the bandwidth that residents need

Optical fiber, which is the nervous system of an Optical LAN, is future-proof. It not only delivers all the bandwidth that residents require for their current devices and voice/data/video applications but, without requiring any replacement, it can also support residents' migration to next-generation technologies. In fact, an Optical LAN's fiber endpoints within each condo offer four times more capacity than copper endpoints. The superior bandwidth and density of optical fiber, combined with lower installation costs, translates into maximum scalability for the Park Place Optical LAN.

"The superior bandwidth and density of optical fiber, combined with lower installation costs, translates into maximum scalability for the Park Place Optical LAN."

A local service provider delivers bandwidth to the curb of the Park Place complex and then hands it off to IP UtiliNET, which in turn distributes that bandwidth over the Optical LAN throughout the building. Via the Tellabs ONTs installed within each condo, individual residents today receive incredibly fast Internet, which is burstable up to 1 Gigabit. The Optical LAN design allows IP UtiliNET to engineer the signal-distribution capacity for incremental delivery of 10-Gbps service.

Optical LAN supports a wide variety of residential services

Quinn explains that IP UtiliNET can leverage the capabilities of the Optical LAN to provide a broad range of services to both Park Place residents and the HOA. For example, his team already has integrated the RF video (satellite TV) network with the same piece of optical fiber now used to deliver 1 Gigabit of burstable bandwidth to each condo.

"From four 1.5-meter satellite antennas on the roof, we pushed the fiber cable down 40 stories to our rack," he explains. "We then integrated that network signal into the delivery side of the fiber. The Tellabs ONTs segment out the RF signals for the televisions, and we now have multiple televisions up and running flawlessly on the in-building network."

Now that the Park Place network no longer has fragmented infrastructure, the IP UtiliNET team can integrate the analog phone network with Voice-over-IP service.



Quinn's team integrated the RF video (satellite TV) network with the same piece of optical fiber now used to deliver Gigabit service to each condo.

"The beauty of the Passive Optical Network architecture," Quinn says, "is that we can actually integrate the analog, the data and the RF video signals, so we can clean up the fragmentation and the mess that formerly existed and then provide layered [optional add-on] services. Over time, those layered services will provide added value to the residents."

One option under consideration is exterior surveillance and access controls to the Optical LAN. Quinn says that by integrating exterior lighting, security cameras, building controls and even HVAC units, the Optical LAN can help the Park Place HOA reduce overall operating costs for the complex.

The Optical LAN can also support wireless communications. IP UtiliNET has configured lobby-level wireless access points for guests and residents, which connects to the Optical LAN system, and a Park Place technician is handling WiFi installations for individual condominium units.

Optical LAN delivers benefits to residents and building owners

Quinn says that the Tellabs Optical LAN provides a range of benefits to both Park Place residents and the HOA, starting with reduced costs.

"When you reduce budgetary consumption, both from a condo owner's perspective and from a HOA perspective, you can shift your budget to purchase other items."

A significant portion of the cost reduction stems from lower energy consumption. Because the Tellabs Optical LAN produces fewer thermals than traditional copper-based networks do, it can

reduce the building's energy costs by as much as 30%–65%, making Park Place a greener environment. In addition, the Optical LAN's passive architecture requires no power within the optical distribution network and, as noted earlier, it needs less equipment than a copper-based LAN. Consequently, it reduces the amount of equipment required by other power-related areas, such as distribution and switching, conversion, backup, fire suppression and cooling.

Quinn points out that the Optical LAN's ability to support multiple systems and services allows the Park Place HOA to invest in additional layered services, including digital signage, integrated music systems and different types of security solutions.

“Because the Tellabs Optical LAN produces fewer thermals than traditional copper-based networks do, it can reduce the building's energy costs by as much as 30%–65%, making Park Place a greener environment.”

“Compared to the previously fragmented communications infrastructure, the converged, simplified Optical LAN, with its support of every technology service, enables a residence like Park Place to reduce budgetary consumption from Day One,” he says, “and significantly lowers the total cost of ownership over a 10-year period.”

For More Information: To find out more about IP UtiliNET GPON solutions go to: <http://www.iputilinet.com/technology.html>.

Take the next step. Contact Tellabs today.

