STRUCTURED CABLING SOLUTIONS FOR DC, Telecom, LAB and FTTH Applications

SM VADD have been Designing and Executing Structured Fiber Cabling solutions for Data Centers, IT Labs ,FTTH and Telecom Networks. Our solutions are vendor agnostic will work for Hardware vendors Like DELL, Cisco, Juniper, Arista, IBM and HPE switches/Routers.

We have ready to deploy solutions for 40G, 100G, 400G,800G applications ,and the solutions can be customized for the future migrations and quick installations.

We have been providing cabling infrastructure technologies for more than 10 years for Data Center and Telecom Infrastructure providers. We help our customers design cable infrastructures according to industry specifications, providing structured cabling systems that are manageable and will last through generations of hardware upgrades. The design allows for maximum performance, conditioned space savings and increased ROI. Our Cabling systems improve performance in data center cabling.

Structured cabling uses fiber termination connector panels that are connected through permanent links of optical cabling, typically configured in a star topology. All cabling in the data center servers are consolidated in a central location near the core switch in the network. The permanent pre-terminated trunk cables branch to the zones in the data center, which contain servers, storage, or network devices.

As networking equipment becomes denser and port counts in the data center increase to hundreds and thousands of ports, managing cables connected to these devices becomes a difficult challenge. Traditionally, connecting cables directly to individual ports on low port-count equipment was considered manageable. Applying the same principles to high port-count equipment made the task more tedious, eventually becoming nearly impossible to add or remove cables connected directly to the equipment ports.

Utilizing pre-terminated MTP/MPO cabling from each of these areas to a central patching area provides an infrastructure where any port from any device can be connected to any other port.

SM VADD follows International -- ISO/IEC 24764 Information Technology- Generic Cabling for Data Centre Premises. International -- CSA ISO/IEC 11801:2009 Information Technology: Generic Cabling for Customer Premises.

Our High Density Fiber Patch Panels and enclosure solutions are available in both vertical and horizontal mounting configurations, allowing users to choose port orientation to high-density switches/Routers. Their condensed design can accommodate up to 400 duplex LC ports in one 8U enclosure, while addressing cable management issues that come with high-density designs. The 8U, 6U,4U and 1U enclosures also use the same module footprint to maximize design flexibility.

We Provide Services On:

- Infrastructure cabling design (Copper & Fiber).
- Onsite field works (installation, patching & migration)
- Project management & documentations.

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Infrastructure Cabling design (Copper/Fiber/MTP & MPO)

Network Cabling Design

Structured cabling design and installation is governed by a set of standards that specify wiring data centers, telecom house, business center, offices and apartment buildings for data and voice communications using various kinds of cable, most commonly category 5e (CAT5e), category 6 (CAT6) and fiber optics on OM3,OM4, OS2 and MTP/MPO.

We provide design for MDF/ODF cabling, inter-rack cabling, cross connect, cross zone & cross floor backbone cabling.

Product Solution Design

Best products solutions with economical cost , which fits your requirement on networks design. Besides, we can also create & design the rack layout to show the accurate rack elevation and plans.

Onsite Field Works (installation, patching & migration)

We provided efficient works in good performance on workmanship under skill ful engineer and professional planning by dedicated project supervisor & manager.
Servicing including:

- Copper / Fiber Cable Laying – Vertical, Horizontal Backbone (indoor / outdoor)
- Copper Cable Termination (Cat.3, Cat.5e, Cat.6 & Cat.6A)
- Fiber Termination – Fusion Splice & Polishing (OM1, OM3, OM4, OS2)
- Patching Works – C13, C14, Power Cord's, Fiber & Copper Patch Cord's
- Labeling Works – Patch Panel, Racks, Equipment, Cabling Outlet's & Patch Cord
- Testing with reporting in PDF
- Migration Works – Infrastructure Cabling Migration, Racks & Equipment devices Migration (excluded data transfer & backup), Server Room Facilities …etc

