



SUCCESSFUL INFRASTRUCTURE DEPLOYMENT AT DONCASTER COLLEGE

A cost-effective, upgradeable, state-of-the-art network infrastructure to complement a futuristic building and support a progressive educational vision

When you are spending over £1.5 million on 50 kilometres of network infrastructure as part of the biggest education project in the UK, then you need the best.

Doncaster College which is part of the Doncaster Education City (DEC) project – is an exciting, £65 million, shopping mall style building located on the Waterfront in the centre of Doncaster. A distinctly different type of educational establishment, the new campus will provide post-16 education in everything from traditional skills such as plumbing and hairdressing to post-graduate degrees. The area suffers from one of the lowest participation rates for adult learners and the new centre aims to promote lifelong learning by providing an innovative and very accessible learning environment.

CASE STUDY

One of the core principles underpinning the design of the college has been to create a compact and efficient building constructed from sustainable materials with minimal reliance on fossil fuels. Passive systems, such as stack ventilation, maximisation of natural light, solar shading devices and cool ceilings are fundamental elements of the design. Rainwater is collected, and then used for flushing toilets. The computer suites, the largest of which has capacity for 175 computers are water cooled, which is another original aspect of the building design.

ISSUES

For Doncaster College the structured cabling infrastructure would be crucial not only in providing an academic infrastructure for learning and administration, but also for ensuring the safe operation of the high-tech building. "For example, any of the ceiling network points are able to support a video camera, wireless access point or a temperature regulator", says Graeme Tizard, Director of IT.

"With an innovative building concept, the network infrastructure was always going to be vital to the success of the building", explains Tizard. "Although it's mostly invisible, it still has a tough job to do."

The proposal for the Doncaster College building included a fully converged network infrastructure capable of supporting data, VoIP voice, streamed video and multi-media, plus all the building management services, digital IP-CCTV and access controls. In addition, for maximum flexibility the design specified that the cabling needed to be able to deliver low voltage Power over Ethernet. "As well as reducing the electrical cabling requirements, this option gives us the flexibility to deploy IP telephones, video cameras or other network devices that have power requirements at any one of the 8,000 network points around the building, without needing co-located power sockets", explains Tizard.

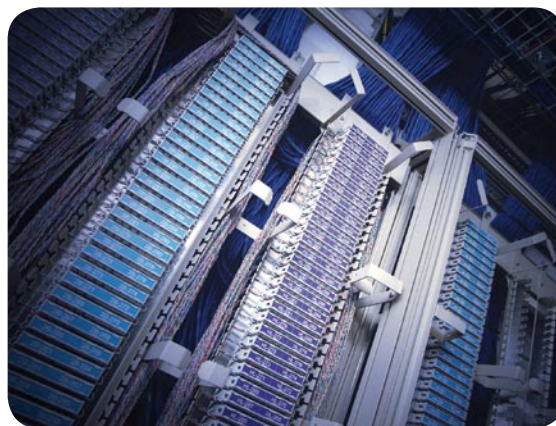
One of the biggest considerations for Tizard and his team was to ensure as much future proofing as possible. "Re-cabling a building when it's fully occupied is no mean feat, therefore we want the Doncaster College cabling infrastructure to be as technologically advanced as possible so that we get the longest return on our investment and don't have that challenge for a very long time," says Tizard. Finding a future proof structured cabling system was essential for Doncaster College in order to support the technology refreshes

and upgrades to servers and switches during the lifetime of the cable infrastructure. "It was essential to ensure that our infrastructure design and the associated structured cabling system would meet our technological demands and be adequate for at least the duration of its 20 year warranty."

OPTIONS

The choice for Doncaster College centred on choices between Cat 5e, Cat 6 or the new 10Gigabit/s TrueNet® CopperTen™ solutions from ADC KRONE. "Realistically, we recognised that Cat 5e cable was no longer appropriate for a new build – it's tried and tested technology but it's been around too long and simply wouldn't take us forward in the way we envisioned", explains Tizard. "Cat 6 was a possible option, but again we had serious questions as to whether it would still be able to do the job in 5 years time, let alone 20." At the time of the final decision, the augmented Category 6A CopperTen was not a ratified standard and was more expensive compared to Category 6 systems, although significantly cheaper than a fibre-to-the-outlet option. CopperTen, with its 10 Gigabit/s data capacity, guaranteed the performance potential that Doncaster College needs to take it into the future. "It was undoubtedly the best option," he said.

