



## Passive Optical Networks Deliver High Bandwidth and Efficiency to Meet High Demand – Today and Tomorrow

A well designed optical fiber network infrastructure implementation can extend cabling reach, lengthen service life and accommodate increasing bandwidth requirements to serve future generations of users.

### Welcome to the age of PON.

A passive optical network (PON) is a telecommunications network that uses point-to-multipoint fiber to the premises in which unpowered optical splitters are used to enable a single optical fiber to serve multiple purposes. PONs are deployed as a high-performance, power-saving, environmentally-friendly technology for enterprise data network environments. PONs reduce the amount of fiber and central office equipment required compared with point-to-point architectures.

### Higher Performance

In addition to the various cost saving efficiencies, fiber optic cable offers several significant performance benefits over traditional Ethernet and copper cable (e.g. Cat 5, Cat6e)

- Transmission over longer distances (up to 12 miles vs. 60-90 meters for copper)
  - Transmission at higher bandwidths (data rates)
  - Converged voice (VOIP), data and video services in a single fiber strand
  - Enable Fiber to the Desktop (FTTD) dedicated bandwidth
  - Bandwidth to support multi-user and multi-device access from split fibers or from a wireless access point (AP)
  - Enhanced security through advanced encryption standard (128-bit); unlike copper, no EMI signal radiation susceptible to tapping
  - Reliability through greater signal integrity and speeds across long ranges; Higher life expectancy of fiber infrastructure = 25 years
  - Flexibility through centralized bandwidth with splitting and end point adjustments
  - Improved diagnostics, since PON offers more controlled management and problem isolation
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### It's easy being GREEN.

A PON's optical fiber cabling is lighter, smaller, and can help with green initiatives and possible credits or certifications when building your structure due to the significant reduction in the plastic/PVC and conductor material by reducing the amount of copper cables (and associated weight), and non-renewable (PVC and "precious metal") materials.

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## Lower TCO and Resource Demands

From decreased equipment and initial CapEx, to installation and energy savings, to space efficiency and facilitating campus applications, PONs offer a wide variety of benefits that significantly lower TCO.

**Equipment & Installation savings.** Fewer, thinner and lighter optical fiber cables equate to a less costly installation with materials, team and time savings. In addition, closet fit-outs, cable trays, racks and traditional cabinets can be eliminated, therefore removing the cost (and space) of housing them. Passive switching/splitting equipment is significantly less costly than power switches/splitters. And cable upgrade considerations are eliminated.

**Energy savings.** By eliminating the need for active switches and uninterrupted power supply devices, the need for additional power and cooling in the telecommunications room can be eliminated.

**Space savings.** PON technology simply requires splitters, which can be in very small, self-contained closets on every other floor of the building, hidden behind walls or even mounted in maintenance or electrical closets. This eliminates the need for multiple 100- to 200-square-foot telecommunications rooms. And at 1/12 the weight of copper cable, with minimized plastic, lighter fiber optic cable reduces resource consumption and offers a low profile solution for minimal disruption.



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