

## Gigabit Passive Optical Network

As the Canadian population grows older, we are witnessing a steady rise in the private retirement home market. These senior living facilities accommodate retired people and cater to their needs, which usually feature pharmacies, beauty

salons, and a variety of entertainment and pastimes that allow residents to socialize on a daily basis.

From now until 2030, one out of four people will reach the age of 65 in Canada. This means that more senior facilities will be required. Leviton will have a role to play during the construction phase of these housing complexes. Indeed, our team of specialized networking professionals has collaborated with one of the key players of this industry on more than 30

new private senior residences.

At the start, the certified installer and our team suggested to the contractor that a complete building automation system be installed in each room (video, data, VoIP, wireless and security). Generally, the chosen typical installation for a seniors' residence calls for category 5e or 6 copper wiring. However, continuing evolution and the ever-broadening scope of technology necessitate the installation of efficient information distribution systems in these facilities. For this reason, a passive gigabit-capable optical network is better suited because of a superior bandwidth and transmission speed.



Moreover, the installation of passive gigabit-capable optical networks is a simpler procedure than a copper installation; a single optic fibre linked to a router can service 32 optical network terminals while 32 copper wires are required to service a corresponding network. Lowering the number of threaded wires represents a cost saving as well as a reduction of almost 15% of the entire wiring structure.

Thus, the contractor entered into an agreement with Leviton to build more than 30 private senior residences in Québec and Ontario. Together, the contractor and our network team collaborated on the design that was then duplicated from one project to

another. Our experts also lent their technical support to facilitate these projects.

Today, Leviton is the manufacturer of the greatest number of passive gigabit-capable optical networks, and is established as THE reference in Canada. Moving forward, we can expect this format to be used in other types of commercial, public and governmental projects.

often used in commercial, educational and government installations. The most commonly used POLS follow the ITU-T G.984 GPON Class B+ standard. In this application, GPON is distributed via single-mode, simplex optical fiber connectors, and passive optical splitter(s) typically using Angled Polish Connectors (APC) to provide precision terminations that minimize the impact of insertion and return loss. There are four major components to this GPON system: the Optical Line Terminal (OLT), the transport media (cabling and components), the fiber optic splitter, and the Optical Network Terminal (ONT). These components are identified in the following line diagram.

## Network Architecture

A GPON can be found in several applications, but we will concentrate on the Fiber-to-desktop (FTTD) type