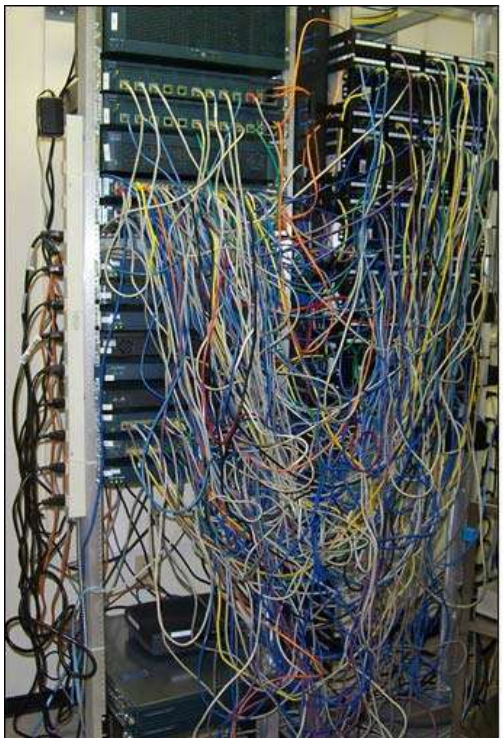
Project management & documentations

Receiving Customer Requirements

- Create & Design under Customer enquirer's
- Propose new cabling design with schematics layout
- Provide suitable materials & branding with spec sheets submission
- As Client Representative's to negotiation with other's contractor under the project
- General meeting, sites walk, safety, processing monitoring, onsite cooperation
- Project execution under planning scheduled to work's
- Supervisor as prime to observed all testing under EIA/TIA standard to work
- Engineering & technician to finished labeling on (panel/cables) after testing PASS
- Supervisor reports to project management team after project completions
- Project management prepared all related documentations for handover the job

Before Dressing

After Dressing





Structured Cabling Solution for FTTH Devices Testing and Automation.

*** Day 1 requirements / confirmed order / network design schematics / materials spec submission / cable*

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routing layout / testing equipment submission / engineers & worker's certificates / daily reports / weekly reports / injury reports / insurance covering / third party's liability supporting / delivery record's / attendance record / floor outlet layout / rack layout / testing report's / project delivery recording…etc.

The Project details included cabling design, materials delivery, project planning, scheduled - installation, termination, testing, labeling & handover documents on schematics, trunk layout, outlet layout, racks layout, materials submission…etc.
We can ensure our installers understand the intricacies of working with structured cabling – details like bend radius and pair twisted of the cable, the routing, and protecting the network cable far from noise sources without interferences
We also provide certify testing equipment to help getting the good result & high performance under EIA/TIA standard to work's

Brief Summary of Our Services

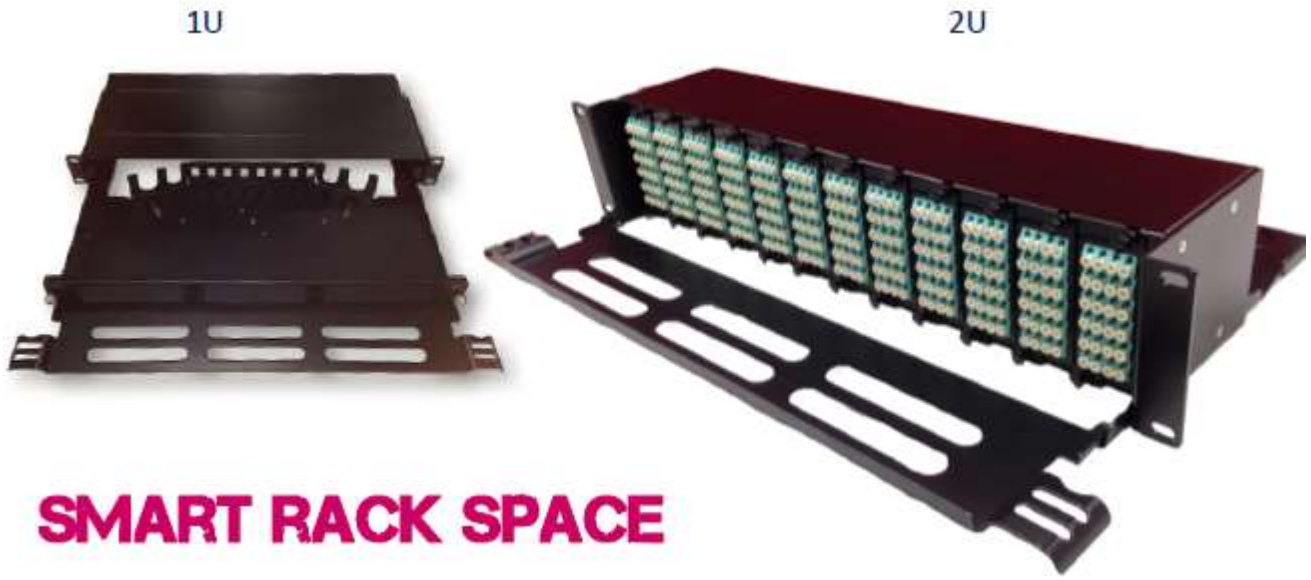
- Data Center, Engineering LAB Build and Enterprise Infrastructure Build.
- Structured Cabling, Network Drop Installation, Documentation and Labeling.
- BOM Preparation, Type of Cables, Length, Assist in Procurement.
- Rack and Stack, Devices receiving, installation and initial provisioning.
- Passive cable layout drawing preparation from the network design diagrams and topologies.
- Maintenance of physical cabling layouts, changes and rectification.
- Installation of cable management systems, Laying, Dressing.
- Resolve infrastructure connectivity issues, Sanity Tests.
- Decommissioning and Installation of Hardware devices and Console Servers.
- PDU Configurations, Installations and remote management of Power and network.
- Move and migration of passive and active devices.
- Basic Device configurations, Basic N/W parameters set up and power on.
- Trouble shooting of Hardware and software issues.
- Inventory, Stock Planning, Preventive Maintenance and AMC Services.

