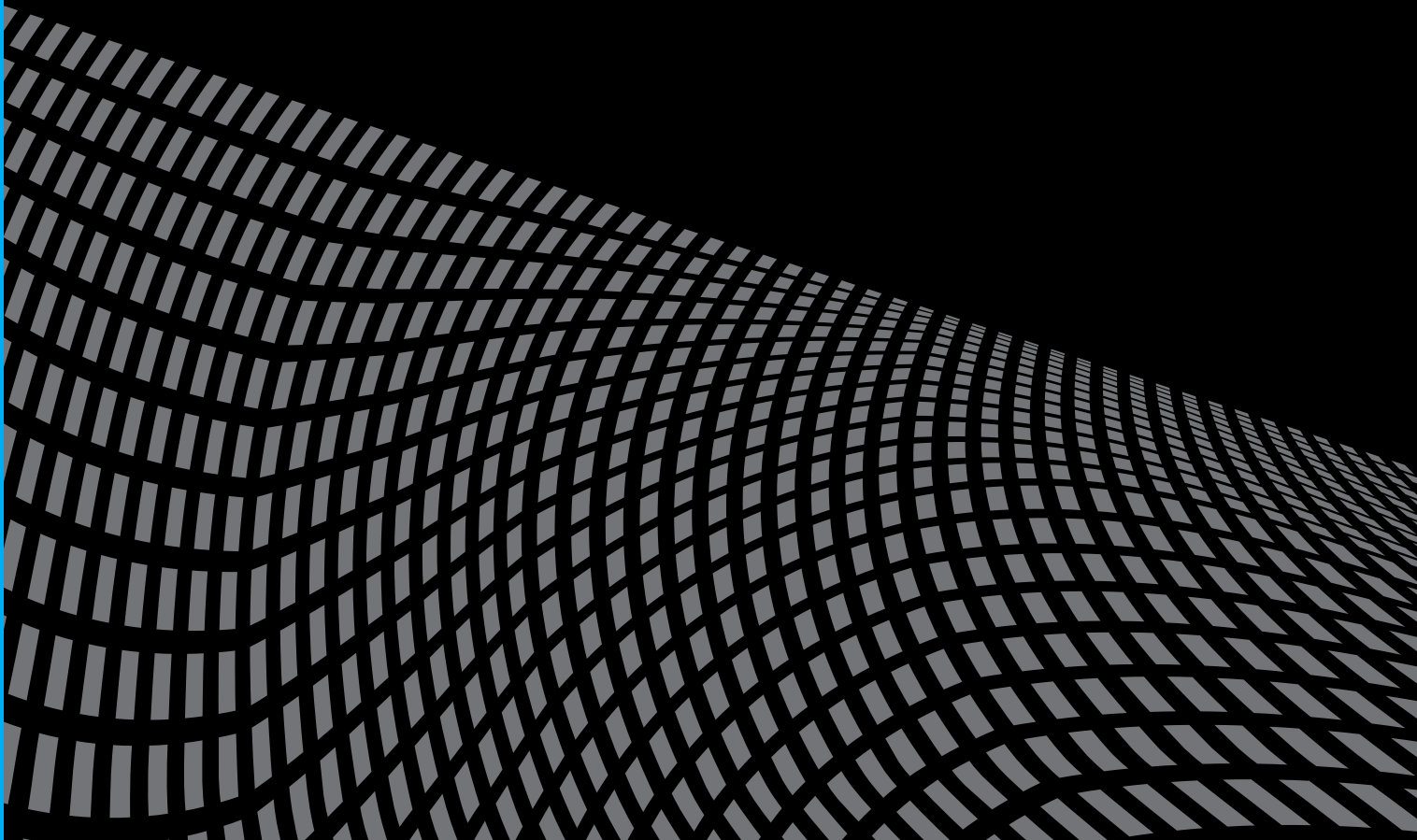


JANET report

2008/09





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Supporting UK competitiveness and learning by delivering information and communication technology services to enable research and education.

Together with its associated services, JANET continues to be a mission critical asset for all those involved in research, education and training. These lie at the very heart of a vibrant knowledge economy, and to enable such an economy it is essential to underpin it with powerful and transparent infrastructure which enables knowledge exchange in every area, from high-technology research to the arts and humanities.

For the UK to remain competitive globally, an accessible, high-speed and resilient network is essential to enable both national and international collaboration. Having recently celebrated its 25th anniversary, JANET is widely acknowledged as a world leading infrastructure employing the very latest optical technology. As the volume of traffic on JANET grows year on year, and with the constant emergence of new technologies, the network is continually being updated to reduce the unit costs and meet the requirements of over 18 million users throughout the UK.

