

# JANET News

The new name for  
UKERNA News

## Exploiting JANET with Point-to-Point Lightpaths

*From UKLight to JANET Lightpath*

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## Comment



What's in a name? "Not a lot", some may say. That would not be my view — indeed, I would contend that a good name is a very convenient and concise way of saying much about a person or organisation.

On 7 June, JISC Chairman Professor Sir Ron Cooke not only opened Lumen House, our new office at Harwell, but also signalled the switch from UKERNA to our new trading name — JANET(UK).

For the past few months, our management team has been considering how to develop both the network and the operating company brands. The name UKERNA (the United Kingdom Education and Research Networking Association) has served us well in the past, but also has its shortcomings.



*Professor Sir Ron Cooke and Tim Marshall at the opening of Lumen House*



*Paul Bonnett, Video Services Manager, set up the video relay for the opening*

Our research told us that many people knew of JANET, it having a well-established brand equity, but few had any clue about UKERNA or were aware that it had any connection with JANET. People would often say to me "What's UKERNA?". "It's the organisation that operates and develops the JANET network", I would reply. "Ah, JANET — a wonderful network" was invariably their response.

It became clear that there would be a significant benefit in having a trading name for the operating company which enabled unprompted recognition of what our business is about. (It should be remembered, however, that JANET(UK), like UKERNA, is a trading name and the registered name of the operating company remains The JNT Association.)

There were also other factors which supported this change: there was inconsistency in the way that UKERNA was pronounced; some people, on seeing the address, thought we were in the nuclear business (our neighbours being UKAEA); while others, when they saw what the acronym stood for, thought that we were a professional association.

Not only have we changed the trading name for the

operating company but we have also sought to bring about more consistency to the whole JANET brand. This has included the creation of a new logo which covers not only the network but the whole family of applications and services which fall under the master brand. I am proud to say that this whole process has been carried out by our internal management and communication teams, so mitigating the significant cost that may have been incurred in going out to an agency.



*The new JANET logo*

The purpose behind a brand is surely to give a firm idea of what can be expected from the products and services enshrined within it. It is a well-established fact that customers trust strong brands because they know exactly what to expect and can trust it to deliver reliably on that promise. This of course means that we as an operating business have to ensure that we deliver on the promises of the JANET brand. That has to be good for all our customers and users and is a challenge that we at JANET(UK) relish as we move forward together.

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## From UKLight to JANET Lightpath

Over the past few months we have been busy developing a service called JANET Lightpath.

### Background

It is well known that the UK's research communities need to transmit large volumes of data or delay-sensitive data across JANET. There is also a requirement for separate networks for research and development to be established over JANET. To date, these requirements have been satisfied by the highly successful UKLight facility. This was constructed on the JANET backbone several years ago and has been providing circuit infrastructure to enable segregation of research and development traffic from normal JANET service traffic.

One of the key elements of the latest generation of the new JANET backbone resulting from the SuperJANET5 project is the ability to provide separation at the network transmission level to meet research and development requirements. With the new backbone now in place, this capability has come to fruition.

### About the service

The JANET Lightpath service, which replaces UKLight, can deliver dedicated network capacity (i.e. not shared with others) between defined end points in much the same way as a traditional leased circuit from a telecommunications carrier, with the users responsible for the networking at higher layers. The circuit (or Lightpath) capacities can be set within a range of a few tens of Mbit/s to a full 10Gbit/s, according to user requirements.

Lightpaths are implemented at the

transmission layer of the JANET backbone, and can be configured between JANET edge points and onwards to JANET-connected organisations via the Regional Networks. Lightpaths can also be extended internationally by connection to GÉANT to reach other National Research and Education Networks. Connections to North America and other international networks are also possible via an exchange facility in StarLight in Chicago.

The application process and policy for use of Lightpaths are described in the JANET Lightpath Service Manual, which is available at: <http://www.ja.net/lightpath/>

### Lightpath applications

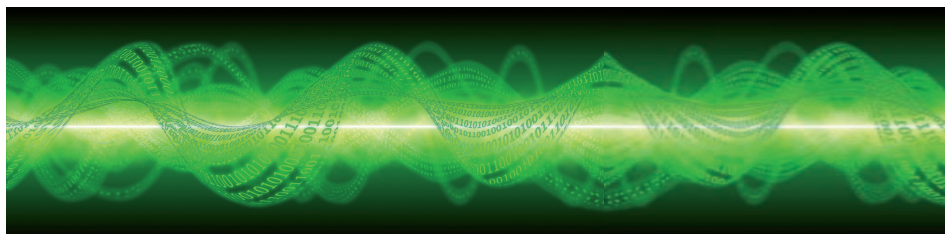
Typical use of lightpaths over JANET so far are:

#### Particle Physics:

A 10Gbit/s lightpath is in place between the Rutherford Appleton Laboratory in Oxfordshire and CERN on the Swiss/French border. This lightpath traverses the Thames Valley JANET regional network, the JANET backbone and the GÉANT network.

