COMMSCOPE®

Data Center
Topology Guide

at work

Data Center Areas

❶ Network Operations Center (NOC)

The network operations center—or NOC—is the location where control of all data center networking, server and storage equipment is exercised. The NOC is responsible for monitoring the LAN as well as the data center for alarms or other conditions that may require special attention to avoid impact on system availability, performance or reliability.

❷ Entrance Room

The entrance room is the interface between the access provider and the data center structured cabling. It houses the demarcation hardware and is outside of the computer room for security purposes.

❸ Main Distribution Area (MDA)

The main distribution area—or MDA—is the hub of the cabling system and may be located in the computer room. The MDA includes the cross-connect and may include the horizontal cross-connects if the equipment they serve is nearby. The MDA may hold the core routers and the core LAN/SAN switches.

❹ Horizontal Distribution Area (HDA)

The horizontal distribution area—or HDA—is the space where the horizontal cross-connect resides. The HDA is the main transition point between backbone and horizontal cabling and houses the LAN, SAN and KVM switches that connect to the active equipment (servers, mainframes, storage devices).

❺ Zone Distribution Area (ZDA)

The zone distribution area—or ZDA—is used in large computer rooms that need additional configuration flexibility between the HDA and equipment. The ZDA houses only passive equipment.

❻ Equipment Distribution Area (EDA)

The equipment distribution area—or EDA—houses the racks and cabinets that hold the computing and storage modules.
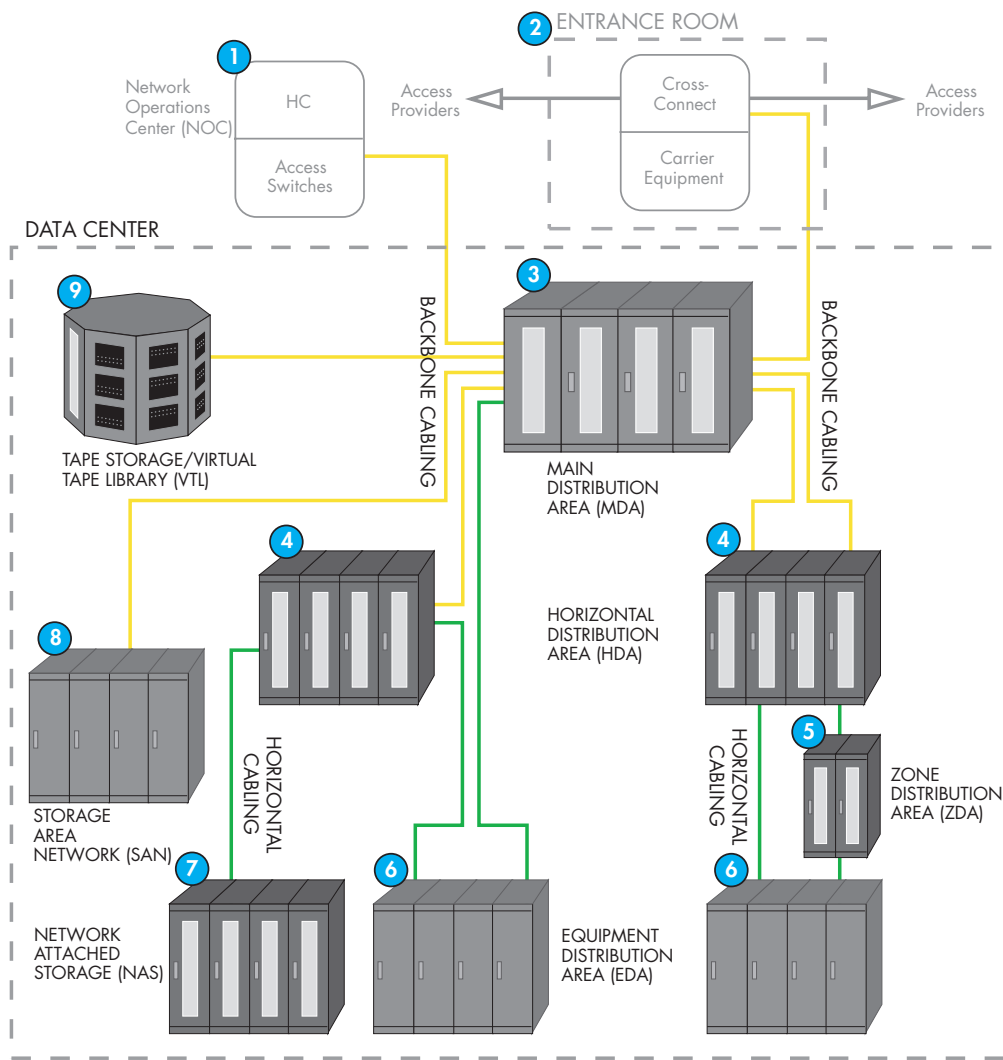
❼ Network Attached Storage (NAS)