Collaborative relationships with the research and education communities enable JANET(UK) to respond effectively to the rapidly evolving technological landscape and so to support the strategic objectives of UK research and education. JANET(UK) will continue to push the boundaries of network engineering and explore ways in which the network can widen its reach beyond the traditional classroom, research laboratory or lecture theatre setting, particularly with the development of mobile technologies. We will continue to implement videoconferencing and other services based on the network to provide significant benefits for our communities.

At the heart of JANET(UK)'s strategy is a strong development and delivery relationship with commercial partners. This strategic approach is important to the company, and has enabled JANET to provide significant value and continue to be an exemplar of a successful shared service model.

This report records the activities of JANET(UK) during 2008-9. In this period we have encountered the major challenges that the worsening economic situation brings and this is going to be a significant factor in our on-going operating environment. To respond to this it is key that JANET(UK) continues to adhere to its core values and underlying themes of efficiency, operational excellence and environmental sustainability in response to the needs of all its stakeholders.

Tim Marshall
Chief Executive Officer

a step ahead

On 1 April 2009 JANET marked its twenty fifth birthday. Prior to 1 April 1984 nothing like JANET had been seen in the UK before, and it keeps its position as a leading shared service and one of the world's leading research and education networks with a steady programme of research, development and innovation.

JANET at its unveiling was a 9.6kbit/s network serving 60 universities and research councils. Today it connects 18 million users and it covers every area of education and research in the UK. The backbone is made of optical fibre and the initial 9.6kbit/s has blossomed exponentially to 10Gbit/s. Meanwhile, this year JANET became the largest deployer of 40Gbit/s technology to date over a European National Research and Education Network (NREN) and became the first NREN in the world to trial 100Gbit/s successfully.

JANET's infrastructure and support services have been specifically devised to maximise the use that our community can make of the network regardless of the nature of their individual missions. Throughout the year the network has operated at a minimum of 99.7% availability, at the same time handling the increasing volumes of traffic traversing the network to other JANET sites and to the wider Internet. This year traffic over JANET peaked at **4.5Gbit/s** to Europe, **12Gbit/s** to Internet connections in the rest of the world and **18.5Gbit/s** to the Internet in the UK.

Many JANET core backbone circuits were upgraded to 40Gbit/s in 2008 in response to traffic level growth, but with network traffic on JANET set broadly to double every 18 months, it was seen that some of the busiest circuits on the JANET core will need to be upgraded again within the lifetime of the current backbone. The next evolutionary step in network transmission capacity is to 100Gbit/s.

With this in mind JANET(UK) conducted a trial of Nortel Networks' 100Gbit/s optical channel technology on a separate 103km section of fibre optic cable, provided by Verizon Business, between two JANET core network points-of-presence in Reading and London. The trial very successfully demonstrated the technology and helped us understand what changes may need to be made to the core infrastructure to support 100Gbit/s across the whole network.



Image copyright: RSC Scotland

authentication & authorisation

More and more users are accessing the ever increasing number of online services and resources beneficial to UK education. JANET operates the **UK Access Management Federation** to promote and support the implementation of federated access management within the UK education and research sectors. The UK federation now has over 700 members, made up of organisations within the education sector and commercial organisations providing online services to these sectors.

The UK federation currently uses a WAYF (where are you from) discovery service to establish that a user is from a member organisation and therefore authorised to access a protected online resource, but the recommended method to identify which organisation the user is from is to use a web-based portal from the user's home organisation. A JANET group will provide guidance and best practice for those involved in the deployment of discovery services as part of the UK federation.

JANET's **Server Certificate Service** continues to outstrip initial expectations. The number of Server Certificate requests this year has increased to nearly 10,000, more than doubling last year's figure.

network access

JANET's Network Access activities focus on extending JANET connectivity at the edge of the network into learning and social spaces outside the campus. The ultimate goal of these efforts is to deliver JANET content and resources to the user whenever and wherever required. Work is driven by an active programme of project activities and engagement with other stakeholders in the area.

JANET(UK) has reassessed the strategic direction of this area of activity, updating and reprioritising as required by recent developments in the field. A new **network access strategy** has resulted which can be found online on the network access web pages.

JANET(UK)'s trial programmes in **Mobile IP** and **Location Awareness** have drawn to a close and the results have been published to the JANET community. The participating sites demonstrated new applications of sometimes complex technologies, and captured in their case studies both the frustrations and unexpected benefits of engaging with them. Both projects have generated detailed technology overview documents to bring the reader up to speed with the potential benefits of these techniques, critically evaluating any security weaknesses and the precautions required to ameliorate them. Trials continue in the areas of **Local Loop Unbundling** and **Portable WLAN**.