The lightpath is used by particle physicists working on the LHC (Large Hadron Collider) experiment at CERN to transport large quantities of data as part of a series of 'service challenges' to test the data-processing infrastructure of the LCG (LHC Computing Grid). These tests seek to verify that the LCG will be able to cope with the large amounts of experimental data which will begin to be produced towards the end of this year when the LHC begins operation.

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*From UKLight to JANET Lightpaths*  
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#### **Radio Astronomy:**

A number of 1Gbit/s lightpaths are in place between Jodrell Bank in north-west England and Dwingeloo in the Netherlands. These lightpaths traverse the Network North West regional network, the JANET backbone, the GÉANT network and SurfNET, the Dutch National Research and Education Network. They are being used to carry digitised signals from radio telescopes in the UK to a data processing centre in the Netherlands, where they are combined with similar signals from other telescopes around Europe.

This technique of real-time signal correlation enables the detection of very weak signals from astronomical sources. Linking the individual telescopes in this way produces the capability of a much larger telescope, allowing research projects to be undertaken which would not otherwise be possible.

#### **High End Computing:**

A 10Gbit/s lightpath is in place between the Daresbury Laboratory in north-west

England and a research laboratory in Frankfurt, Germany. This lightpath traverses the Network North West regional network, the JANET backbone, the GÉANT network and X-WiN, the backbone of the German National Research & Education Network.

The lightpath links the HPCx computing facility at Daresbury with similar facilities in several other European countries. Each one of these facilities contributes a proportion of its computing resources to a common pool. Researchers can then bid for resources to undertake particularly computationally-intensive projects. These projects can involve a wide range of disciplines such as estimating the accuracy of weather forecasts, drug design and exploring the interactions of sub-nuclear particles.

#### **The future**

While JANET Lightpath is an advanced state-of-the-art service, it is only the first generation of its kind. In the future it is anticipated that lightpath provisioning will be on a dynamic basis, where a user

(or even an application), given suitable authorisation, can request a lightpath to be established on demand and then released once the application has finished with it.

To this end, JANET is planning a JANET Optical Development Programme. This aims to capitalise on the potential of the JANET infrastructure by investigating mechanisms to improve the management and delivery of network capacity wherever it is needed. It will also examine developments in optical networking technologies and network architectures to inform the approach to future JANET network services.

The programme will establish a broad range of projects extending from transmission and switching technologies to usability issues, with a linking theme of control and management. Further details can be found at:

<http://www.ja.net/development/optical/>

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## **JISCmail Joins the UK Federation**

JISCmail has joined the UK Access Management Federation as a Service Provider. This means that JISCmail users can now use the Shibboleth single sign-on infrastructure, which allows individuals to have a single set of credentials at their home organisation, authenticating them to the mailing list service and other services available within the UK federation. This will ease the burden of having to remember countless username and password variations across multiple service providers.

See the JISCmail help pages at:

<https://www.jiscmail.ac.uk/help/policy/shibmode.htm>

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## **Global Internet Transit Service Contracts Signed**

JANET recently completed a procurement for very high bandwidth global internet transit services, and has signed contracts with TeliaSonera International Carrier UK and VSNL Telecommunications (UK). Both suppliers were chosen on their technical and economic merits, and will provide JANET with sufficient capacity and resilience for accessing the global Internet over the next two to three years.

The new contracts will run from 31 August 2007 for two years, with a price review each year and with the possibility of an extension of an additional year after the initial contract term.

Currently, JANET's global transit service is provided by two suppliers. Each supplier provides JANET with a

10Gbit/s connection to one of two JANET external gateway locations. Under the new contracts, each supplier will provide 10Gbit/s connections to both of the JANET external gateways by 31 August 2007 and will double the capacity of the provision by the end of December 2007.

The new global transit service will provide increased capacity and resilience in terms of supplier and location of connection points to JANET. In the event that a supplier and/or a location fails, the other supplier will be able to carry the total traffic from the other location.

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## A European First – JANET Trials 40Gbit/s Network Technology

A pre-production trial of 40Gbit/s technology is now underway on the JANET network, making JANET the first European National Research and Education Network to install 40Gbit/s channel technology.

One of the characteristics of the JANET backbone is its ability to scale according to traffic growth demand. A key strategic requirement of the SuperJANET5 project was the ability to use 40Gbit/s building blocks when traffic on individual links surpassed 10Gbit/s. The alternative would be to add additional parallel 10Gbit/s links, but this is not cost-effective and is complex in terms of network engineering.