The network attached storage—or NAS—area of the data center contains disk-based storage that serves files over an IP network. NAS devices attach directly to the LAN via Ethernet and may also have fiber connections.

❽ Storage Area Network (SAN)

The storage area network—or SAN—area of the data center contains disk-based storage that serves block level I/O to detached hosts. The location of storage arrays are typically separate from the hosts that they serve and therefore the build-out of SAN infrastructure must be reliable and always available. Advances in drive technology have increased capacity, reduced latency and allow for higher fault-tolerant data protection schemes that require careful planning of underlying structured cabling.

❾ Tape Storage / Virtual Tape Library (VTL)

Tape storage combined with a VTL provides a means for efficient backup and recovery. When designed with the correct capacity and future growth requirements of the data center, these systems can become highly robust and accommodate rapid backup and recovery operations. It should be noted that the adequacy of backup, recovery and archiving (BURA) systems and the underlying cabling infrastructure depend heavily on a company's data retention needs and the time allotted for backup and recovery of the data.

DATA CENTER

- ① Network Operations Center (NOC) — HC / Access Switches
- ② ENTRANCE ROOM — Cross-Connect / Carrier Equipment
- Access Providers
- BACKBONE CABLING
- ③ MAIN DISTRIBUTION AREA (MDA)
- ⑨ TAPE STORAGE/VIRTUAL TAPE LIBRARY (VTL)
- ④ HORIZONTAL DISTRIBUTION AREA (HDA)
- HORIZONTAL CABLING
- ⑧ STORAGE AREA NETWORK (SAN)
- ⑤ ZONE DISTRIBUTION AREA (ZDA)
- ⑦ NETWORK ATTACHED STORAGE (NAS)
- ⑥ EQUIPMENT DISTRIBUTION AREA (EDA)

Commscope Data Center Solutions

❶ Network Operations Center (NOC)

SYSTIMAX® Intelligent Infrastructure Solutions

- Combine software, control systems and intelligent patching hardware to provide visibility into physical layer changes and their effects
- Automate change management, improve productivity, increase network reliability and availability, track physical location of equipment, help secure your network, and promote compliance

Backbone Cabling: SYSTIMAX InstaPATCH® 360/ LazrSPEED® Fiber Solution

- OM4 laser-optimized 50 μm fiber fully supports multiple network protocols through 10 Gbps and beyond
- InstaPATCH 360 array connectivity supports emerging IEEE 802.3ba 40 and 100 Gbps Ethernet standard
- Single-mode and multimode modular pre-terminated solutions provide maximum flexibility, installation speed and scalability

SYSTIMAX GigaSPEED® X10D/XL Copper Solutions

- Provide consistent uptime and continuous network availability with the design flexibility for horizontal connections
- Support bandwidth needs of today's data center, incorporating the headroom for grid computing and distributed processing technologies
- Position users for new data center Ethernet initiatives, including Storage, LAN and Inter-Processor communications

❷ Entrance Room

Inbound: CommScope TeraSPEED® Single-mode Fiber Solution

- Supports all Telco Optical Carrier bandwidths (OC 3–OC 192) ATM, SONET, Fibre Channel and Ethernet
- Delivers optimum bandwidth for carrier equipment at demarcation within the data center entrance

Outbound: CommScope TeraSPEED Single-mode Fiber Solution

- Delivers optimum bandwidth to core switches and routers in the Main Distribution Area
- Provides connectivity to the Storage Area Network for remote replication applications
- Low-profile indoor distribution fiber optic cables designed for data center backbones, supporting all current network and storage applications