Over 100 organisations now participate in the **JANET Roaming** service, as witnessed by ever increasing volumes of authentication traffic. With JANET(UK)'s guidance, all organisations have migrated to secure 802.1x systems as required by the eduroam confederation.

JANET txt

The JANET txt SMS service has been running for two years and continues to go from strength to strength as over 170 organisations using the service increasingly find innovative uses for it. SMS voting has been taking place as part of classroom teaching, and SMS has also proven to be an effective mentoring tool. One specialist college is even using JANET txt to provide an authentication mechanism as part of its organisational VPN provision. JANET txt came into its own during the heavy snow in February 2009 with SMS playing a crucial role in business continuity plans.

The existence of JANET txt has also contributed to the SMS market developing within education and research, and has stimulated increased competition from commercial providers. This has again served to benefit the JANET community through greater development, innovation and competitive pricing. In this vein, JANET txt also continues to develop with a number of additional facilities already or scheduled to become available. The service is extending to MMS so that users can store and exchange images, audio and video; the MoodleMobile virtual learning environment plug-in has proved very popular; Voice Blast lets administrators record messages over the phone, sending them out in one 'blast' to a pre-populated list of recipients; and Document Management lets users store and retrieve a wide variety of file types securely online for use at any point in time.

media-rich content

JANET is investigating the potential use of Ultra High Definition Video by the education community to establish the implications of streaming Ultra High Definition content over the JANET network. Ultra High Definition can be defined as any video quality above broadcast High Definition.

Following a call earlier this year, JANET has now established an Ultra High Definition special interest group consisting of participants from Universities and Research organisations who have an active interest in this area. The aim of the group is to establish the requirements of the JANET community and to explore and understand the technology, the equipment and how it works on JANET. From the knowledge gained from the group's activities it is hoped to establish a plan of action and to run a demonstration streaming Ultra High Definition content over JANET.

JANET(UK) has also joined CineGrid, a non-profit organisation created to promote research, development and deployment of high quality audio and video over advanced networks throughout the world.

The JANET IPTV Special Interest Group has decided on a number of key development areas which are included in the JANET Internet and Broadcast Media strategy (www.ja.net/documents/development/iptv/internet-broadcast-media-strategy.pdf). The strategy focuses on both the technical and copyright issues associated with video applications available on the network.

Authentication & Authorisation

www.ja.net/middleware

JANET Roaming

www.ja.net/roaming

JANET txt

www.pageonejanettxt.com

Network Access

www.ja.net/development/network-access.html

Server Certificate Service

www.ja.net/scs

UK Access Management Federation

www.ukfederation.org

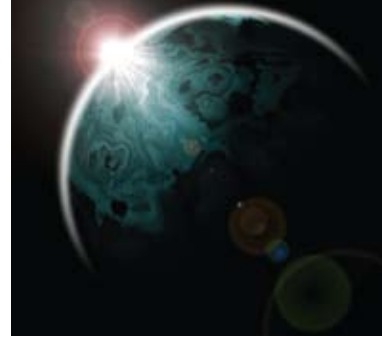
Ultra High Definition Video

www.ja.net/development/ultrahighdefinition.html



Image copyright: Becta

supporting research



JANET's mission is to support UK education and research, and the research sector is a major user community on the network. A key need in this area is to transmit large volumes of delay-sensitive data without it interfering with the network traffic of other users. JANET has an array of specialised services that are tailored to this sector's requirements.

JANET lightpath

The JANET Lightpath service was put to an interesting and novel use at September's e-Science all-hands meeting held in Edinburgh (www.allhands.org.uk). A 1 Gbit/s lightpath connection was established between a music studio at the University of York and a lecture theatre at the National e-Science Centre at the University of Edinburgh, to support a high quality studio recording session that included a performance of bagpipe music before a live audience in Edinburgh. The lightpath carried the audio data from Edinburgh back to York to be recorded.

The sustained high quality of the data transfers with low latencies and no data loss show the potential for this kind of distributed real-time work with very successful recording and performance sessions. This in turn may lead to future collaborative work across JANET and international networks.

In January, JANET Lightpath helped celebrate the beginning of the International Year of Astronomy when 17 telescopes from around the world took part in a 33 hour real-time astronomical observation. Astronomers were able to observe areas of space simultaneously through multiple telescopes, providing more detailed images of the universe than previously obtained. The JANET Lightpath service supported this work by providing two 1 Gbit/s links from the largest UK radio telescope, the Lovell telescope at Jodrell Bank near Manchester, to London, and then onwards over GÉANT and SURFnet to the Science Centre in the Netherlands where the signals from all the telescopes were brought together.

