LEVITON®
Network Solutions

5 Ways to Deploy Networks Faster with Pre-terminated Cabling

Plus: Tips for Choosing the Right Cabling and Manufacturer

Pre-terminated cable provides a plug-and-play solution for links between switches, servers, patch panels, and zone distribution areas in the data center. These solutions include a variety of trunk cables, array cables, and plug-and-play cassettes that give data center managers choices to suit specific needs. When compared to field-terminated cabling, there are many reasons to consider pre-terminated optical fiber and copper cabling.

Eliminate field terminations

Field terminations are the most time consuming, labor-intensive process of cable installation. Once pre-terminated cabling is delivered, it can be unpacked, readied for deployment, and connected quickly. In many cases pre-terminated cabling can cut installation time by up to 80%.

Remove the need for transmission performance testing

With pre-terminated cable assemblies, transmission testing is done by the manufacturer before shipment. Only continuity testing and 10 percent insertion loss testing are typically needed, reducing the time spent testing on-site.

Get faster moves, adds, and changes

With pre-terminated solutions, data center managers can make changes on the fly based on rapid network growth, business decisions, or shifting requirements. In disaster recovery situations that call for fast, temporary data communications set-up, pre-terminated cabling can minimize business downtime and establish communications quickly. It can also be disassembled quickly when the situation is resolved. The components are reusable and can be moved and relocated as necessary to accommodate moves, adds, and changes (MACs).

Avoid time-consuming rework

Pre-terminated cabling provides more consistent channel transmission characteristics due to no variation on skill levels of field technicians. Precision factory-termination processes take place in a clean environment, unlike termination in uncontrolled field conditions. This increases the likelihood of clean and uncontaminated optical fiber ports, enables lower loss budgets, and provides overall better electrical transmission. Factory terminations are also guaranteed under warranty, which gives data center managers peace of mind.

Cut clean-up time

Pre-terminated solutions allow for quick clean-up due to minimal leftover materials and scrap. And because there is less waste and material to clean up, pre-terminated solutions can also help meet green design, waste reduction, and material reuse goals

Tips for Choosing the Right Cabling

Although it doesn't require as much time — or as many installers in the field — pre-terminated cabling does require additional upfront planning and a detailed analysis to establish the cabling and termination routes and lengths needed. From determining the overall architecture, cabling media, pathway systems, elevations, and rack-level details, to understanding the customer's unique requirements for scalability, density, manageability, and deployment schedules, there are considerations that go into planning a pre-terminated cabling infrastructure.

Some key considerations to remember include:

Architecture and configuration

It is important to understand what type of architecture and configuration will be deployed, such as traditional three-tier switch architecture, fabric switch architecture, end-of-row, middle-of-row, or top-of-rack configurations. This will help determine the placement of equipment and servers and ultimately impact the cabling termination routes and lengths required.

Cabling media

Determining applications and required cable media for copper and optical fiber links is a key part of the planning process. This might include cost considerations, bandwidth needs, distance limitations, equipment interfaces, power consumption, pathway space, and overall lifecycle costs. The environment itself also should be considered, including any electromagnetic or radio frequency interface (EMI/RFI).

Migration and scalability

Knowing the migration strategy and future plans will go along way in selecting the right pre-terminated cabling components. For example, if there is a need to support a migration from 10 GbE to speeds to 40/100 GbE, careful consideration must be given to the optical fiber count, connector type, distances, insertion loss budget, and ease of switching out cassettes or other connectivity components.

Pathways

The position, elevations, required separation, and type of pathway system used can impact the cable lengths. For example, determining whether cabling will be run overhead or underfloor, knowing specific rack heights and clearances, accommodating required separation, and selecting the cable support system (e.g., ladder rack, cable tray, trough) will all need to be determined before calculating cable lengths between equipment and patch panels.

Cable runs

To carefully determine pre-terminated cable lengths, it is important to know the rack-level detail of the installation. Bend radius and service loops must be considered, as should the distances to, from, and within each cabinet. With pre-terminated cabling systems, it is important to order lengths that do not come up short while avoiding too much slack in cabinets and pathways. Proper sequencing is also important to ensure that longer cable trunks are laid into trays first for an overall cleaner installation.

Additional considerations

From density and airflow in the cabinet, to preferences for polarity and color-coding, proper planning for pre-terminated cabling solutions requires an extremely detailed analysis of the customer needs and specifications. The deployment schedule must also be carefully reviewed and communicated with the manufacturer to ensure on-time delivery of materials.

Tips for Choosing the Right Manufacturer

There are many options when selection a pre-terminated assembly manufacturer to work with. Search for a qualified, reliable provider that can offer services and features such as guaranteed cabling performance, design assistance, and large quantities of pre-terminated assemblies on time.

All pre-terminated copper or optical fiber purchased through a manufacturer should be tested and verified by a third party to exceed TIA and IEEE standards. The manufacturer should also provide 100 percent testing in a quality-controlled environment before the cabling is shipped out to the worksite.

You should also look for these qualities in a manufacturer:

- Quality documentation and warranty, meaning that each product is labeled with a unique serial number for full traceability. Also look for lifetime product, system, and performance warranties.
- Complete design service. Look for a manufacturer that offers technical experts either remotely or onsite at no additional charge to help with topology and infrastructure layout, along with elevations, pathways, and specifications.
- ISO 9001 certification, which includes third-party auditing of manufacturer sites, functions, products, services, and processes.
- Dedicated 24/7 make-to-order facilities that can take on large orders while providing fast turnaround. Orders that are too large (or too small) may be pushed to the bottom of the production pile in some manufacturing environments, but make-to-order facilities prevent this problem.

Need help with your network? Call 1-800-824-3005 for assistance.