With a backbone that is easily scalable to 40Gbit/s per channel, JANET is able to increase bandwidth cost-effectively, providing more capacity while managing fewer wavelengths and therefore keeping complexity to a minimum.

JANET is working with Verizon Business and Ciena® at the transmission level, and with Alcatel-Lucent and Juniper® at the IP level. The trial is taking place on one of the busiest parts of the network, between Telehouse® in London Docklands and the JANET London backbone node.

Verizon Business, our partner for the supply and operation of the JANET backbone optical transmission network, first confirmed that the fibre path between the two locations was suitable for 40Gbit/s operation. Verizon Business

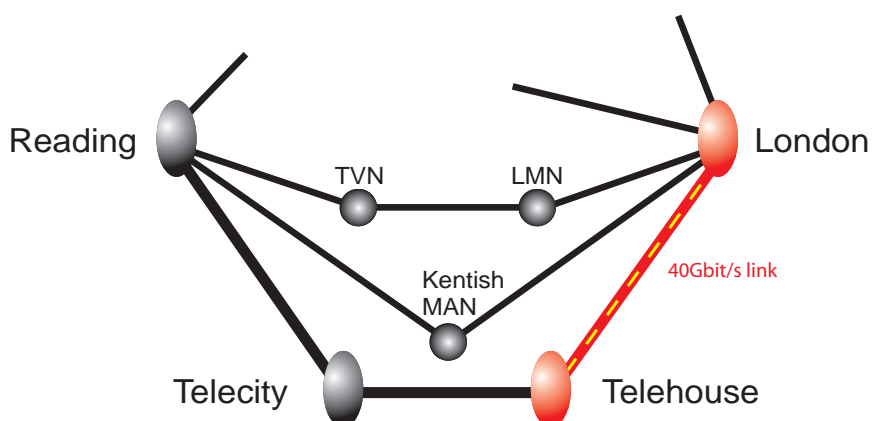
then worked with its equipment vendor, Ciena®, to obtain and install the necessary equipment for the optical network. At this stage they decided to use a dedicated run of optical fibre, so that the initial part of the trial could take place in isolation from the fibre carrying live JANET production traffic.

In the meantime, work was already underway to install Juniper® T640 routers at both of JANET's London Docklands nodes, to bring them into line with the six JANET core nodes. JANET worked with its supplier Alcatel-Lucent to obtain and install 40Gbit/s packet over SDH (PoS) interfaces for the two T640 routers involved in the trial.

Once JANET was satisfied with the stability of the 40Gbit/s infrastructure, the optical transmission 40Gbit/s circuit was cut-over from the dedicated fibre path and integrated into the JANET production backbone optical transmission infrastructure. JANET IP production traffic flowing over the 10Gbit/s link between Telehouse® and the JANET London backbone node was then switched to flow over the 40Gbit/s link.

Based on traffic growth predictions, wider deployment of 40Gbit/s channels across the JANET backbone is expected to take place during 2008.

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## Wanted: Video Services?

The growth in social networking has brought about a revolution in the use of web-based multimedia material. Users have also seen a growth in bandwidth capacity, portable video capture devices and easy to use network-based sharing facilities. This in turn has led to an increased expectation by users to consume more and more media on-line.

To understand how this change has affected the needs of JANET users, JANET undertook a requirements study. Conducted by Alex Roberts of Swansea University, the study comprised face-to-face meetings and an online questionnaire. Over 100 responses were received and initial feedback showed clear requirements for a number of services.

Most JANET development activities and applied services take place at the network level so are not visible to end users. In the case of audio and video services, however, successful development depends on a project's ability to satisfy the end user directly. The requirements study therefore focused on specific user scenarios including IPTV (Internet television) and student television. Early findings indicate that there is a strong need to provide services to support both of these key areas and JANET is currently drafting a video development strategy.

A full report outlining the findings of the requirements study will be available from: <http://www.ja.net/development/iptv/>

## Open Student Television Network

OSTN is the leading global provider of educational, foreign language, news, and entertainment IPTV content and

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# Network Access: Extending the Edge and Cutting the Wires

One of the key areas of the JANET Development Programme is network access, focusing on allowing all network-related aspects of the research, teaching and learning process to be pursued outside the traditional campus environment. To achieve this we must minimise the temporal and spatial limitations on access to JANET-delivered content and resources. In other words, we need to promote and develop technologies that facilitate access to data and services wherever and whenever our users want them.

Three current network access projects illustrate the breadth of this remit.

## Local Loop Unbundling

LLU (Local Loop Unbundling) allows access to the 'last mile' cables in the ground operated by incumbent telephony providers, in order to provide data connectivity via DSL technologies. Where a number of target sites cluster around a single exchange that may be unbundled, LLU offers the potential of large savings over more traditional approaches to primary connectivity, and a new option for the provision of diverse resilient links. This area will be investigated further by JANET.