In September 2008, a dedicated lightpath from CERN in Switzerland helped carry the five gigabytes per second of data pumped out by the Large Hadron Collider experiment.

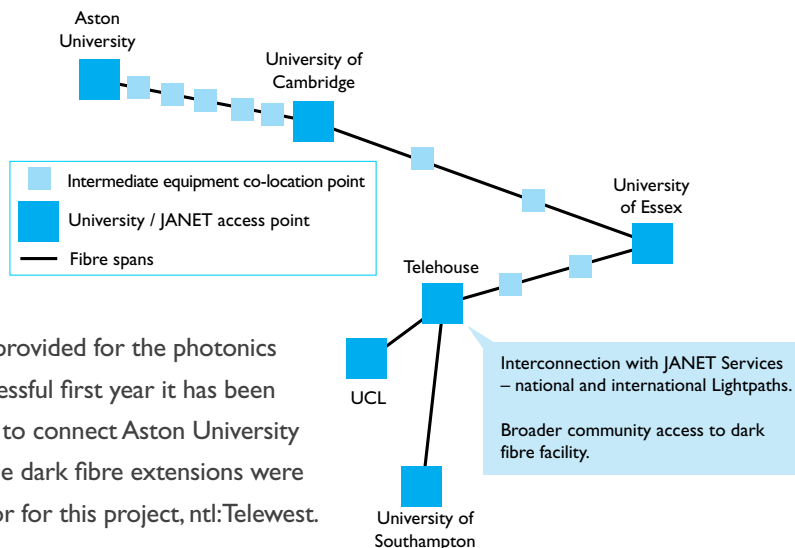
To ensure that the JANET Lightpath service continues to meet the demanding requirements of those who use it, a major infrastructure refresh was completed in March this year. The new infrastructure is more cost effective to maintain than the previous and provides state of the art facilities that make provisioning lightpaths more dynamic and flexible.



Images copyright: CERN

JANET aurora

JANET Aurora is a dark fibre testbed provided for the photonics research community. After a very successful first year it has been extended from the original three sites to connect Aston University and the University of Southampton. The dark fibre extensions were undertaken by JANET(UK)'s contractor for this project, ntl:Telewest.



The capabilities of the JANET Aurora infrastructure were demonstrated earlier this year in an international collaboration between photonics researchers in the UK and other European countries. The trial was an exciting demonstration of the Optical Time Division Multiplexing transmission technique, with equipment in university research laboratories directly connected to the Aurora optical fibres and none of the optical signals being converted into electrical signals to perform the multiplexing. The partners in this consortium were brought together by the immediacy of this ability to interact with the equipment in a real operating environment.

shared data centres

Universities, particularly those that are research-led, have critical needs for large-scale data centres in which to house high-performance computing and data-storage systems. These have demanding power and cooling requirements, alongside the need for adequate space, security and very high bandwidth network connectivity. Rising power costs and the need for much improved carbon efficiency underline the need to find cost-effective solutions.

On behalf of the Russell Group of Universities, JANET(UK) undertook a feasibility study known as SHED (Shared High End Data centre) to understand the costs and benefits of operating a national-scale data centre facility capable of meeting such high-performance computing and data storage needs. The study established that there could be very significant longer-term cost and carbon savings if such a facility was to be developed.

The study was funded by HEFCE as part of its programme of shared services feasibility studies. JANET(UK) is now further developing the case, and is also shaping a sector-wide shared-service data centre strategy in collaboration with HEFCE and with sector stakeholders and industry representatives.

JANET's national and regional high-bandwidth infrastructure and shared services structure make the provision of shared data centres a realistic possibility within the JANET community. The possibility of next-generation high-performance computers being shared amongst regional consortia of universities can only add to the case for such facilities being developed.

JANET Aurora
www.ja.net/aurora

Netsight
www.ja.net/netsight

JANET Lightpath
www.ja.net/lightpath

enriching learning

A range of services from JANET(UK) add value to its core mission of supporting UK education and research.

videoconferencing

Videoconferencing is provided to the JANET community through JVCS, the JANET Videoconferencing Service. JVCS now has over 5700 registered users. Three key new features became available this year: the ability to record a videoconference for future use (replaying lectures for absent students; demonstrations; performance feedback); the ability to stream a videoconference live for viewers other than the ones attending; and the use of High Definition (HD) videoconferencing, thanks to new equipment at JVCS.

