

## Fibre to the Office Technology (FTTO)

**The number of applications running on networks, and therefore requiring IP convergence, keeps increasing each year. FTTO provides an ideal basis for the growing flexibility needs of today's buildings.**

An FTTO approach to in-building or on-site networks can fulfil current requirements in the areas of flexibility, cost-efficiency and network operability. It also adds all the practical advantages of fibre – the most suitable medium for accommodating the scalable infrastructure required to guarantee network performance and host current and future applications.

How does FTTO work? Essentially, fibre is laid up to the connection point, where intelligent media conversion from copper to fibre takes place and ports can be multiplied through cascading adjacent ports. This type of centralised structure greatly simplifies network service and significantly reduces service costs.



### Areas of Application

FTTO is particularly relevant to large-scale infrastructures, as found at universities, hospitals, airports, office blocks, public administration and surveillance. An increasing number of different applications run over FTTO networks, such as VoIP, distributed building systems, WLAN and Video over IP. Applications for utilities, transport and SMEs are also numerous.

Fibre optic technology is immune to electromagnetic interference and has practically no length limitations. Therefore, significant distances in buildings, on campuses or even across industrial sites are not a problem. With copper, distances are limited to 100 metres (horizontal), but with a fibre solution, distances of 550 metres and more can be bridged (note that the maximum distance between the central building distributor and user ports are no longer necessary. Micro-switches are directly connected to the central building distributor, requiring only an absolute minimum of wiring cabinets and (only core) switches. This means lower requirements in the area of space, energy, cooling and maintenance – and related hardware.

In environments where major rebuilding or refurbishment activities are planned, higher rollout speeds can bring significant savings. FTTO can also be used in projects with specific requirements. For example, where space is limited or where structural changes can't be made (such as renovations of historical buildings). There is no need for technical rooms on each floor, saving building space.

## **Saving Installation Time**

FTTO can be installed much faster and easier than a traditional network with floor distributed switches and cabling. The fact that installation times for large portions of the network can be significantly reduced mean, in turn that initial installation time can be 60% lower than is the case with established network designs.

Installation time of the cable infrastructure can be minimised since no on site terminations are required. The savings on installation times are mainly the result of less cables and, therefore, less pulling time. Installation and integration of distribution rooms is completely eliminated.

## **Comparison of Costs**

Looking at a sample application with 1,000 user ports, we see that choosing an FTTO network design over a traditional network design results in a lowering of expenses as high as 36%. These savings are achieved in several areas. First of all, the costs of passive fibre infrastructures are lower than those of copper. The cost savings are largely achieved by the low building related costs (no floor distribution rooms). Spending on active LAN equipment is far lower, simply because a great deal of hardware used in traditional systems is no longer required. Installation and configuration times are considerably shortened and additional costs are lower. In a scaled-up version, the benefits aren't just multiplied – they can increase exponentially.

## **SUMMARY**

From a functionality point of view, FTTO is the equal of a traditional LAN network but it can provide significant cost benefits in many specific situations, especially where large territories need to be covered, or building requirements impose specific restrictions. Cabling volume can be reduced by up to three quarters of the volume required in a traditional rollout.

FTTO can be instrumental in accommodating today's rapidly increasing port density needs with a resilient network infrastructure. Through the use of fibre optic cabling with its extended reach, FTTO ensures enhanced lifecycles, maximum reliability and performance and an excellent cost-per-bit ratio. Reliable bandwidth per user is also significantly higher, with each central switch port shared by a limited number of users per FTTO switch.

FTTO solutions are future-proof, thanks to their scalability, flexibility and sustainability. Energy consumption can be lowered significantly and administration is more user-friendly. The longer lifecycle, lasting through multiple generations of active equipment, means your investment is protected. Maintenance and administration costs are lowered and rollout is faster and easier.

*Source: Nexans FTTO White Paper*