

TECHNICAL BRIEF

Manage Your Data Center's Immediate And Future Demands with High Performance Structured Cabling

Challenge

Designing and building a data center environment to meet today's rapidly growing network and business demands.

At Stake

The life of the network and installation, ability to scale infrastructure and modify the environment, capacity to problem solve, system uptime and high availability, energy efficiency and power utilization.

Solution

Structured cabling provides a well thought out and executed design for your data center deployment, enables you to easily scale, extends the life of components, and simplifies change management and troubleshooting.

How Proper Cabling Can Positively Impact Network Management

Many cabling systems in data centers today resemble a large bowl of spaghetti. Such mayhem can make moving, upgrading, or scaling infrastructure a logistical nightmare. It can also create problems with airflow, degrading system performance and impacting uptime. In some instances, improperly installed and supported cables can even cause cables to deform, leading to transmission errors and cable failures.

Structured cabling provides a comprehensive system of cabling that is designed, documented, and labeled to meet specific IT deployment requirements. It also provides end-to-end testing and certification on all connections to assure that they meet or exceed industry standards. Planning and design, also based on industry standards, are meant to accommodate expansion and growth over the life of the network. This level of detailed

organization simplifies installation and provides pathways to quickly and effectively manage cabling. In addition, data centers gain a high level of predictability and availability.

According to the Telecommunications Industry Association (TIA) and International Standard for Organization (ISO) committees, cabling systems that meet their compliance standards are intended to have a life cycle in excess of ten years, outlasting all other elements of

the network environment while only requiring minimal upgrades. "The length of structured cabling's life cycle supports swapping and upgrading multiple hardware devices from different vendors in your environment," said Chris Clark, Product Manager for Colocation at CenturyLink. "A standards based structured cabling plan with predefined pathways and spaces improves cooling airflow, lowers costs, and can significantly decrease energy use, it is a win-win for customers, data centers and the environment."

Benefits of Structured Cabling

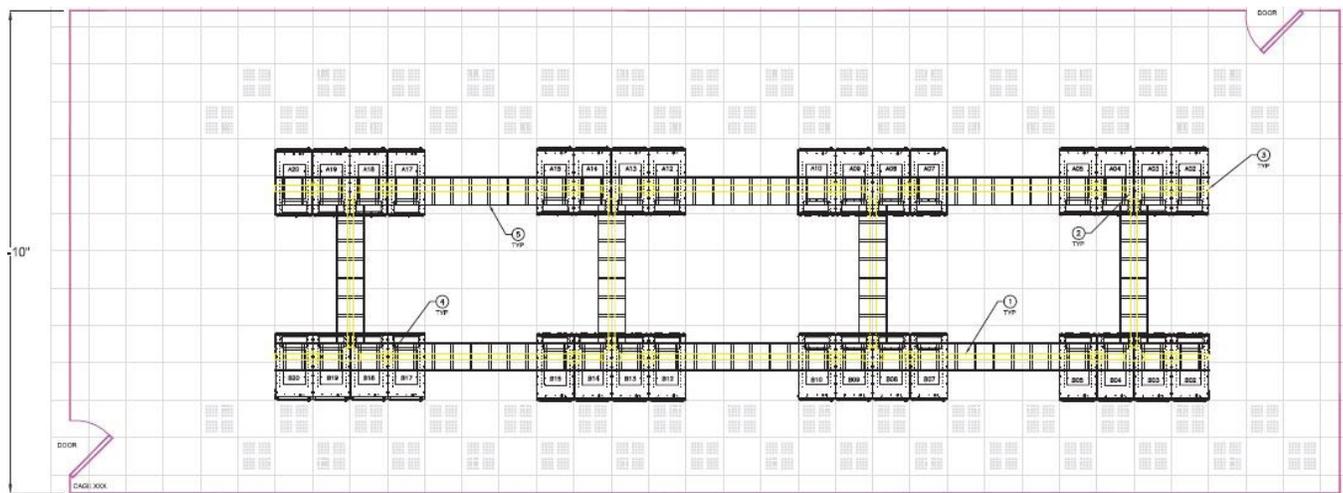
Reduction of Downtime

While structured cabling may only account for five percent of your total infrastructure cost, the savings realized by preventing downtime and outages is immeasurable. Faulty cabling and network connectivity are one of the biggest causes of network downtime for many companies. "A high percentage of all outages are the result of cabling issues," said Clark. "That's why we (CenturyLink) use a strong structured cabling program that introduces new and current customers to cabling planning and design." Clark has witnessed many instances in which faulty connections caused downtime. The trouble shooting is both time consuming and tedious. Making matters worse, some of the environments didn't include documentation supporting the location of ports, panels, and devices. "Even something as

simple as labeling cables helps," said Clark. "Yet many installers and IT managers fail to complete these vital tasks."

Compatibility

IT environments will often require new installs, upgrades, and maintenance. The easiest way to complete such tasks is by using structured cabling's set of defined standards and specifications within your environment. "A well-designed structured cabling environment supports multiple and mixed vendor environments and applications long after installation," said Clark. "Installation of future infrastructure and applications, supporting voice, data and multimedia are made much easier without the disruption to the network that they caused in the past."