The JANET Stand at the BETT show in January was given over entirely to demonstrating the variety of videoconferencing content available to schools. Live debates and contributions were inspired by a plethora of videoconference providers such as the National Space Centre, the Wordsworth Trust and the Holocaust Centre. The meeting showed that the technology is becoming less of an issue and teachers are now more confidently turning to videoconferencing to provide curriculum-based content.



- Ninety percent of the Scottish Universities Physics Alliance (SUPA)'s teaching at the end of 2008 was being provided through virtual lectures via videoconference, using the JANET Videoconferencing Service. SUPA is an alliance of six Scottish universities and it holds 50 to 120 videoconferences per month with between 2 to 8 participating endpoints at any given time. As well as lectures, the individual research groups are also increasingly using videoconferencing for research purposes. Examples of these are weekly particle physics seminars between Edinburgh and Glasgow, and astronomy seminars which have included sites from locations such as France, Italy, China and Taiwan as well as other UK sites.
- The University of Edinburgh runs a series of collaborative virtual seminars as part of HPC Europa2, a European programme which lets researchers collaborate amongst institutions associated with High Performance Computing centres in Finland, France, Germany, Italy, the Netherlands, Spain and the UK. The seminars are made possible through videoconferencing and involve staff and visitors from across the different institutions.
- JVCs has given students at the University of South Florida a taste of classical British actor training. UK professionals from the world of drama visit the University of South Florida on a yearly basis to participate in the BRIT Programme, as part of the university's prestigious performing arts course. In 2008, the BRIT programme used JVCs to link a prominent UK director and vocal coach to the US students. This has now been progressed further to include casting, masterclasses and many more activities. See www.ja.net/documents/services/video/britprogramme.pdf
- JANET joined resources with New Zealand's KAREN (Kiwi Advanced Research & Education Network) in May for an international videoconference featuring evolutionary biologist Professor Richard Dawkins. Seated at JANET's UK offices, Professor Dawkins was interviewed from New Zealand for an hour on questions sent in by listeners. To round off the event, he also announced the winner of the Royal Society of New Zealand's inaugural Science Book Prize.
- In October, Schools Minister Jim Knight MP used JVCs to connect to schools in Oldham and Suffolk and announce the roll-out of a government initiative. Mr Knight spoke about the government's plans to inject £30 million into ensuring every child has home access to a computer and broadband connectivity for their school work.



Image copyright: Brit Programme

access grid

Access Grid is an advanced videoconferencing application that uses audio and video tools to let people in different locations worldwide meet in a virtual venue. The Access Grid Support Centre (AGSC) is a single point of contact for UK educational and research communities when they need assistance on any aspect of Access Grid. There are over 300 Access Grid nodes in the UK.

Access Grid's potential for further education has been highlighted by the amalgamation of a number of colleges across the UK, creating larger colleges with campuses spread over a large geographic area. In some cases this means a course once taught at two separate sites may now only be taught at one. Through Access Grid a teacher can offer a single course at two or more sites, both locally and remotely. Outreaches to FE have sparked other potential usage ideas from colleges – for instance, one is applying for funding to put Access Grid in place to assist deaf students in distance learning. The AGSC continues to promote Access Grid in organisations that may benefit from this collaborative tool.

national digital resource bank

Working in collaboration with the North West Learning Grid, JANET(UK) has signed an agreement with the Spanish Government to take AGREGA, its recently developed digital content management system, as the basis of a National Digital Resource Bank being developed by the Grid. This will allow UK teachers to share publicly funded digital teaching and learning resources developed by schools, charities, industry, Local Authorities, City Learning Centres and colleges.

The system, written in open source software, will be hosted by JANET(UK) on the National Education Network and will thus be freely accessible to all teachers across the UK. The system meets the exacting requirements that have been developed by a consortium of more than 100 Local Authorities without the need for expensive and time consuming development, and is an excellent example of international cooperation between our two countries.

Access Grid
www.ja.net/agsc

IPTV
www.ja.net/iptv

NLN Materials
www.nln.ac.uk

JANET Videoconferencing Service
www.ja.net/video

Our users are entitled to the highest standards of security and privacy. This requires a combination of operational vigilance and active engagement in the regulatory process.

security

JANET CSIRT (Computer Security Incident Response Team) takes the lead on JANET security policy. It is a respected and important part of the JANET(UK) offering, and is increasingly active in offering support to members of the community of users to keep their networks safe while at the same time retaining the necessary liberality of a research and education network.

CSIRT provides incident coordination for JANET organisations as well as training and advice to prevent incidents occurring again. Often a fault or a malware infection in a customer's network is down to user error or unawareness.

