

THE NETWORK INFRASTRUCTURE E-M

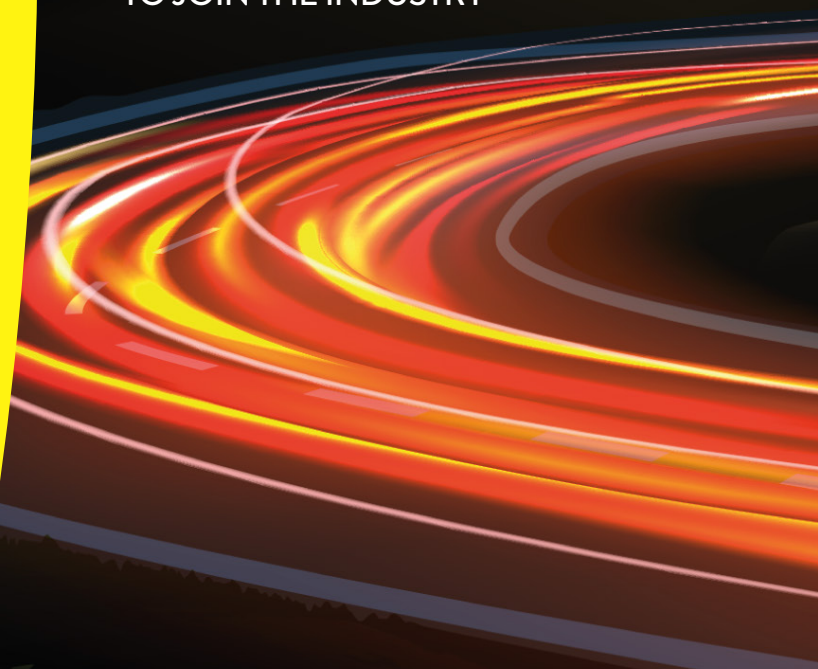
Inside_Networks

Life in the

HOW CREATING THE
STARTS WITH

New blood

WHY IT'S SO IMPORTANT TO
ENCOURAGE THE NEXT GENERATION
TO JOIN THE INDUSTRY



the fast lane

THE DATA CENTRES OF THE FUTURE
HIGHER SPEED MIGRATION

Get with
the times

2023 REVIEWED AND A
LOOK AHEAD TO 2024

From top to bottom

Michael Moore of Chatsworth Products (CPI) examines the role of next generation vertical cable management solutions for digital transformation

▶ As enterprises digitally transform to remain competitive and meet customer and employee expectations, they demand high performance, reliable, scalable and available networks that deliver the bandwidth and latency needed to support emerging technologies and an ever increasing number of devices. With the average hourly cost of network downtime exceeding \$300,000 for more than 90 per cent of enterprises, according to ITIC's 2022 Hourly Cost of Downtime Survey, cabling infrastructure that serves as the foundation of the network is the lifeline of business today. In the information and communications technology (ICT) industry, proper cable management has long been a best practice.

MORE THAN MEETS THE EYE

Cable management can enable – or inhibit – everything from the signal integrity of a single cable to the overall performance of a data centre or local area network (LAN). Cable management is also closely tied to aesthetics, as well as form and function. A lack of cable management doesn't just risk network performance, reliability and availability, it conveys a sense that the network is unmanageable. Well organised cabling allows technicians to easily locate and troubleshoot issues, and encourages proper network care during routine maintenance or moves, adds and changes (MACs).

As cabling infrastructure evolves to support emerging technologies, next

generation vertical cable managers will do more than just ensure performance,



reliability and availability. Cable managers play a critical role in providing the durability, scalability, flexibility and ease of installation for enterprises to quickly and efficiently embark on digital transformation.

FUNDAMENTALS REMAIN

The fundamentals of cable management are key to maintaining the signal integrity of cables and the overall performance, reliability and availability of a network. One

vital aspect is maintaining the specified minimum bend radius of copper and fibre optic cables routed within racks and cabinets. Bending cables tighter than their specified minimum radius can alter the cable geometry, which degrades network performance.

Another key fundamental is maintaining proper cable strain relief to protect cables

individual components and makes it easier to trace, identify and reconfigure cables during MACs.

MOVING ON UP

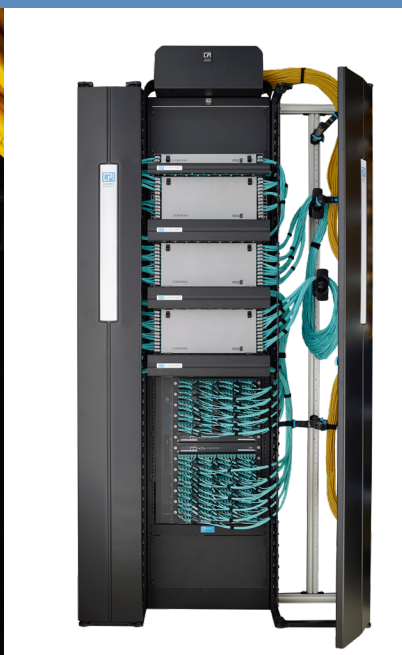
While the fundamentals of cable management haven't changed, technology certainly has. Emerging technologies like the internet of things (IoT)/industrial internet of things (IIoT), 5G wireless, artificial intelligence (AI), virtual and augmented reality (VR/AR), smart buildings and edge computing all mean that cabling infrastructure needs to handle more data and connect more systems, equipment, devices and users than ever before.

