

Kent Education Network FAQ

Full DfES Specification Broadband

Frequently Asked Questions

May I have copies of the information sent to schools?

Most information about broadband is published on the EIS Web site: www.kent.gov.uk/eis - broadband link. Some schools have printed additional copies of the leaflets for governors. KCN leaflets are available on request, please ask for the Primary or Secondary version.

What is the Kent Education Network (KEN)?

KCN is the high-speed network which is providing every school with safe, high-speed Internet access through a single broadband wide area network. KCN connects 300 primary, special and secondary schools with a high-specification service that complies with DfES requirements including the connection to the National Education Network. In addition, a range of services including remote access, filtering, caching and help desk are provided. KCN developments include choice of 2 Mbps, 10 Mbps and even 100 Mbps bandwidth for primary and secondary.

What is DfES policy on broadband connectivity?

The Prime Minister announced in November 2002 that all schools should be connected to broadband by 2006. Within this vision, the DfES expects most primary schools to be connected at 2 Mbps or faster and secondary schools at 8 Mbps or faster. Broadband connections should be 'symmetric' so that the connection speed is the same in both directions. Schools also require a direct connection to the National Education Network.

How does KCC promote broadband?

Through the Connecting Kent initiative, KCC is investigating how to bring broadband to all sectors of Kent including schools, rural villages, small businesses and local government itself. For schools the next generation of broadband services will have to be far faster and some estimates suggest 34 Mbps for secondary and 8 Mbps for primary schools soon after 2006. Such an advanced network will be expensive and the Kent Community Network is exploring ways in which services such as health, police, KCC and others can collaborate to share the cost.

Connecting Kent: www.kent.gov.uk/coreinfo/broadband/home.html

How does KEN provide technical support?

As part of the service, the Kent Education Network has set up a dedicated help desk at EIS, staffed by experienced engineers. The Help Desk can be phoned either by using the dedicated broadband number **01622 206040** or by phoning the usual EIS Help Desk number **01622 672779**. Of course you can also email **eis.support@kent.gov.uk** or fax **01622 673441** with your questions.

Our school has 120 pupils, are we too small for broadband?

No school is too small KCN connects all schools with the bandwidth specified by government – 2Mbps for primary and 10 Mbps for secondary and from April 2008 these bandwidths will be centrally funded and therefore free of charge to schools.

What is a Broadband Cluster?

Where schools are reasonably close neighbours, the robust full broadband connection can be shared between schools without degradation of service. KCN has created over 20 clusters, based on combinations of infant, first, primary, middle and secondary schools. The link between the schools is installed by KCN and often uses low-power wireless.

Advantages:

- ◆ Connecting small schools earlier than otherwise expected
- ◆ Making good use of local knowledge

Who installs the full DfES specification broadband?

BT engineers will visit to install the Learning Stream line with a termination box that usually requires a mains socket. Unisys engineers will install a router, which requires a second single mains socket. EIS engineers will then connect the router to your network, make any changes in configuration required, perform an acceptance test and explain how to manage the broadband connection.

How long is the contract?

We have reasonable certainty over funding for up to two years at a time. Contracts between Kent and suppliers and therefore between schools and KCN currently contracts last up to 2009 but can be extended.

Why can Full Broadband and ADSL both be described as “2 Mbps”?

The 2 Mbps refers to the maximum available bandwidth, in other words when few computers are connected. What is important in a school is the performance when several dozen, or several hundred computers are used at the same time. In the case of ADSL the bandwidth is shared across 20 business sites. For Full Broadband the bandwidth is guaranteed at 2 Mbps for each site.

Consider the total number of connected computers. The 2 Mbps bandwidth of ADSL is shared across 20 establishments, each of which may have a network of 10 to 50 computers (so perhaps 200 to 1000 computers in all).

The 2 Mbps full broadband service is designed for up to 250 computers **in a single school**. Some secondary schools now have over 1000 Internet connected systems, requiring an upgrade to 10 Mbps or more.

The real cost per Mbps of ADSL is higher than for KCN Full Broadband.

Another big difference is that the ADSL upload bandwidth is ‘up to 256 Kbps’ (also shared across 20 customer sites). KCN Full Broadband is a symmetric service where both download and upload have the same bandwidth of 2048 Kbps.

And of course KCN can deliver symmetric 10 Mbps, or more, to schools that need it

The full service is monitored 24 x 7 by the Unisys Network Centre in Amsterdam, and by EIS during core hours.

What is the technical specification of the full DfES service?

In summary:

- Schools receive a 2 Mbps (or 10 Mbps) dedicated feed, using BT Learning Stream or BT LES fibre.
- The network is symmetric, i.e upload and download speeds are the same.
- Fibre optic or copper cable is used depending on distance.
- The core network has spare capacity and is dedicated to Kent schools with cache, firewall,
- DNS, DMZ for Web servers and VPN access.
- The core network has capacity for all primary schools to have 100+ workstations and secondary schools 400+ workstations.
- The WAN contention ratio is everywhere below 3:1 (currently under 2:1).
- Internet feed to KCN has a capacity of 200 Mbps.
- A connection to the JANET network ensures that communications with any other school in England, or to Curriculum Online, does not have to use the variable speed Internet.

For full details please download the service description from the website:
www.kent.gov.uk/eis.

How fast is KCN Internet access?

Within the Kent Community Network the response time is very fast (for fibre < 10 ms). The bandwidth used by each school on KCN is measured every minute and schools can download graphs of their bandwidth from the Orion system. Secondary schools report that 200 pupils can use Internet connected computers concurrently with a 2 Mbps KCN connection. The recommendation is that above 100 connected computers a 10 Mbps connection is required.

However Internet speed, as experienced by the user, also depends on the loading on the Internet itself, which as you know is slower in the afternoon than the morning. In addition some web sites (sometimes the popular ones!) can become overloaded.

The speed of ADSL cannot be predicted as the bandwidth is shared across 20 users.

Please explain contention ratio?

If money were no object, we would provide all schools with a “thick pipe” to the Internet, a high bandwidth connection. Internet pipes get more expensive with distance and with higher bandwidth. In Kent costs are high due to distance and lack of good telecommunications infrastructure.

A standard way to reduce costs is to share Internet access with others. This is not as bad as sharing a telephone line, as several users can interleave their Internet access without interference. This sharing is called the contention ratio and is fine if not taken too far.

From our measurements of secondary school use, the contention ratio must be low to provide a good service. The KCN is designed around a contention ratio that is everywhere better than 3:1 and in many cases is more like 1:1.

Business ADSL uses a contention ratio of 20:1 and home ADSL 50:1

What is the South East Grid for Learning?

DfES set up the ten regional broadband consortia in 1999 to purchase broadband for groups of LEAs, obtaining best value for money by large-scale purchase. Our RBC, the South East Grid for Learning (SEGfL) comprises 16 LEAs from Reading to Kent. Membership of SEGfL enables Kent’s broadband funding from DfES.

One SEGfL benefit is the funding of the complex and costly procurement under European Union rules of broadband in 2000 and again in 2004. Through these regional contracts, Kent has selected Unisys as the prime contractor for KEN, the implementation of the regional network within Kent. A new contract was signed with RM in 2003 for educational ADSL services.