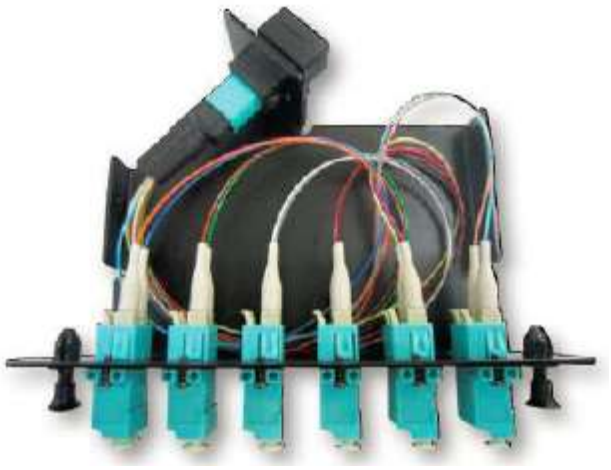
MPO Fiber Cassette Module Solution For Structured Applications

Fiber cassette module system is more and more popular because it makes it possible for rapid deployment of high-density data center infrastructure, besides it also does well in improving troubleshooting and reconfiguration.

in general, MPO cassette module is enclosed unit that contains 8, 12 or 24-fiber factory terminated fan-outs inside. The fan-outs typically include such as SC, LC style connectors plugged into adapters on the front side of the fiber cassette and a MPO connector plugged into a MPO adapter mounted at the rear of the cassette. With pre-engineered cabling management,MPO to LC fiber cassette provide plug-and-play fiber connectivity, enabling more network flexibility, faster installation, and easier moves, adds and changes, which result in reduced cost of deployment and maintenance.

cassettes provides adaptability for the changing data center environment. Facing technology refresh frequencies of 12-18 months, Plug & Play MPO fiber cassettes used in the data center offer a great advantage. When connector requirements change in the future, simply swap the cassettes whilst leaving the existing backbone infrastructure intact. MPO to LC cassettes are a quick and efficient way of deploying MPO connector breakout .The following are two application scenes for MPO to LC cassettes.





The key to achieving maximum performance in a high-quality structured data center cabling system is through fiber jumpers. Our jumpers meet the industry's most stringent requirements for data center solutions, designed specifically for the mainframe and high-end SAN switching environments. Ideal for high-speed, mission-critical data center environments. Available in a variety of multi-mode and single-mode lengths and connector styles.

Our Unique uniboot construction, allowing easier plug-in and unplugging. Designed for high performance rigorously tested for repeatability and loss.

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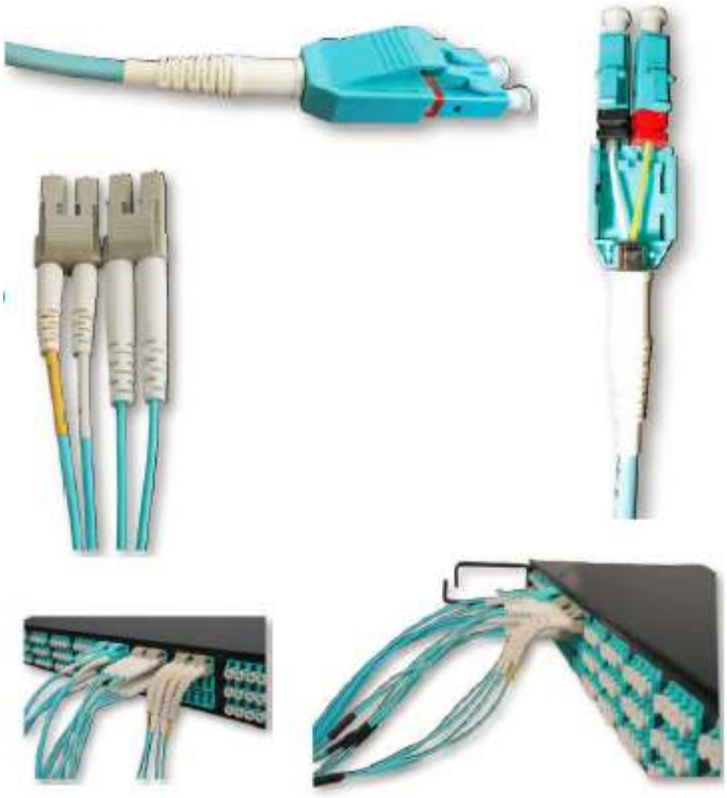
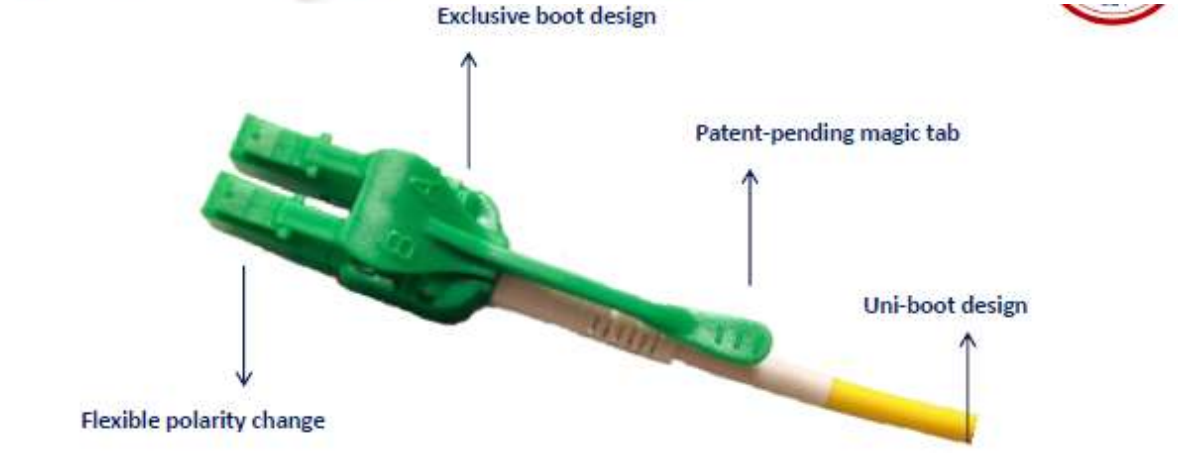
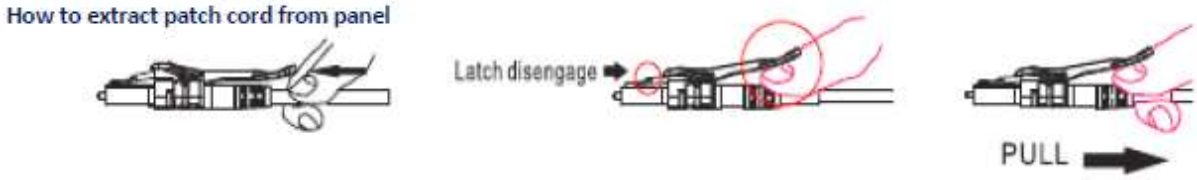






