Passive Optical Networks and what it means to your building.

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Tyler Hopson, Electrical Engineer, PE

Traditional Network

A traditional network utilizes active components to direct the flow of information to the appropriate destination. The active switches require power and introduce additional heat into the surrounding area. In a small space with only a few points of utilization the power requirements and heat output can be negligible. As the quantity of devices grow so do the power requirements, heat gains and energy consumption. These active components require space and cooling in larger facilities.

Passive Optical Network

There is a relatively new alternative on the market, called Passive Optical Network or PON. It has been used by telecommunications utilities for years in fiber to the home (FTTH) deployments, however now the average building owner can afford the benefits that the cable companies and telecommunications providers have been using for years.

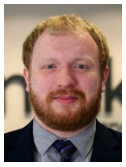
The major benefit of a passive system is that the technology was designed to exploit the inherent diversity that is present in the usage of networks. The system works by broadcasting an optical signal via fiber optic cable from the Optical Line Terminal (OLT). The OLT is the interface between the Local Area Network (LAN) and the outside world. The optical signal travels to the Optical Network Terminal (ONT). The ONT serves multiple functions. It translates the optical signal to an electronic signal that the computer can understand, it is responsible for transmitting an optical signal back upstream, and it is responsible for coordinating, with the other ONTs, when it can send information upstream as to not overlap with data sent from the other ONTs.

Current PON technology in the United States consists of Gigabit Passive Optical Networks (GPON) and Ten Gigabit Passive Optical Networks (XGPON).

Bottom Line

What does it mean for your building? It means faster speeds (2.488 Gbps download and 1.244 Gbps upload to each user) at a fraction of the cost of a traditional switched network deployment; it means you can utilize smaller telecommunications rooms that consume less energy and produce less heat; it means a more reliable system with less downtime; it means you will no longer need a full system upgrade every few years to keep up with new technology; and it means when you do decide to upgrade the system it can be done with minimal to no interruption in service to the end users. Smaller rooms, less energy, less maintenance and faster user speeds. What's not to like?

About Tyler



Tyler has been involved in the design of electrical systems, power distribution, and drafting of many types of commercial projects including mixed-use development, retail stores, malls, restaurants, offices, hospitality and more.

In 2012, Tyler joined Schnackel Engineers as Electrical Engineer and has successfully completed over 1,000 individual projects throughout the US and Hawaii. Some of his notable projects include, Lake Nona, Wai Kai, University of Hawaii West Oahu Creative Media Facility, Hudl office headquarters and Chick-fil-A.

Tyler holds a Bachelor of Science in Architectural Engineering from the University of Nebraska, Lincoln, NE, a Master of Architectural Engineering from the University of Nebraska, Lincoln, NE and a Master of Business Administration from the University of Nebraska, Omaha, NE.

Tyler Hopson, PE - Electrical Engineer
thopson@schnackel.com