CORNING

Top Six Inside Plant Design Considerations

Keeping up with increasing service level demands, as well as the way those services are delivered to the customer, is driving a transformation in the central office/headend to include data center functionality. As various companies respond to these subscriber demands, the more important factor will be who responds first. The following design considerations will help in preparing for this transition so you can stay ahead of the competition.

Which connector is best in your network?

The SC connector is the current standard for most service providers. However, we are seeing emergence of the LC connector with telecommunications equipment such as optical line terminals (OLTs). LC connectors provide a density gain of 2:1 when compared to the SC. The positive mechanical latch, which provides better holding and alignment of the ferrules inside the mated pair, makes an optimal choice for connectorization. As service providers redesign or implement new technologies, consideration of changing from the standard SC connector to the LC is a must.

Do you need density?

As customers are added to the network, service providers will need to consider higher-density fiber termination solutions that are designed for manageability. Adequate spacing and defined routing for jumpers – as well as finger access for making moves, adds, and changes – are vital for manageability. Some of the products designed to meet these needs are fiber frames and LC and MTP® connectors.

What about multimode and duplex connections?

Single-mode fiber will continue to be utilized for transport and information carrying over long distances. However, multimode technologies will support the central processing function as we see more combining of services over an X86 server. When this happens, duplex connections will be needed to support Ethernet switches and servers.

What are your active interfaces?

The transmission type and optics interface will also play a role in your cabling. The active components being used inside the central office/headend will determine a variety of things, such as your cable type (multimode or single-mode), as well as connector types (simplex, duplex, parallel fiber links, LC, SC, or MTP/MPO connectors). Many of these products have primarily only been used in data center applications, but with the emergence of virtualization, they will become more prevalent in central office and headend spaces as well.

Are you structured?

Structured cabling philosophies include the implementation of port replication panels and small-diameter, higher-fiber-count trunks between racks to replace dedicated jumper/patch cord runs. The use of port replication panels allows critical equipment to be connected once with a short patch cord, which allows management of the resources at a cross-connect panel. Trunks allow a more efficient use of cable tray space (cable volume and airflow advantages) and even utilize MTP/MPO connectivity to interconnect to plug-and-play modules/cassettes. This trunk essentially becomes a permanent link which supports migration to newer technologies such as 40G and 100G by replacing just the patch panels at the end.

How accessible is your transition point?

Having an outdoor-to-indoor transition splice point that is high density, manageable, and easily accessible will be essential in the design of the central office/headend. If wall space is available inside the CO/HE, a solution such as the wall-mounted optical splice enclosure (OSE), which comes in both low- and high-density options, allows for easy access.