



# Sussex Downs College achieves best-ever results with Gigabit speeds to the desktop

**Intel's desktop Gigabit Ethernet improves performance, eliminates congestion and boosts productivity for college's network services team**

## SOLUTION SUMMARY

<b>Organisation</b>	Sussex Downs College of Further Education.
<b>Challenge</b>	Congestion and sluggish performance on the existing Cat-5 copper network was hampering the productivity of the network services teams and other users.
<b>Solution</b>	Deliver Gigabit to the desktop for the network services teams, using Intel® PRO Gigabit Ethernet Desktop Adapters. Additionally, upgrade the backbone and subnet servers to gigabit performance using Intel PRO/1000 XT and Intel PRO/1000 MT Server Adapters.
<b>Benefits</b>	Dramatic productivity gains for the Network Services teams. Easy trouble-free migration to a reliable, high-performance network infrastructure.

**Intel® PRO**  
Network Connections

## Summary

Sussex Downs College is a Further Education establishment formed from the merger of Lewes Tertiary College and Eastbourne College of Arts and Technology. It is the largest college in Sussex, with approximately 4,500 full-time and 22,000 part-time students.

In 2002, an ageing network infrastructure was hampering the productivity of staff and students alike. The network services team, in particular, was finding that poor performance and congestion on the network were preventing development activity and even jeopardising their ability to take data backups.

To rectify the problem, Network Manager Adrian Morgan turned to Intel's Gigabit Solutions. Today, the smooth running network provides invisible support for the college.

## Challenge

### ELIMINATE CONGESTION AND IMPROVE NETWORK PERFORMANCE

Adrian Morgan manages two network services teams, one at each of the two campuses. The teams are responsible for everything to do with the network, from frontline support to installation and maintenance. Morgan enjoys taking a hands-on approach, diving in and getting things fixed when needed, but he must also maintain a strategic overview of the network and set the direction for future developments.

The campus network comprised an Ethernet backbone with many subnets. Although the majority of the network was running at 100 Mbps, there were pockets running at 10 Mbps, and performance was congested and sluggish. Users throughout the college were aware of the problem. For the network services team, however, the situation was becoming critical.

“It was like hitting a brick wall sometimes, trying to shift traffic across the network,” remembers Morgan. “Sometimes, we’d even run out of time when taking backups.”

With around 1500 workstations to look after and an ongoing PC replacement programme, imaging was the only way to ensure timely deployment of new applications or software versions. Application software was loaded onto the server and then multicasted to a whole classroom of 25 machines at one time to set up the standard configuration. Any small-scale customisation could then be handled on a per workstation basis.

Morgan said: “This activity would really hammer the network, taking 2 hours or more each time. You’d set it running and go off to do something else.”

The problem with this approach was that the slow network performance would cause the procedure to time out and several workstations might fail to receive the software. “Imaging was becoming a major headache and we’d have to have two or three goes to get each classroom configured,” said Morgan. “It was taking forever.”

There was congestion throughout the network and it wasn’t just the network services team that had spotted it. Users had begun complaining. Administrative and managerial staff were moving large 200MB spreadsheets around in connection with the college’s budgets and admissions. Network performance was hampering their productivity too, especially around the start of the autumn term, when more than 7,000 students had to be enrolled.

## Process

### MINIMISING THE COST OF CHANGE

Just as with any network infrastructure, only part of the college’s IT investment was represented by hardware and software. The rest was tied up in skill and operational procedures.

When deciding how to upgrade the network, the college had to consider any new skills and training that might be needed, disruption of day-to-day business, and the cost of hardware and software. Consequently, options were restricted.

Morgan and his team could have carried out radical surgery on the network, and the network services subnet in particular, splitting it into smaller segments and using intelligent routing. This would have entailed vast amounts of reconfiguration work and major disruption. Any change to the fundamental structure or topology of the network, or the use of alternative technology, would have involved time, money and training. None of which were available.

“It seemed a very natural step to move to Gigabit Ethernet,” recalls Morgan, “especially Gigabit over copper”.