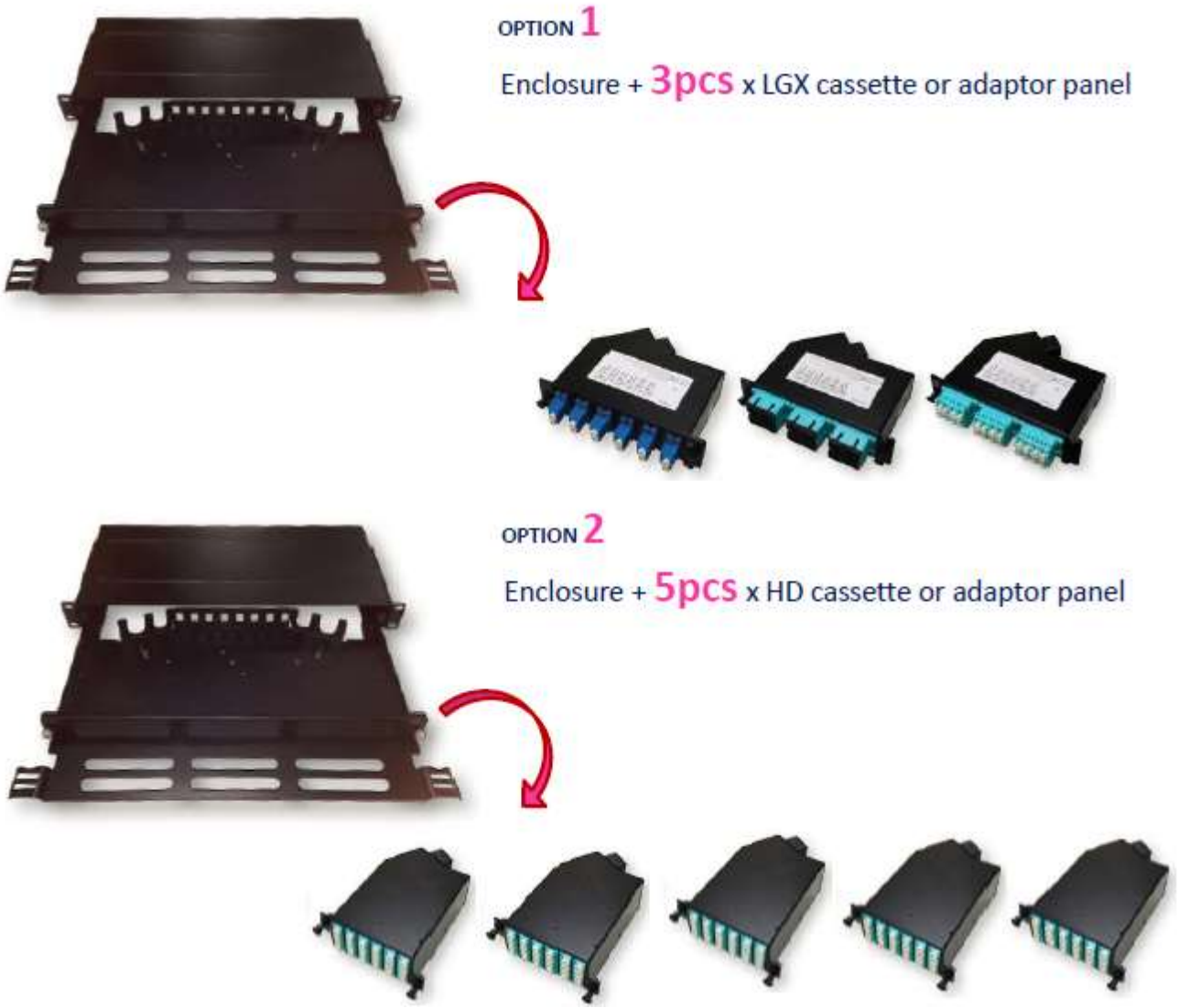
Guide you through a labyrinth of the most messy data room....

