

Charles Darwin School praises performance, support and eco-efficiency as it becomes first in UK to implement new D-Link DES-7210 core switch.



Secondary school dramatically improves network access for students and staff after swift four-day installation of new backbone infrastructure.

About Charles Darwin

A highly successful Specialist School in the Performing Arts with 1300-1400 pupils, Charles Darwin is a large secondary school in Kent winning awards and recognition both locally and nationally, including Investors In People status. A long-time D-Link customer, the school was looking to upgrade its whole network and cabling infrastructure as performance was struggling under increasing demands. Network and resource manager Paul Garrett heads a small team managing the school's IT infrastructure.

The challenge

When Paul Garrett arrived as network manager at Charles Darwin School around 5 years ago, he knew immediately the school's network infrastructure would need replacing at some stage. "It was a job I kept putting off because it seemed such a huge task. My predecessor had done a lot of the work himself, and had just thrown cables through the ceiling, so they had not been properly terminated." In the event – and with the help of D-Link reseller Instacomm Network Installations– the switchover was completely seamless and remarkably, was carried out over the week-long half-term break.

The old network had grown in a piecemeal fashion, with extra bits added on as circumstances demanded and the whole thing daisy chained together with various links and switches. Recently, the requirement to replace the infrastructure grew more urgent as network performance started to become stretched to the limit. "We had lots of bottlenecks," says Garrett. "The internet was slow, logging onto our SIMS database was slow, and logging on to the network was extremely slow."



The school had originally planned to replace the network at the same time as installing 100 new workstations and 100 extra laptops over the summer, but timescales had meant that the new computers came first – and the fact that the new machines still performed so poorly emphasised the importance of the backbone replacement. Students have their own log-ins, carrying up to 10Mb roaming profiles, and in the technology block where the new computers were installed, which also happens to be the furthest point from the server room, logging-in could sometimes take as long as 15 minutes.

The rush of hundreds of pupils attempting to log on to the servers at the same time puts a huge pressure on a school's network backbone. Garrett admits justifying investment in infrastructure isn't always easy: "You don't see it – you don't see cables and switches - so it's not a very transparent cost. It's like when your boiler goes at home, no one likes paying for it, but it's essential. You'd sooner buy a new telly or something fun. It's like that with network infrastructure. But you need to invest in it."

He adds: "I think of it like the human body – without the heart the rest of it doesn't function. If the hearts healthy and pumping strongly, you're fit and healthy and you can run further."

Performance problems were partly down to the nature of the data network, but the school also had 54 CCTV cameras running on the same ring as the main data network. While 15 minute log-ins was the most extreme scenario, it was felt that the bottlenecks were causing unacceptable delays in network performance. "You could have spent a good proportion of a lesson just waiting for the computers to log in, which was really unworkable," says Garrett. "Quite often what teachers were doing was getting kids to log on, then doing starter activities, then working on the computers."

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Paul Garrett
Network and resource manager



The solution

Fortunately, the governors and head teacher understood the commitment that needed to be made to the infrastructure and rubberstamped an investment in a new D-Link core switch with fibre optic cable running to each cabinet, which house D-Link Gigabit switches, together with Power-over-Ethernet (PoE) switches to support a new wireless network. The school installed around 100 laptop and 100 desktop computers at the same time.

Instacomm managing director Kevin Dibble, who planned the implementation, says: "A lot of schools think the power is at the desktop. But if you want a robust IT system, you need to have significant things going on in the background. The core is such an integral part of any network."

Charles Darwin has become the first organisation in the UK to implement a DES-7200, a core chassis switch which supports a dual CPU, providing greater resiliency and higher availability than D-Link's older core switches. Garrett says that because of D-Link's previous track record, it was comfortable being a first and believes it puts the school in a good position for the future. "It helps you leapfrog ahead of the game. If everyone else is still putting in older D-Link cores then we'd just be keeping up. But to have a D-Link core that's much faster, why not?"