The team also engages with appropriate organisations and activities beyond JANET. It is currently working with JANET's Strategic Technologies division and Network Operations Centre to trial industry netflow measurement products, with a view to utilising netflow data to analyse and detect security problems on the network. The JANET community will benefit from the increased value of the netflow data it receives.

Over 80 delegates from a wide variety of sectors attended the 6th JANET CSIRT conference at Loughborough University in October, to hear talks on a number of threats that networks face and some of the technologies and techniques that can be used to protect them.



Image copyright: Becta

regulation

As well as advising on the security and legal issues of JANET activities including videoconferencing, content distribution and federated access management, JANET(UK) works with the wider community to formulate and advise on regulation and governance for the Internet.

- JANET(UK) is a funding member of the Internet Watch Foundation (IWF), and has been contributing to a review of the IWF's policies and practice for blacklisting indecent images of children.
- Last year JANET(UK) helped the Federation Against Copyright Theft (FACT) to carry out an anonymous survey of copyright enforcement activities in universities, and made a response to the Department for Business, Enterprise and Regulatory Reform's consultation on action against peer-to-peer sharing of copyright materials.
- This year discussions have been on-going with the Department on the possible creation of a Digital Rights Agency, as suggested in the Digital Britain Report, to help in enforcing copyright online. JANET(UK) is also responding to a further consultation to determine what powers should be granted to Ofcom to impose additional sanctions for copyright violation, should these prove necessary, and contributing to the development of an Internet Society paper on legislative responses to the sharing of copyright materials.
- JANET(UK) has also had informal discussions with ICANN (Internet Corporation for Assigned Names and Numbers) on its plans to prevent misuse of future top-level domain names; and, following a suggestion from the European Commission, work has begun on a high-level document on how incident response teams can work to protect privacy in accordance with European privacy law.
- In May JANET(UK) responded to two topics covered by Parliament's All-Party Communications Group – ISPs' responsibility for their customers, and dealing with illegal content – in a four week inquiry entitled 'Can we keep our hands off the Internet?'

A new blog on JANET(UK)'s activities in the area of regulation has been created and can be found at <http://webmedia.company.ja.net/edlabblogs/regulatory-developments/>

CSIRT

www.ja.net/csirt

Regulation

www.ja.net/development/legal-and-regulatory

part of the global network

The JANET network extends across the whole of the UK but we are moving into a new era where greater international awareness and cooperation will become essential. To raise the international profile of the network and the UK's education and research community, and to better coordinate our international activity, JANET(UK) appointed a new Head, International Relations in May 2008.

He will build on our excellent reputation in the international community and on the good international relations we have already developed to help make JANET(UK) the leading member of this community. Areas in which he intends to become more involved include collaborative learning projects using JANET services, arts and humanities, and joint projects with countries outside Europe, especially the growing economies of Asia, India and South America.

TERENA

From the very start JANET(UK) has been the UK member of TERENA, the Trans-European Research and Education Networking Association. JANET(UK) participates in the TERENA General Assembly, and JANET representatives are regular contributors to its task forces on topics including mobility, next generation networking and communications.

The TF-Mobility and Network Middleware taskforce has been re-chartered for a further two years and JANET(UK) will be leading on mobile technologies and the usage of network middleware, along with promoting common standards and procedures to increase security on network access. JANET(UK) is to survey location-aware infrastructure usage across Europe as the first step towards developing a coherent development programme for this activity. It also participated in the evaluation of data for the TERENA Compendium – an authoritative reference source on research and education networking – and the production of the final document.



GÉANT

JANET(UK) is contributing to a number of areas of GÉANT3, the next iteration of the GÉANT network that connects 37 national research and education networks in Europe, including JANET. Activities in the area of federated end-user services will complement the ongoing development of the UK Access Management Federation and the JANET Roaming service, both of which will benefit from integration with similar services across Europe and further afield.

JANET(UK) participates in an international research and education network working group that is investigating possible inter-federation approaches to accessing services available in other federations, including assessment of the required policies, standards and structures to support this activity. The policy work was presented and discussed at both TERENA's middleware task force (TF-EMC2) and Research and Education Federations Group (REFEDs), and discussed with individual international federations. In parallel, agreement has been reached with Internet2 on an inter-federation agreement between its federation (InCommon) and the UK Access Management Federation.

Guidance on how to use federated systems in accordance with European privacy law to reduce the need to process personal data, and on good practice in handling pseudonymous identifiers, has been published through REFEDs. Following a suggestion from the European Commission, work has begun on a similar high-level document on how incident response teams can work in ways that protect privacy.