The Owl-Eyed ©tracing tester plugged at one end activated both boots and enables immediate identification of the other of the cord

Our harness solves the problem of cable management in high-density fiber switches. Pre-engineered and customizable staggering provides neat and clean installation into your switches for optimum cable management. Performance far exceeds industry dB loss performance standards. Comes in 4 X LC DX to MTP/MPO and 6 X LC DX to MTP/MPO , MTP/MPO to LC saves valuable install time. And also Customized Harness Cables 12 X LC DX to 12 LC DX ,24XlC DX to 24 X LC DX, OM3/OM4 and SM /OS2 to reduce the installation time ,cost and improves the performance by minimizing no of channel inter connects.

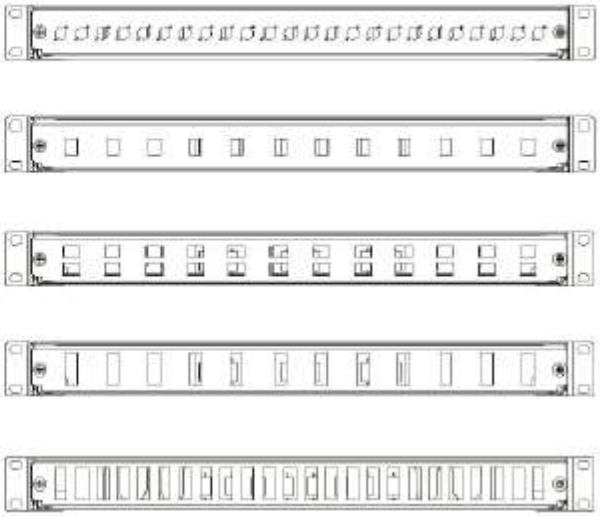
MTP/MPO fiber trunk cables are typically 12-144 fibers and create the permanent fiber links between patch panels in a structured environment. They are pre-terminated with MTP Connectors at a specified length and have a pulling grip for easy installation.

We have Different patch Panel Options for Every need for the Data Center and Lab Environments.



OPTION 3

Enclosure + Flush mount adaptor bulkhead for ST, FC, SC and LC



Up to Bottom
* FC 24 port
* SC simplex x 12 port or LC duplex x 24port
* SC simplex x 24 port or LC duplex x 24 port
* SC duplex x 12 port or LC quad 12 port
* SC Duplex x 24 port or LC quad 24 port