Layer 1 sample floor plan

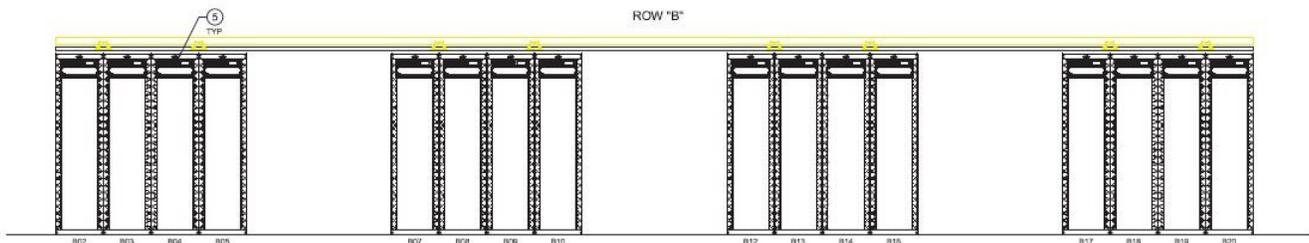
Infrastructure Longevity

Sometimes the worst decisions in data centers are the ones that are never made. Companies that have not properly planned and documented their environment can find themselves paralyzed at the time network and hardware upgrades are needed for fear of outages or downtime. They may also find themselves in “rip and replace” situations where they have to update their cabling systems. The truth is when done according to industry standards, cabling can far outlast other components of your network. “Right now data centers industry wide are providing more power per square foot in their data centers while customers are adding devices demanding more power,” said Clark. “Customers often find themselves in a position requiring less floor space with the need to downsize. Customers that have had a structured cabling plan experience a straight forward move, while those without that level of organization experience complications, delays, and often added cost.”

Forward Thinking

The floor plan provides vital documentation about the creation of the network environment. Structured cabling supports the design for a variety of subsystems such as backbone cabling, horizontal cabling, patch panels, entrance facilities, equipment and telecommunication rooms. The patch panels terminate cable runs to other areas of the data center with cable paths under the floor or overhead. At any given moment, when you need to make connections or pull connections, you can refer to documentation. The structure also enables you to run less cable than you would have to in a less organized environment. In addition, you can future proof against data rate increases that occur with new equipment refreshes. “Well thought out structured cabling design and planning can save customers a significant amount of time and expense,” said Clark.

When you need to upgrade or modify your environment, you can implement changes quickly. You can easily move or remove devices because the cables are labeled and routed to enable easy access to the equipment they are connecting. “Without structured cabling, the customer may come into the data center and be unable to move or manage a device, because many cables are strewn above, below and on top of that device,” said Clark. “Whereas with structured cabling, the customer knows where each cable leads to because it’s a defined part of the installation.”



View from a hot aisle

Choosing A Vendor

Certifications

The best way to ensure structured cabling performance is with a high-quality installation. When vetting candidates, make sure vendors have a Registered Communications Distribution Designer (RCDD) supporting project design. The RCDD is the primary certification recognized around the world for structured cabling expertise. The U.S. Department of Defense for example, requires a RCDD-certified manager on every one of their telecom projects. “Vendors with experienced RCDDs with many hours managing large projects are

likely the top performers,” said Clark. “We seek relationships with vendors who can reliably design projects as well as install them.”

A Project Management Professional (PMP) offers another valuable certification when it comes to leading and directing teams and projects. Additional technical certifications worth looking for include a Data Center Design Consultant (DCDC), Electronic Safety and Security (ESS) Designer, and Outside Plant (OSP) Designer.

Planning

An experienced structured cabling vendor provides a detailed plan along with the necessary steps for implementation. These steps include performing a site survey, gathering requirements, designing, installing, and testing. Such planning helps create vital Layer 1 documentation that maintains and supports the project before, during, and after completion. Documentation includes space allocation, specifications, rack elevations, termination details, a copper and fiber cable run list, quality assurance, and test results.

Value-Added Services

When you have whittled your list of vendors down to a select few, you should compare the additional support services (such as design assistance, installation audits, and other programs) each vendor offers. These services can be critical to your project's success. You'll also want to know which of these services are complimentary and which may be fee-based.

Warranties

Standard structured cabling comes with a manufacturer's product warranty and a cabling warranty to cover workmanship. Warranties can vary greatly, however. Look for a warranty with a suitable period of coverage and learn which cabling and components are warranted. You will also want to determine whether the cabling vendor or the installer holds and supports the warranty.

Conclusion

A well-designed structured cabling environment supports multiple and mixed vendor environments and applications long after installation. You can significantly improve how your infrastructure performs, increase the life cycle of your components, and plan future growth. By taking the time to plan, you can simplify operations and upgrades, even if you transition in new data center managers and support.

- Investigate different structured cabling vendors
- Choose a vendor with RCDD certifications
- Make sure the vendor explains their plan in detail with you
- Compare vendors' value-added services and warranties

About CenturyLink Data Centers

CenturyLink gives you access to more than 60 state-of-the-art global data centers and 2 million square feet of raised floor space across North America, Europe, and Asia. Our Data Center Colocation Services enable you to easily federate your applications into other infrastructure services (including cloud and managed hosting) and provide you with the platform choices, security, and availability you need to run your business.

About CenturyLink Business

CenturyLink, Inc. is the third largest telecommunications company in the United States. Headquartered in Monroe, LA, CenturyLink is an S&P 500 company and is included among the Fortune 500 list of America's largest corporations. CenturyLink Business delivers innovative private and public networking and managed services for global businesses on virtual, dedicated and colocation platforms. It is a global leader in data and voice networks, cloud infrastructure and hosted IT solutions for enterprise business customers.

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