THE SOLUTION



"The ADC KRONE guys were excellent, coming up with an affordable design and specification that gave us more than sufficient bandwidth for now, together with the strategic and cost effective upgrade path that would maximise our network infrastructure investment over its lifetime", says Tizard.

"We chose Bailey Teswaine as our installation partner" continues Tizard "as they have an excellent track record for delivering on time, on budget projects across all sectors and a great understanding of the issues specific to our Education relationship. This, coupled with their long-standing relationship with

ADC KRONE and their status as a TrueNet Premier Integrator, singled them out for the project”

Traditionally, backbones have had to be run on fibre to give the necessary bandwidth and performance. However, consultation with the ADC KRONE experts convinced Doncaster College that an entire CopperTen infrastructure would give them the high bandwidth and performance they needed across the campus, as well as the most cost effective migration route to future standards.

Using dual CopperTen 10Gigabit/s backbones around the building for resilience and maximum flexibility, two blown fibre tubes were also installed for future use. One of the fibre tubes has been populated, ready to be brought into service when additional throughput is needed in years to come. The second tube provides further potential to increase the backbone performance at an even later date should a 40 or 80Gb/s offering become available.

“TrueNet CopperTen provides the speed and performance we need to be able to support our intelligent classrooms, especially the delivery of bandwidth hungry video data”, explains Tizard. “In addition, the overall proposal was even more cost effective because, by using CopperTen for the backbone, we didn’t have to make the high initial investment in terminating fibre channels.”

Warranted to deliver 10Gigabit/s to the newly ratified IEEE802.3an standard as being fully component-compliant to the Category 6 standards, CopperTen provides Doncaster College with much needed peace of mind. Because CopperTen is merely an augmentation to ADC KRONE’s existing Category 6 technology, it doesn’t have the risks normally associated with new developments. In effect it is already well proven in the field. Also, as it is installed in exactly the same manner as a Category 6 UTP system, there have been no additional expensive skills or resource requirements.

Due to the high patching density in some communications rooms, Doncaster College decided to deploy the HIGHBAND® variant of CopperTen rather than using conventional RJ-45 patching. This uses a connection module and jumper-wire approach rather like a voice distribution frame with the advantages of higher security, less risk of accidental or malicious

disconnection and reduced space needed for the patching fields. “Unlike conventional frames,” says Tizard, “CopperTen HIGHBAND has the ability to patch-by-exception allowing the hard-wired jumpers to be instantly over-ridden by special patch cords for immediate moves, adds and changes. These temporary links are then replaced with hard-wired jumpering and fully documented by a technician at the next convenient time.

“The benefit is that we always have neat and tidy communications rooms – no tangled mess of wiring, simplifying maintenance and record keeping. This further increases reliability and reduces the chances of any mistakes when patching.”

Another security advantage, states Tizard, is that by avoiding patching direct to essential equipment such as switches and routers, Doncaster Collage has added to the reliability and availability of its network.

BENEFITS

Doncaster College chose the CopperTen solution because it gave them the features and performance they need together with a cost effective, long term, future proofed migration strategy. Although more expensive than Category 6, it offers ten times the data capacity and the overall cost of ownership was extremely competitive when compared with other, less effective solutions. “As a bonus this cost differential has actually dropped significantly as the build has gone on”, admits Tizard. “Choosing ADC KRONE Category 6A CopperTen has mitigated the risks and gives us the ideal platform to support our 8,000 outlets, 3,000 computers and deliver technology into each of our classrooms and teaching areas. Plus it supplies that all important electrical Power over Ethernet capability.”

The Doncaster College high capacity CopperTen network supports the latest in learning technologies with interactive whiteboards, video streaming from central servers or real time broadcasts from visiting lecturers, and electronic teaching systems. In addition, the copper infrastructure is vital to the smooth running of the high tech building providing everything from its video security system to regulating the temperature and opening doors.

“ADC KRONE has met all our requirements for a cost-effective, upgradeable, state-of-the-art network infrastructure to complement our futuristic building and support our progressive educational vision”, confirms Tizard.



ABOUT ADC KRONE

ADC serves its customers as ADC KRONE in the Europe/Middle East/Africa, Asia, and Indo-Pacific regions of the world. ADC KRONE provides the network infrastructure equipment and professional services needed to deliver voice, video, Internet and data communications around the world. Wireline, wireless, cable, enterprise, and broadcast network operators rely on ADC offerings to deliver bandwidth intensive, high-speed services to residential, business and mobile subscribers. ADC (NASDAQ: ADCT) has sales into more than 140 countries.

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CASE STUDY



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