Outbound: SYSTIMAX InstaPATCH 360/LazrSPEED Fiber Solution

- Delivers cost-effective multimode bandwidth to core switches and routers in the Main Distribution Area
- OM4 laser-optimized 50 μm fiber fully supports multiple network protocols through 10 Gbps and beyond
- InstaPATCH 360 array connectivity supports emerging IEEE 802.3ba 40 and 100 Gbps Ethernet standard

Outbound: SYSTIMAX GigaSPEED X10D/XL Copper Solutions

- Deliver cost-effective 10 Gbps bandwidth over UTP to core switches and routers at the Main Distribution Area
- Extend any copper-based Telco circuits to the Main Distribution Area or the Horizontal Distribution Area
- Support bandwidth needs of today's data center, incorporating the headroom for grid computing and distributed processing technologies

SYSTIMAX Building Entrance Terminal

- Provides reliable protection for sensitive equipment at the building entrance terminal
- Provides cable management for all media types and applications

❸ Main Distribution Area (MDA)

CommScope Enclosure Solutions

- Provide physical structure and protection essential to a secure, complete infrastructure solution
- Custom design provides the right size, weight and durability to support CommScope solutions, including 10 Gbps

SYSTIMAX InstaPATCH 360/LazrSPEED Fiber Solution

- Delivers cost-effective multimode bandwidth to LAN/SAN/KVM switches in the Horizontal Distribution Area
- OM4 laser-optimized 50 μm fiber fully supports multiple network protocols through 10 Gbps and beyond
- InstaPATCH 360 array connectivity supports emerging IEEE 802.3ba 40 and 100 Gbps Ethernet standard
- Single-mode and multimode modular pre-terminated solutions provide maximum flexibility, installation speed and scalability
- Small, high-density trunk cables minimize cooling air impediment and pathway fill

SYSTIMAX GigaSPEED X10D UTP Copper Solution

- Delivers cost-effective 10 Gbps bandwidth over UTP to LAN/SAN/KVM switches in the Horizontal Distribution Area

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- Provides a next generation total solution with near double the bandwidth of Category 6
- Supports bandwidth needs of today's data center, incorporating the headroom for grid computing and distributed processing technologies

SYSTIMAX Intelligent Infrastructure Solutions

- Combine software, control systems and intelligent patching hardware to provide visibility into physical layer changes and their effects
- Empower you to initiate and manage electronic work orders for adds and equipment reconfigurations
- Automate change management, improve productivity, increase network reliability and availability, track physical location of equipment, help secure your network, and promote compliance

SYSTIMAX VisiPatch® 360 System

- Seamlessly incorporates patching and integrated cable management to deliver an ergonomically-designed, aesthetically-pleasing, economical solution
- Unique reverse patching technology improves cord management, increasing port density and usable density
- Elegant, ergonomic, snap-together components enable the system to be modular, scalable and flexible

SYSTIMAX InstaPATCH Cu Solutions

- Deliver cost-effective 10 Gbps bandwidth over UTP to LAN/SAN/KVM switches in the Horizontal Distribution Area
- Customized, tailored solutions meet specific installation requirements and ease contractor coordination while pre-tested reliability minimizes scrap

❹ Horizontal Distribution Area (HDA)
❺ Zone Distribution Area (ZDA)
❻ Equipment Distribution Area (EDA)

Solutions may vary depending on scale and platform.

SYSTIMAX InstaPATCH 360/LazrSPEED Fiber Solution

- Delivers cost-effective multimode bandwidth to the Zone Distribution Area or to active equipment
- OM4 laser-optimized 50 μm fiber fully supports multiple network protocols through 10 Gbps and beyond
- InstaPATCH 360 array connectivity supports emerging IEEE 802.3ba 40 and 100 Gbps Ethernet standard
- Single-mode and multimode modular pre-terminated solutions provide maximum flexibility, installation speed and scalability
- Factory pre-terminated trunk cables with MPO twelve-fiber connectors allow rapid connection to LC or SC modules
- Small, high-density trunk cables minimize cooling air impediment

SYSTIMAX InstaPATCH Cu Solutions

- Deliver cost-effective 10 Gbps bandwidth over UTP for connectivity in the Zone Distribution Area or to active equipment
- Customized, tailored solutions meet specific installation requirements and ease contractor coordination while pre-tested reliability minimizes scrap
- Save space by containing switching and patching in the same cabinet