GÉANT is operated by DANTE (Delivery of Advanced Network Technology to Europe). JANET(UK)'s Chief Technology Officer has joined the DANTE Board and its Head, International Relations is also engaging with DANTE's new NREN liaison function.



working with other public sector networks

JANET is a committed participant in the process of interconnecting and interworking between different public sector networks, both to serve the needs of JANET users and to contribute to the wider public good.

the national education network

The year saw a marked increase in the use of the JANET backbone as the national backbone of the National Education Network – a set of education content and advisory services that provide learners in schools with safe, secure and high quality access to ICT services.

This not only allows interworking between the individual regional schools' networks which comprise the National Education Network but it also provides Internet access, via JANET's very high capacity and cost-effective connectivity to commercial Internet providers in the UK and to the global Internet. A survey in May of this year by the National Education Network's Technical Strategy Group showed that around two-thirds of the bandwidth used by schools in England to access the global Internet is now carried over the JANET backbone.

This is made possible via funding from Becta for use of the JANET backbone and services for this and other purposes such as videoconferencing. Separate but broadly similar arrangements for the use of JANET infrastructure and services apply in Scotland, Wales and Northern Ireland.

A number of regions within England have shown interest in using JANET's regional infrastructure to complement this national use. Agreement has been reached with the North West Learning Grid for the provision of JANET connections to its constituent local authorities, to be delivered via Net North West. In the east of England, JANET(UK) and E2BN have launched a joint re-procurement of a regional broadband backbone to serve the needs of both JANET and E2BN customers.



Image copyright: University of Essex



Image copyright: Becta

JANET(UK) also engages in the development of appropriate content delivery systems across the National Education Network. This has included working with Becta in its definition of an 'ecosystem' for the delivery of content; the work with North West Learning Grid and Red.es relating to the AGREGA system reported elsewhere; and a collaboration with South East Grid for Learning to set up a pilot for the delivery of film clips and associated materials. This latter was successfully launched at BETT in January 2009.

Work continues on the use by the schools sector of the UK Access Management Federation, JANET(UK)'s operation of which is co-funded by Becta and JISC. Over this year there has been a marked increase in awareness and take-up of federation services. JANET(UK) specialists engage with the schools community to ensure that its requirements are properly taken into account in development of the federation's technical and policy elements.

Finally, JANET(UK) has become an associate member of the South East Grid for Learning, allowing it to access the Grid's framework for ICT services. Another example of the benefits of sharing within the public sector, this was used in the re-procurement of the JANET content filtering service and has resulted in an improved contract with a much smaller amount of procurement effort required from JANET(UK) staff.

glow

During the year Learning and Teaching Scotland re-procured the broadband infrastructure that underpins Glow, the pan-Scotland intranet for education. During the course of the re-procurement it became apparent that the most cost-effective means of providing the required national bandwidth and connectivity to the global Internet was to use the JANET backbone in Scotland. Accordingly a contract has been placed for these services which also provides for access by members of the Glow community to other JANET national services. Rollout of this new infrastructure is now well underway.

NHS

For some years JANET(UK) and NHS Connecting for Health have collaborated in piloting a gateway between JANET and N3, the broadband network serving the NHS in England and Scotland. During the year the decision was made to co-fund a production version of this gateway, which will increase the capacity and resilience of the pilot implementation.

The gateway's purpose is to enable the health, education and research communities to collaborate more effectively. Significant progress was made in this respect by the successful trialling of videoconferencing between universities and NHS trusts in the north east of England, using the JANET Videoconferencing Service. All parties see this as an important tool for improved collaboration in teaching and research.

PSBA network

JANET(UK) is a founding partner in the Public Sector Broadband Aggregation (PSBA) initiative of the Welsh Assembly Government. The pan-Wales PSBA Network provided by this initiative serves the needs of higher and further education in Wales, alongside those of local government and of health. Rollout of the PSBA Network to higher and further education was completed earlier in 2009. Interest is now turning to the joint development of applications services which can both save costs to individual sectors via aggregation and promote better delivery of public services via collaboration.

JANET(UK) remains engaged in the management of this initiative and has recently taken on chairmanship of the PSBA Management Board. It also more generally continues to contribute its experience and expertise in the management of large-scale shared-service infrastructure.

JANET also provides the PSBA Network with access to the global Internet, in an arrangement similar to those in effect in England and Scotland.