It has also managed to recycle its old DES-6500 switch at the centre of its CCTV camera network. The cameras are on a completely separate cabling infrastructure with a link from one switch to the other so that Garrett's staff can view footage. Because this is the only time data is passing between the two networks, performance on the new data network is much improved.

As for the implementation, the success of the project was all about planning, according to Garrett. Instacomm started some of the cabling before the half-term break, after a number of site visits and a detailed plan of what was going to happen when. On the Friday before half-term, the entire server room was stripped out for re-cabling. By Wednesday, the new D-Link core had been installed, plus new switches and cabling to every cabinet around the site. On Thursday, a D-Link engineer visited the school to help set up the core, then Friday was spent tidying up and testing.

Incredibly, when the children returned to school after the half-term break, the entire building had been rewired and a new core infrastructure installed and everyone got back to work as if nothing had happened. "Everyone pulled together and it was quite a tight schedule to get it all done," says Garrett. "There are a couple of non-critical offices where the cables were unlabelled, so I cut them, and we've got to re-cable them, but for such a massive undertaking it went really smoothly."

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Kevin Dibble
Managing Director, Instacomm





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...we have installed 38 new D-Link Green switches which are up to 66% more efficient. These switches can control power levels to each port (turning un-used ports off) and have 48 ports per switch. //

Paul Garrett
Network and resource manager

The benefits

The performance improvement for workstations logging on has been dramatic coming down from anything up to 15 minutes to 30-60 seconds. On returning to work, staff commented how fast the network seemed. The CCTV network is now on a completely separate infrastructure, so the school can view footage when it needs to, without the constant 24/7 activity of the cameras affecting the performance of the data network.

Garrett says: "We currently run a set-up of about 50 networked security cameras in various locations around the school. IP Surveillance has moved on a lot in the last few years to the point now where it gives clear images, remote access and ease of use.

We have been keen to expand on our existing footprint, but have been prevented from doing so due to the prohibitive client licence cost we were faced with.

So I was delighted to hear that D-Link has now introduced its security camera portfolio in the UK – these cameras can be installed alongside our existing system to cover the remaining areas. The first phase will monitor our new 6th form centre which was only completed in September 2009. It makes absolute sense for me to source these network products from a networking specialist."

The school also sees D-Link as key to its green policy. "One of the things we've been looking at as a school is saving money by becoming more energy efficient," says Garrett, "and one of the things that attracted us to D-Link was its green switches."

In a communication to the school on its green IT policy, Garrett notes: "Charles Darwin School had over 55, 24-port switches around the building to give wired and wireless access in almost every classroom. These switches were up to nine years old and very energy inefficient. We have replaced all these switches and installed 38 new D-Link Green switches which are up to 66% more energy efficient. These switches can control power levels to each port (turning un-used ports off) and have 48 ports per switch."

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But perhaps most impressive is its implementation timeframe and schedule. "If you think they did all this in just a week, the support we received from Instacomm and D-Link was amazing. D-Link came out and helped configure the core switch. We were the first in the UK and I'm happy to report it's performing lovely – it's nice and fast."

He concludes: "D-Link is not expensive but comes with the sort of reliability you'd expect from a far more expensive supplier. We've never had a situation where there's been a major problem with any D-Link kit. With minor problems we've phoned D-Link and they've been genuinely supportive, for example in supplying a new firmware upgrade. That leaves you with a sense of pleasure and a feeling that you've made the right decision."

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About D-Link

D-Link is one of the leading manufacturers of network solutions for private and business use. Founded in 1986, the global company with headquarters in Taiwan distinguishes itself through local structures. This is also reflected in the own development department in Eschborn/Frankfurt am Main.

According to its slogan 'Building Networks for People' D-Link develops, produces and sells powerful products in the sectors; networking, internet access as well as voice and data communication and multimedia.

These solutions are based on standardized technologies and offer innovative features at cost effective prices. Today, D-Link has 1,800 employees, an annual turnover of more than 1 Billion US-Dollars and is represented in 100 countries on 5 continents with more than 90 offices.

The heart of the network

D-Link®