SYSTIMAX Intelligent Infrastructure Solutions

- Combine software and hardware to provide visibility into physical layer changes and their effects
- Empower you to initiate and manage electronic work orders for moves, adds and changes
- Automate change management, improve productivity, increase network reliability and availability, track physical location, help secure your network, and promote compliance

CommScope Enclosure Solutions

- Custom design provides the right size, weight and durability to support CommScope solutions, including 10 Gbps
- Provide physical structure and protection essential to a secure, complete infrastructure solution

❼ Network Attached Storage (NAS)

SYSTIMAX GigaSPEED X10D/XL Copper Solutions

- Provide consistent uptime and continuous network availability with the design flexibility for horizontal connections
- Support bandwidth needs of today's data center, incorporating the headroom for grid computing and distributed processing technologies

SYSTIMAX Intelligent Infrastructure Solutions

- Combine software, control systems and intelligent patching hardware to provide visibility into physical layer changes and their effects
- Empower you to initiate and manage electronic work orders for moves, adds and changes
- Automate change management, improve productivity, increase network reliability and availability, track physical location, help secure your network, and promote compliance

SYSTIMAX InstaPATCH Cu Solutions

- Rapid deployment enables installers to get in and out of active data centers quickly
- Scalability to plan for and install the exact number of ports you need now and add additional harnesses as needed in the future
- Save space by containing switching and patching in the same cabinet

SYSTIMAX InstaPATCH 360/LazrSPEED Fiber Solution

- Utilized when local storage is not co-located in the same cabinet
- OM4 laser-optimized 50 μm fiber fully supports multiple network protocols through 10 Gbps and beyond
- InstaPATCH 360 array connectivity supports emerging IEEE 802.3ba 40 and 100 Gbps Ethernet standard

❽ Storage Area Network (SAN)

SYSTIMAX InstaPATCH® ZERO Solutions

- Server cabinet solution comprised of a 600 mm wide server cabinet, factory configured cord cassettes with pre-managed slack loops and a mini rack mounted above the cabinet
- Provides U/UTP and fiber connectivity in an integrated, modular system that enables rapid, plug and play server cabinet deployment and facilitates best practices in intra-cabinet cable management

SYSTIMAX Intelligent Infrastructure Solutions

- Combine software, control systems and intelligent patching hardware to provide visibility into physical layer changes and their effects
- Empower you to initiate and manage electronic work orders for moves, adds and changes
- Automate change management, improve productivity, increase network reliability and availability, track physical location, help secure your network, and promote compliance

CommScope Enclosure Solutions

- Custom design provides the right size, weight and durability to support CommScope solutions, including 10 Gbps
- Provide physical structure and protection essential to a secure, complete infrastructure solution

SYSTIMAX InstaPATCH Cu Solutions

- Utilized when iSCSI or FCoE is deployed
- Scalability to plan for and install the exact number of ports you need now and add additional harnesses in the future
- Customized, tailored solutions meet specific installation requirements and ease contractor coordination while pre-tested reliability minimizes scrap

SYSTIMAX GigaSPEED X10D UTP Copper Solution

- Utilized when iSCSI or FCoE is deployed
- Provides a next generation total solution with near double the bandwidth of Category 6
- Supports bandwidth needs of today's data center, incorporating the headroom for grid computing and distributed processing technologies

SYSTIMAX InstaPATCH 360 System

- Advanced MPO-based technology and polarity provide future-proofed infrastructure and seamless meshing with next-generation servers, switches and routers
- Modular design enables end users to make efficient moves, adds and changes
- Low-profile 1RU fiber patch panel allows up to 96 fibers in 1RU for maximum density

❾ Tape Storage/Virtual Tape Library (VTL)

SYSTIMAX InstaPATCH 360 System and Zone Distribution Enclosures

- Design supports data center areas requiring high density, rapid deployment and high performance
- Single-mode and multimode modular pre-terminated solutions provide maximum flexibility, installation speed and scalability
- Sub-floor zone enclosure frees up valuable cabinet real estate and allows roll-in technology refresh via consolidation point/zone distribution deployment

COMMSC⊙PE®