

DATA CENTERS

A holistic view of the data center and the opportunities to enhance its infrastructure to meet current and future demands

COMMSCOPE®



Chapter 1

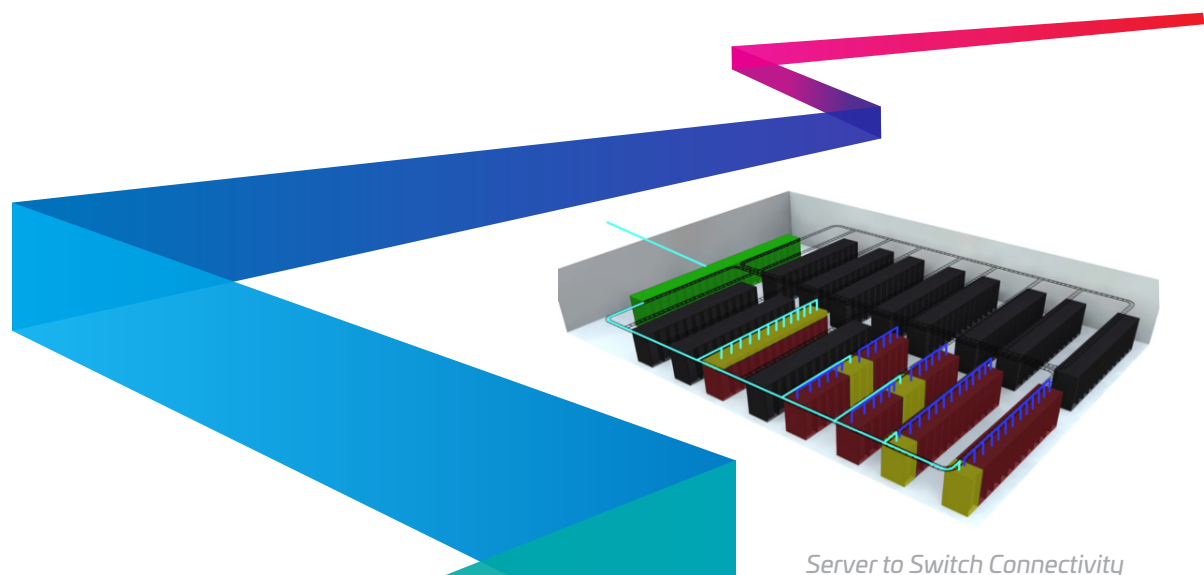
Data center standards

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Setting the standards for higher speeds

Data centers and their contents must adhere to a wide range of standards, ranging from local building codes to guidelines from the American Society of Heating, Refrigerating and Air-Conditioning Experts (ASHRAE) on cooling to a number of requirements placed on the IT equipment. There are also a number of standards related to the structured cabling infrastructure that serves as the platform for IT equipment in the data center.

CommScope monitors data center trends and participates in standards organizations to help data center operators stay ahead of the industry. Given the relentless growth in data traffic and the need to provide high-bandwidth, low-latency connections, there has been a tremendous amount of activity within the standards bodies to define higher speeds. It is important to keep up with the latest developments to ensure the cabling infrastructure can support these higher speeds with minimal disruption.



How the standards define data center cabling

There are two main types of standards relevant to data center cabling infrastructure:

Application Standards

Applications standards define the application that will run on the cabling infrastructure. There are three applications standards that are the most commonly deployed in data centers.

IEEE 802.3

(Ethernet standards) have been particularly active, and currently have draft standards underway for applications up to 400 Gb/s.

INCITS T11

(Fibre Channel) covers storage area networks (SANs), with published standards for up to 128 Gb/s with a roadmap out to 1 Tb/s.

Infiniband™

Infiniband Trade Association is used primarily for high-performance computing applications, with a roadmap with options for up to 600 Gb/s.

Applications standards also define the distance that an application can operate over a given media type. For example, under IEEE 802.3an, 10GBASE-T can operate at up to 100 meters over Category 6A cabling.

Cabling Standards

Cabling standards provide more detail around the physical media and define the channel that supports the applications. There are three main cabling standard bodies.

TIA®

North America

CENELEC

Europe

ISO/IEC

Global

Each of these groups has a general standard which defines structured cabling, as well as a standard specifically for data center applications to reflect the need for higher speeds, increased density and an array of architectures. While there are differences between these standards, there is agreement around the minimum recommended cabling categories and connector types.

	TIA®	CENELEC	ISO/IEC
Data center standard	TIA-942-B	EN 50173-5	ISO-IEC 11801-5
Fiber	OM4 OS1a	OM3 OS2	OM3 OS2
Connectors		LC (≤ 2 fibers) MPO (≥ 2 fibers)	

In addition to EN50173-5, CENELEC has also developed the EN 50600-2-4 standard "Telecommunication Cabling Infrastructure". It focuses primarily on design requirements for the different DC availability classes with strong emphasis on migration and growth.

Keep up with the standards to future-proof the data center



Since data center cabling infrastructure will likely need to support multiple generations of equipment and speeds in the future, keeping up with the latest standards developments is critical. For new builds, it is important to deploy the highest bandwidth cabling as per the data center cabling standards.



White Paper

Data Center Application Standards Reference Guide - Networking and Storage



Standards updates

CommScope Quarterly Standards Advisor



White Paper

Data Center Cabling Design Fundamentals: Telecommunication Cabling Infrastructure Requirements



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