Gigabit Solutions from Intel are based on industry standards and designed to be compatible with existing hardware and software. By using the existing copper cable at the college, there were even fewer changes to make; there was no need for expensive new PC cabling and the migration was more straightforward to deploy and less disruptive to the day-to-day operations of the network services teams and the college as a whole.

“It involved less change for us,” said Morgan. “We needed new switches, but the topology was essentially untouched. We could retain all our skills and didn’t need many new ones – our learning curve was short.”

Choosing Intel was also a natural decision. The Eastbourne campus team had no experience of Gigabit Ethernet, however, their colleagues in Lewes did – and it was not positive. Compatibility issues between the network operating system and the switches had been a major issue and so the incumbent provider would not be asked to bid for this new tranche of work.

The selected equipment needed to be solid, reliable and easy to support. In addition, the college wanted competitive pricing.

“We felt reassured by Intel’s reputation and well-known brand name,” points out Morgan. “Their support setup is very convenient and we find the comprehensive online resources more than adequate.”

## Solution

### FAST EASY MIGRATION TO GIGABIT PERFORMANCE

Morgan and his team chose to install Intel® PRO Gigabit Ethernet Desktop Adapters in the eight departmental workstations and upgrade performance to Gigabit speeds. They also put Intel PRO/1000 MT or Intel PRO/1000 XT Server Adapter cards in selected servers – about 22 – to improve network performance

in the other areas of the network that were suffering most. The cards are extremely easy to deploy.

Intel® SingleDriver™ technology meant there were no installation problems. Based on Ethernet standards and running over standard Cat-5 copper cable, the Intel adapter cards are auto-sensing, which enabled disruption to be limited to literally a few minutes. “We’d just power down, switch the card and power back up. We’d see the improved performance straight-away,” explained Morgan.

**“We have had no problems at all with the Intel Solutions, the beauty of the Intel kit is that it just works. It’s that easy. You plug it in, load the drivers and can see the immediate performance gains”**

#### Adrian Morgan

Network Manager,  
Sussex Downs College

“We wanted to take a modular approach, doing a bit of work at a time, as money and resources were available. The fast, easy migration to Gigabit Ethernet made this possible. We could minimise the potential for disruption and so complete a fair bit of the upgrade during term time.”

Support for open-source network operating systems ensures there are no interoperability issues with the Intel cards. The performance upgrade for the network services department is up and running. For the rest of the Sussex Downs College’s network, the migration is currently about 60 percent complete; all 16 servers in the backbone and a further six in the subnets have Intel Adapter cards installed. Morgan is pleased to report there have been “no issues”.

Morgan is also pleased with the results. Intel’s Gigabit Solutions are helping to reduce demands on the network services team, making tasks like backing up faster and less disruptive. “We tend to back up from one server to another and have seen a dramatic shortening in the time this process takes. This has been a big benefit to the productivity of the network services team,” he reports.

The biggest improvement is in connection with the imaging application. Previously the 2 to 4GB files were taking 20 minutes to move – and not always successfully. Now that time has been cut to just two to three minutes.

The impact to users is less apparent because of the partial deployment. However, the congestion is less, there’s less downtime and the network connections are more reliable, letting staff and students get on with the job more easily.

## Future

### IMMEDIATE PERFORMANCE GAINS

With an eye to the future, Morgan has not ruled out gigabit speeds to the desktop in other areas of the college. “Although we do not see this as a priority now, we do have workstations running demanding graphical applications and so the situation is under continual review.”

The remaining servers in the subnets are being converted to gigabit performance over the next few months, ready for the start of the autumn 2003 term. As each new card is deployed, the benefits are realised immediately.

“We have had no problems at all with the Intel Solutions,” enthuses Morgan. “The beauty of the Intel kit is that it just works. It’s that easy. You plug it in, load the drivers and can see the immediate performance gains.”

For more information on Intel Gigabit Products visit:

[www.intel.co.uk/network/connectivity](http://www.intel.co.uk/network/connectivity)

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