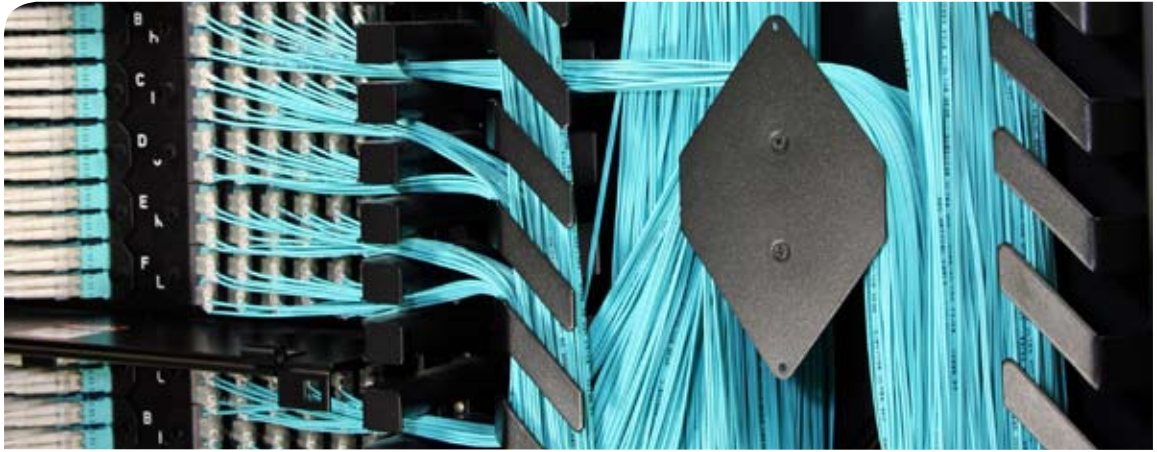


Fibre management: does it matter?

WHITE PAPER





Fibre management: does it matter?

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In a difficult economic climate network managers are bound to be concerned with costs, however, when it comes to optical fibre, if they try to cut costs by compromising fibre management, they are playing a high risk game.

Good fibre management is about network reliability, and with some 70% of down-time attributed to the physical layer it should be obvious why it needs to be properly managed. This is increasingly important, as technology developments such as VoIP and other IP applications mean that more data is sent down each fibre. This means that the value the physical infrastructure is carrying, and hence the importance of its reliability, is constantly rising.

Good management practice is not just about avoiding down-time. It affects how quickly new services can be turned on and how easily a network can be reconfigured.



Many companies are starting to see reliability as a rival to cost as their critical concern. But even today, many tend to concentrate on individual hardware components like panels or frames – the performance they offer and their cost. Instead, the network industry needs to aim for a complete end-to-end, managed fibre solution. Simply adding elements together, possibly coming from different sources, in an ad-hoc way is risky. Without guidance on factors such as routing paths, the methodology of management, scalability, or thermal issues, you can find yourself in a situation where down-time becomes all too common.

The cost of a typical fibre cable management system can be a tiny percentage of the overall network cost yet even now some see it as an unnecessary extra – even though the initial cost is only one part of the total cost of ownership and does not give a true indication of the other factors that go into the real cost. A 15% difference in fibre cable management system price will result in negligible savings in the overall network cost, but it could cost hundreds of thousands in lost revenue and higher operating expense.



What does fibre management provide?

At ADC KRONE we base it on four Golden Rules, which relate to:

- **Bend Radius Protection:** maintaining the recommended cable bend radii reduces signal attenuation and enhances long term reliability.
- **Cable and Connector Access:** to ensure bend radius protection easy access to installed fibres is vital, allowing any fibre to be installed or removed without causing a macrobend on an adjacent fibre. Good fibre accessibility can cut network reconfiguration time from 90 minutes per fibre to just 20.
- **Managing Routing Paths:** yet another factor affecting bend radius protection is improper routing of fibres by technicians. Routing paths should be clearly defined and designed so technicians have no option other than to route the cables properly.
- **Physical Protection of the Fibre Network:** the fibre cable management system must ensure all fibres are protected from accidental damage by technicians and equipment.

What do these Golden Rules mean in practice? Take cable and connector access: people will go to market with a super high density panel, say 96 fibres in a 1U panel, believing this offers the best possible value for money. But the crucial point is to strike a balance between sheer density and the performance and reliability that good management can ensure. Frequently, this boils down to some simple questions, for example: can people easily access connectors using their fingers rather than tools, and do so without disturbing adjacent fibres? As panel density rises, so do the risks of damage. Good fibre management does not rule out use of high density panels, rather, it says: make sure you realise that increased risk may be incurred and take it only when it is strictly necessary.

Panel density is significantly affecting another aspect of networking today: thermal issues and the whole question of energy use and carbon footprint. Here, impending footprint targets are going to make comprehensive fibre management vital, building on the concept of 'managed density'.

One example of the growing focus on this subject is the European Commission's Code of Conduct on Data Centres Energy Efficiency released in October 2008. The aim is to inform and stimulate data centre operators and owners to reduce energy consumption in a cost-effective manner without hampering mission critical functions. The Code of Conduct aims to achieve this by improving understanding of energy demand within the data centre, raising awareness, and recommending energy efficient best practice and targets.

continued overleaf...

Features such as overhead raceway systems, quality training for installers, definition of best practices, and dedicated instruction literature will play a vital role in enabling users to meet their footprint targets. All too often today, a scenario is that people will buy a rack and make a quick density calculation based on cross sectional areas. But frequently the reality is that they end up with a density that proves to be unmanageable. This is not rare: an estimated 60% of fibre installations are such that there is a high risk of disturbing adjacent connectivity when MACs (moves, adds and changes) are required, potentially causing significant and extremely expensive down-time.

There are techniques that can help, which are gaining popularity in both LAN and data centre markets. These include angled fibre patch panels, which promote effective management of patch cord bend radii, helping to reduce stress and minimise insertion and return loss.

While it is true is that fibres do differ in their bend sensitivity, with OM1 being less sensitive than OM2 and OM3 for instance, even so the same benefits of good fibre management still apply.

The crucial importance of the physical layer and managing it properly is now being reflected in evolving industry standards, such as BS EN 50173 and EN 50174. Future standards will recognise different grades of network install – a hospital network being an obvious example where down-time can be positively disastrous. The aim is to better reflect the different scales of networks, so that for example, a system with more than 1000 ports may need a form of automated labelling or identification process.

The message is clear: however great the pressure to cut expenditure as the economy struggles, doing without good fibre management is a strategy to avoid – at all costs.



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