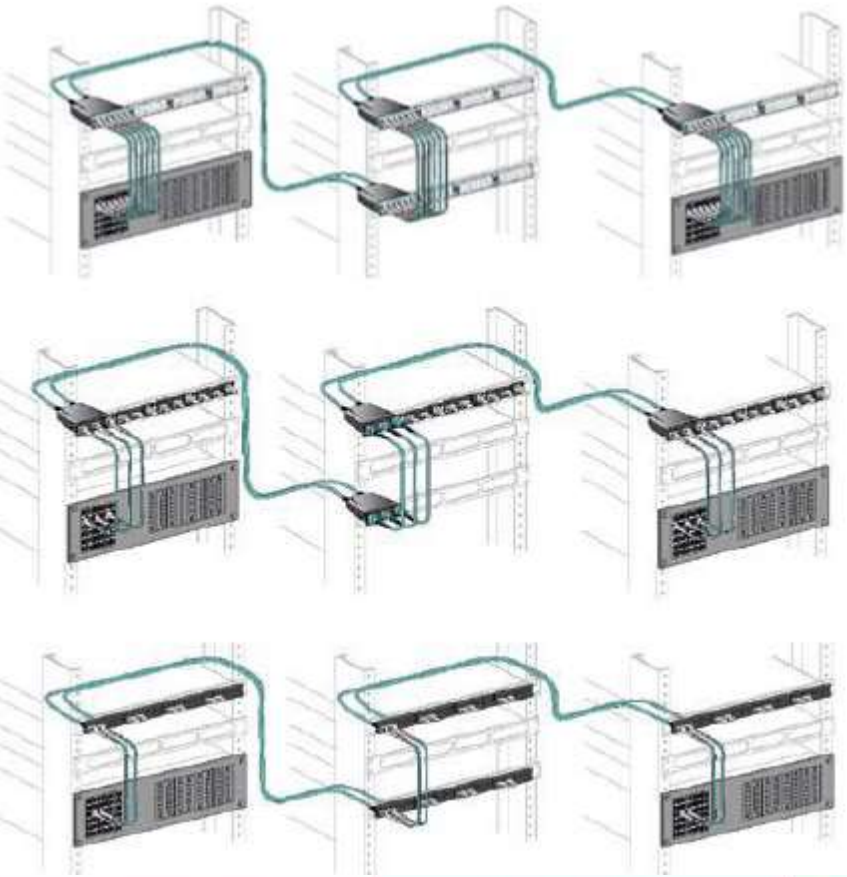
96 & 144 port

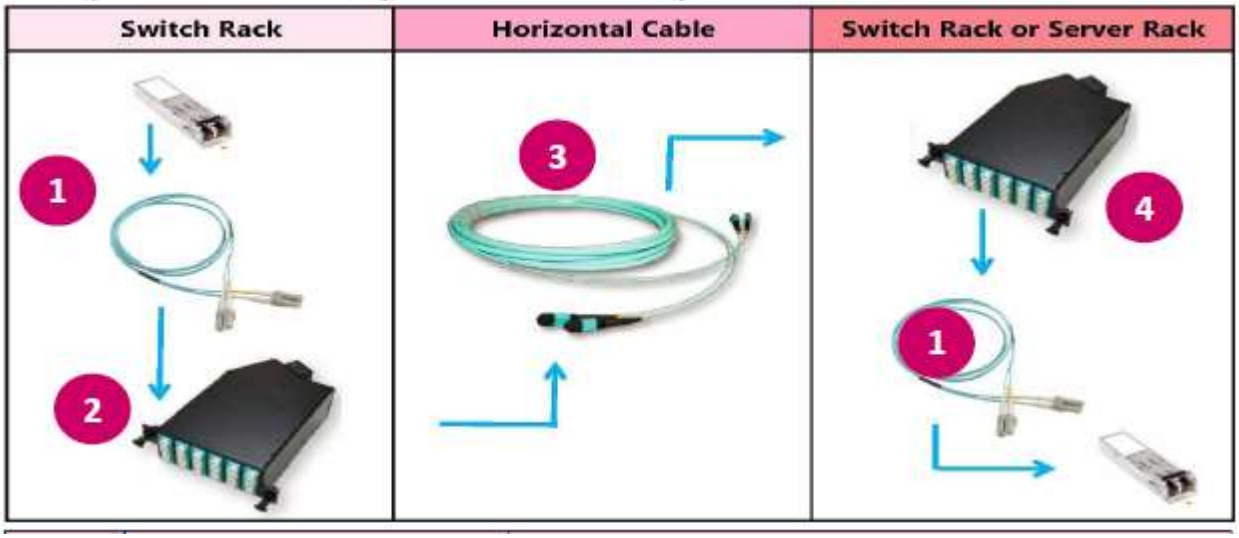
Inner version

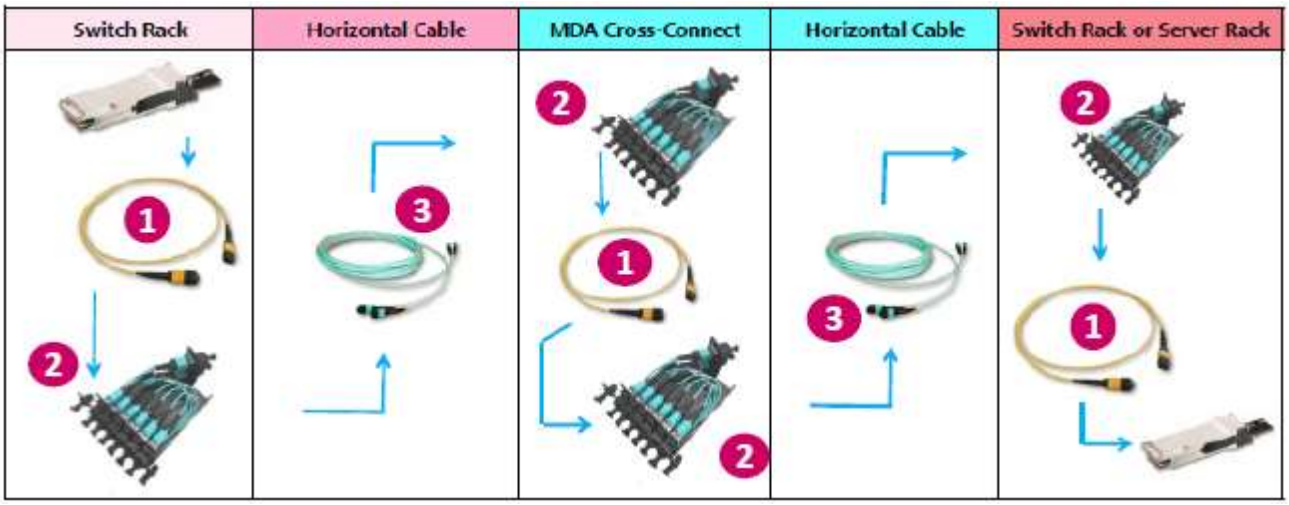
Structured cabling using an MTP/MPO cabling infrastructure can be used with current 10-Gbps environments while maintaining investment protection for 40-Gbps/100 - Gbps environments in the future. The permanent MTP based trunk cables remain unchanged during the conversion, with only minor changes at the connector patch panel, allowing a transparent transition. New data center switching platforms from different switch manufacturers are now using the cost-effective, lower-power optics at 40 Gbps to deploy innovative and flexible networking solutions. These solutions allow easy integration into existing environments and deployment of new options regardless of your zone deployment needs.