To support increasing bandwidth demand, twisted pair copper cabling has advanced over the past 30 years, with Category 6A cabling now supporting up to 10Gb/s.

In the data centre, transmission speeds are now migrating to 25Gb/s and 50Gb/s in horizontal switch to server links and

100Gb/s to 400Gb/s in backbone switch to switch links. With twisted pair copper cabling effectively only supporting up to 10Gb/s, data centres are increasingly relying on fibre optic cabling.

As digitisation and bandwidth demand continues to increase to support more emerging technologies, vertical cable managers must provide the durability, scalability and flexibility to accommodate ever increasing densities and more complex, volatile network environments.



and connectors from any damage that can occur during routing or from hanging cable weight in vertical managers, and at connection and cable entry/exit points. Vertical cable managers also keep cables neat and organised within racks and cabinets, where substantial numbers of cables converge and terminate at network equipment and patch panels. This improves overall aesthetics, prevents spaghetti cabling that can impede proper airflow in and around equipment, facilitates access to

‘While legacy vertical cable managers may support the fundamentals, next generation vertical cable management solutions are specifically designed and engineered to support the cabling needs of evolving technology.’

With today’s limited workforce and the need to reduce labour and speed deployments, vertical cable managers also need to be fast and easy to install, while still ensuring network performance, reliability, availability and aesthetics.

KEY COMPONENTS

Many legacy vertical cable management solutions do not provide the durability, capacity, scalability and flexibility needed for today’s networks. Next generation vertical cable management solutions are designed specifically to sustain high performance, reliability and availability in today’s high density, complex and volatile networks. Enhanced design elements support current and future cabling needs, while saving time and labour.

Next generation vertical cable managers take the fundamentals of cable management to a new level to ensure maximum signal quality, transmission and availability. They support larger bend radii for bulkier cables in the LAN, while eliminating the potential for kinks, twists and sharp bends in high density fibre environments. With signal integrity in mind, next generation vertical cable managers offer bend radius protection at critical entry/exit points, as well as the ability to add bend radius protection and strain relief wherever needed in the vertical rack and cabinet space.

Vertical cable managers are designed to support the latest cable designs and applications. In the data centre, that means maximising utilisation of space to

properly manage high density fibre, while enabling optimal airflow and accessibility to components. For LAN environments, vertical cable managers need to be durable enough with a proper load rating to accommodate large numbers of Category 6A cables, while adequately spacing cable bundles as required for power over Ethernet (PoE) applications.

SCALE AND ADAPT

To support ever changing network environments, next generation vertical cable managers come in a wide variety of heights and widths, with high configurability and adjustable designs. For example, accessories like cable spools, cable management fingers and cable bundle supports that can be installed at various depths and easily adjusted horizontally or vertically to support both fibre and copper allow for increased capacity as the network grows.



Next generation vertical cable managers feature intuitive, toolless designs that speed deployment and reduce labour costs. This includes toolless accessories that can be quickly attached and reconfigured, with highly visible touch points for easy identification. Vertical cable managers that can be set up and installed with a one person operation and standalone solutions that can be simply pushed into place are ideal for reducing labour cost and dealing with workforce constraints in data centres and LANs.

FORM AND FUNCTION

Next generation vertical cable management solutions don't just consider the latest trends – they also deliver form and function. Matching sleek and modern designs across product lines offers seamless aesthetics for enterprises to showcase their technology, while unique details like dual hinged doors with push to close convenience and hooks for hanging a test meter facilitate day to day tasks.

As enterprises digitally transform and adopt emerging applications to remain competitive, the amount of fibre in the data centre and copper in the LAN will only increase. Vertical cable management

can no longer be overlooked, as it plays a critical role in today's digital era.

THINKING AHEAD

While legacy vertical cable managers may support the fundamentals, next generation vertical cable management solutions are specifically designed and engineered to support the cabling needs of evolving technology. Not only do they help ensure network performance, reliability and availability in increasingly dense, complex and volatile data centre and LAN environments, they do so while saving time, cost and labour and maintaining the aesthetics that enterprises need to function at their best. ■



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Michael Moore is product manager open architecture systems at CPI. Moore has more than 25 years of experience within the telecommunications industry. He has held various product management roles, and been responsible for developing, launching and managing new innovative products within the data centre, airflow management and IT market segments.