Fiber & Bandwidth Within a Data Center

What fiber you use in a data center is determined by the amount of bandwidth your high-speed network requires. Sometimes, it may be necessary to mix newer, higher-speed fiber with older, previously installed fibers.

What is Bandwidth?

Bandwidth is the total amount of data that can be transmitted down a fiber.

Maximum Bandwidths of Different Multimode Fibers

OM1 – 62.5 um Core – 10GBit up to 33 meters
OM2 – 50 um Core – 10GBit up to 82 meters
OM3 – 50 um Core, Laser Optimized – 10GBit up to 300 meters
OM4 – 50 um Core, Laser Optimized – 10GBit up to 550 meters

What are the Main Differences?

OM1 contains the only fiber with a 62.5um core and has the lowest bandwidth capacity.
The major difference between OM2 and OM3 fiber patch cords is that OM3 fibers by design is (laser) optimized, allowing data to transmit further.
OM4 fibers are capable of transporting 10GBit data the furthest.

Additional Bandwidth Options

With a greater demand for higher bandwidth, extensions of IEEE 802.3 standards have emerged. Growing in popularity are 12-fiber MPO-style connectors. These newer protocols allow OM3 and OM4 fiber jumpers to operate at either 40Gb or 100Gb per second. Rather than using traditional serial transmission as a LC or SC connector would, these MPO connectors operate using parallel optics transmission (lanes). By transmitting 10Gb per fiber (lane) of the ribbon fiber, the higher bandwidths are achieved.