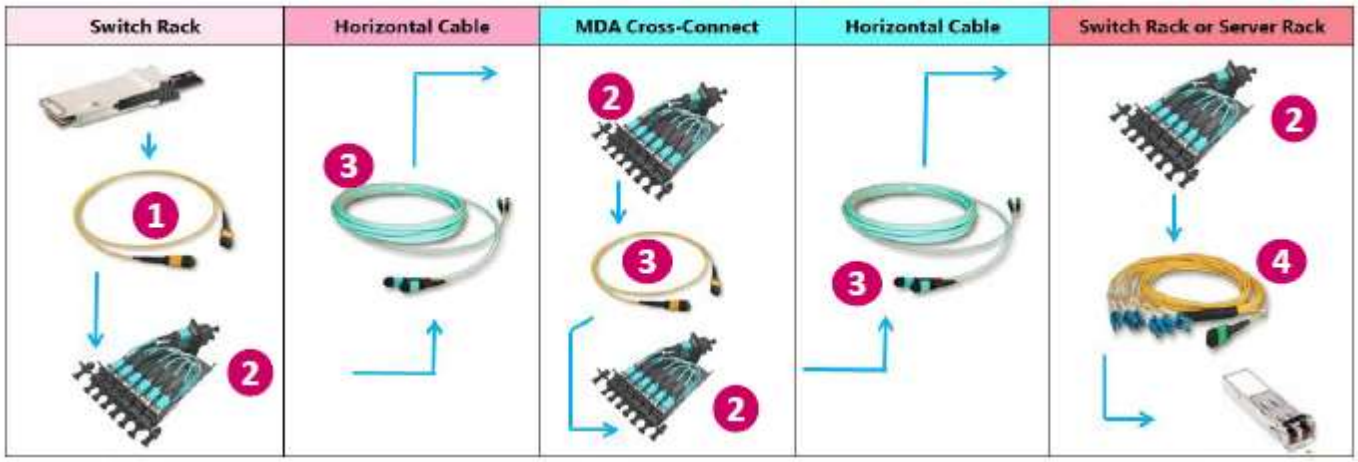
SM VADD's pre-terminated structured cabling solutions for the most common networking architectures in data centers using the Cisco/Juniper/Arista data center switches. It covers the structured cabling within and between switching layers (core, aggregation and access) and highlights several cabling options and migration paths for Ethernet applications from 1 Gb/s to 100 Gb/s

MPO/MTP 24-fiber offers an ideal upgrade path from 10 Gb/s up to 100 Gb/s and is a real infrastructure for next 3 generations of data center applications ,MPO/MTP 24-fiber upgrade will make sure the future Generations data centers will be well organized to do changes in quick time without any down time. The modularity of the system offers an unknown design flexibility allowing even ethernet applications (10/40/100 Gb/s) to be installed in just one









SM VADD Best Practices for the Cables Installation

Avoid over-bundling the cables or placing multiple bundles on top of each other.
Keep fiber and copper runs separated. The weight of the copper cables may crush fiber cables.
We carefully consider cables that are resistant to bend loss.
Avoid mounting cabling components in locations that block access to other equipment inside and outside the racks.
Identify and Install type of cable, which will meet current and future application requirements.
Cabling installations and components should be compliant with industry standards.