Image copyright: Becta

the public sector network

JANET(UK) continues its engagement with the Cabinet Office's Public Sector Network initiative, which aims to derive significant efficiency savings by changing the way government and other public sector organisations buy and use voice and data services. Via this engagement JANET(UK) expects to understand the benefits the initiative could bring to JANET users; this might include the ability for those attached to JANET to access Public Sector Network-compliant services securely on other public sector networks, and the possible use of Public Sector Network-compliant products and services in the overall provisioning of JANET itself.

The JANET publication *Using the Power of JANET – Information for Local Authorities in England* provides details of the arrangements for connectivity and the benefits of joining the JANET community. The publication includes six case studies contributed by local authorities and organisations that have JANET connections. www.ja.net/documents/publications/localauthorities.pdf

Glow Scotland
www.ltscotland.org.uk/glowscotland

The National Education Network
www.nen.gov.uk

The PSBA Network
psba.pepperio.net

The Public Sector Network
www.cabinetoffice.gov.uk/cio/public_sector_network.aspx

supporting JANET services

training

The Training team now delivers a portfolio of nineteen courses across the country, which range from introducing basic networking concepts to making the most of particular JANET services: in short, everything needed to be an effective JANET customer. New courses trialled in the past year included 'JANET Roaming Fundamentals', 'Virtualisation Fundamentals', 'Computers, Privacy and the Law' and 'Implementing Shibboleth 2 Service Provider': the trial for 'Virtualisation Fundamentals' was booked out in the record time of four hours. The list of venues has been extended to include Belfast: five courses were scheduled for 2009 at this venue following a request from their Regional Network Operator.

EdLab, JANET Training's online learning and collaboration facility, has continued to develop with access to online course support for many of the courses rolled out during the past year. This support includes additional course information, a message from the trainer, details of what to expect and pre-course information and activities. After a course has been delivered, delegates have access through EdLab to all the course materials, activities used in the course, additional resources and subject tests. EdLab's focus now is promoting community discussion and collaboration, with discussion forums and other tools available to continue class discussion.

Following its successful debut last year, Networkshop Online again supported delegates during the annual Networkshop conference by providing access to presentations, news and updates as well as audio and video resources. For the first time, JANET Training set up a Twitter hashtag and news feed for Networkshop which was used to publish administrative updates, news and even direct support during the event. More interesting, though, were the messages, feedback and conversations from and by delegates, which ranged from feedback on the breakfast to commentaries on sessions as they happened. This added a new dimension to communication during the conference and showed another way this simple technology can add value.

JANET Training plans to provide the same facilities next year and will be interested to see if there are more Twitters or if the Twitter storm has passed.



JANET Training courses

- Basic Networking
- Basic Router Configuration
- Computers, Privacy and the Law
- Firewalls: Planning and Implementation
- JANET Roaming Fundamentals
- IP Fundamentals
- Implementing a Shibboleth 2 Identity Provider
- Implementing a Shibboleth 2 Service Provider
- Implementing a Shibboleth 2 Identity and Service Provider
- Information Security Policies
- Introduction to DNS
- Introduction to JANET
- Introduction to the UK Federation
- Introduction to Videoconferencing
- Managing IT Security
- Technical Support of Videoconferencing
- Using Logfiles for Security
- Virtualisation Fundamentals
- Wireless LAN Fundamentals

networkshop

Networkshop 37 was held between 31 March and 2 April in wonderful spring weather at the University of Cambridge's Sidgwick Campus. This year there was the added bonus of celebrating the 25th anniversary of JANET on 1 April. Approximately 400 delegates and 37 exhibitors attended a mixture of plenary, parallel and 'birds of a feather' sessions on subjects including: beyond 40G; Network Access Control; the research use of JANET; effective spam control; and making superfast broadband a reality in the UK. It was a privilege to listen to the after-dinner speaker, Professor Mike Wells, who was instrumental in producing what have become known as the Wells Reports that led to the creation of JANET 25 years ago. Professor Wells gave a most entertaining and fascinating insight into the birth of JANET.

JANET Events
www.ja.net/events

JANET Publications
www.ja.net/publications

JANET Training
www.ja.net/training

JANET publications 2008-2009

Technical Guides

- QoS on JANET
- Network Access for Guests
- Streaming Live Video on JANET
- Secure Virtual Private Networks

Factsheets

- Investigating Copyright Complaints
- PlanetLab & JANET

General Information

- JANET Services
- Videoconferencing
- Using the Power of JANET: Information for Local Authorities in England
- JANET Development Programme 2009
- JANET News 5-8



JANET(UK) manages the operation and development of JANET, the United Kingdom's education and research network, on behalf of the combined UK Higher and Further Education Funding Councils represented by JISC (Joint Information Systems Committee).

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Availability

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