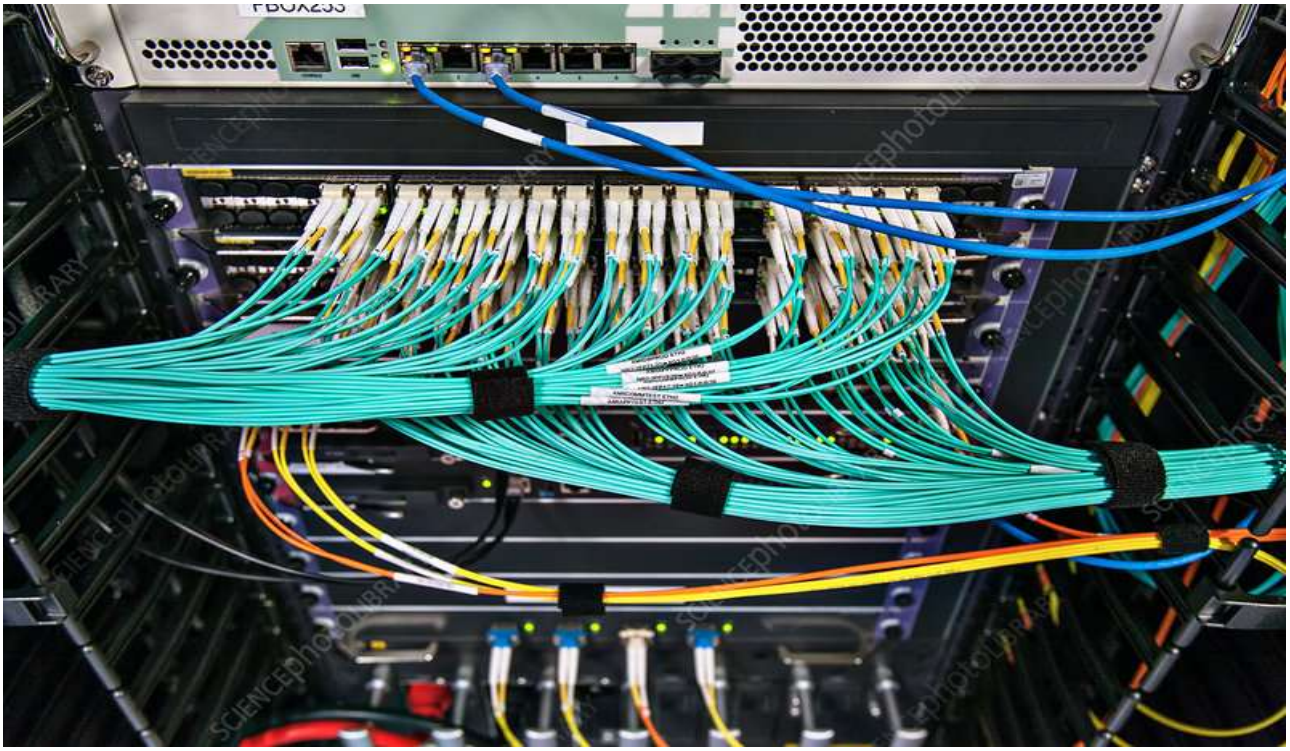
Applying additional twists - Pulling or stretching beyond its specified pulling load rating.
Bending should be avoided beyond its specified bend radius.
Avoid Stapling or applying pressure with cable ties.
Avoid routing cables through pipes and holes. This may limit additional future cable runs.
Label cables with their source and destination information at every termination point.
Test every cable as it is installed and terminated. It will be difficult to identify problem cables later.
Locate the main cabling distribution area nearer the center of the data center to minimize cable distances.
Do not route cables such that they block equipment cooling fans and restrict airflow.
Include sufficient vertical and horizontal managers in your design, future changes may involve downtime as cables are removed during the changes.

Avoid leaving loose cables on the floor that create a major safety hazard.
Use the horizontal, vertical, or overhead cable managers.
Avoid exposing cables to direct sunlight and areas of condensation.
Do not mix different cable types within a bundled group.
Remove abandoned cables that can restrict air flow and contribute to possible increases in operational temperatures that can affect the longevity of the system.

Try to keep all unused cables bagged and capped when not in use.
Use horizontal and vertical cable guides to route cables within and between racks.
Document all cabling components and their linkage between components and make sure that this information is updated on a regular basis.
Use the correct length patch cable, leaving some slack at each end for end device movements.
Bundle cables together in groups of relevance (for example, ISL cables and uplinks to core devices), as this will ease management and troubleshooting.
When bundling or securing cables, use Velcro-based cable wraps every 1 to 2 meters.
Avoid using zip ties as these apply pressure on the cables.
Avoid routing cables over equipment and other patch panel ports.
Route below or above and into the horizontal cable manager for every cable.
Maintain the cabling documentation, labeling, and logical/physical cabling diagrams.

Summary

Although cabling represents less than 10 percent of the overall data center network investment, it can be expected to outlive most network components and be the most difficult and potentially costly component to replace. When purchasing the cabling infrastructure, consider not only the initial implementation costs, but subsequent costs as well. Understand the full lifecycle and study local industry trends to arrive at the right decision for your environment. Choose the strongest foundation to support present and future network technology needs. Build in additional capacity, as it is much easier to install now than later. The cabling itself calls for the right knowledge, the right tools, patience, a structured approach, and most of all, discipline. Without discipline, it is common to see complex cabling quickly get out of control, leading to increased support costs and increased down time. Since each environment is different, there is no single solution that will meet all of your cable management needs.



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