## Mobile IP

Mobile IP describes the infrastructure and protocols which combine to decouple network address from geographical location. A roaming node retains a single address as it moves between networks and even transmission media. This functionality

has the potential to extend the capabilities and improve the user experience of nomadic networking.

JANET is running a programme of trials designed to explore all aspects of mobile IP in the context of education networks.

### Mobile IP Call for Proposals

To find out more and take part in this funded project please go to:

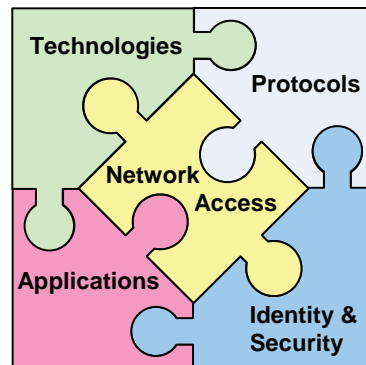
<http://www.ja.net/development/network-access/mobile-ip/>

The deadline for responses is 15 September. Any queries should be addressed to [mark.o'leary@ja.net](mailto:mark.o'leary@ja.net).

## Location Awareness

Wireless networks carry embedded cues to the location of any client device using them. With appropriate hardware and/or software, this location data can be made available to applications, opening up opportunities for enriching the user experience and offering new classes of service.

Making the network location-aware could allow user location to contribute to authentication decisions (no access from off-campus, or from an examination room, for example), enable resource tracking, or permit the development of context-relevant information services and campus guides. A programme of trials in this area is being planned.



*The network access approach links edge technologies*

As illustrated above, the network access activity of the JANET Development Programme takes in novel networking technologies (wired and wireless), networking protocols adaptive to nomadic modes of use, and classes of application that increase the versatility (and decrease the complexity) of off-campus network use. The edge of the network is what users 'see' of its underlying quality, and their experience of network access shapes the way in which they will use and evaluate the services provided.

The network access development area will present a number of opportunities over the coming year to engage with these technologies and shape the direction for their development in the JANET community. JANET will continue to promote innovation and best practice in this area, with your help.

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### *Wanted: Video Services?*

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services, and features the only 24/7 worldwide channel exclusively devoted to student-produced programming.

JANET and OSTN have signed a memorandum of understanding to enable the provision of OSTN to the JANET community on a trial basis. JANET users will have full access to OSTN's current

package of IPTV channels. If successful, this early work may pave the way for a future OSTN UK service, providing UK student-produced content for the JANET community.

JANET is holding an IPTV briefing event at University College, London on 4 October. For full details please refer to the events section on page 15.

Further information on these

development activities are available from:

<http://www.ja.net/development/content>

Information on OSTN is available at:

<http://www.ostn.tv>

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## Using JANET to Connect to Student Accommodation



JANET has recently been approached by a number of companies which supply internet services such as IPTV, VoIP and internet access to student accommodation. These companies have requested a JANET connection in order to reduce backhaul costs for their services into student accommodation, with the end objective of passing on reduced costs to the student.

In response, JANET via UCISA (University Colleges and Information Systems Association) polled the community about the provision of internet services to halls of residence. Two usage models were identified:

- Model 1: the student accommodation is connected to the university network and access is managed by university staff
- Model 2: the student accommodation is connected to

the university network, but only to allow students to access internal university services. Other internet (and JANET) services are provided through a third-party ISP.

A survey was then sent out to IT directors at UK universities, with questions including:

- which model the university followed
- whether they thought a third-party licensing scheme would be useful (if it could bring cost/service benefits).

More than 40 universities responded to the survey, with the vast majority saying they would be happy with a third-party licence scheme if it meant the students got their internet services for reduced costs.

JANET took this proposal to the JCN (JISC Committee for Networking) on 24 May, and it was accepted in principle. We are now putting together a third-party licence agreement, with a view to making it available for interested suppliers later this year.

**Hilary Baxter**  
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## JANET txt

Following the launch of JANET txt on 9 May, the JANET community responded with a surge of interest. To date, more than 350 JANET-connected organisations have made contact with the supplier, PageOne.

Many have already signed up to receive the service, while others are in negotiations about how best to implement the service across their organisations. Those already using JANET txt include HE institutions, FE colleges, PCDL providers and community-based projects, highlighting the broad appeal of the service.

JANET txt itself is continuing to develop, with integration into other organisational systems being a key requirement. A number of sites are using the PageOne SOAP gateway to develop bespoke solutions, and PageOne is continuing to work with MIS, Library and VLE providers, with announcements on progress in these areas to be made in due course.

JANET is also working closely with Becta to ensure that JANET txt leads the way in terms of integration and interoperability standards within the schools sector.

For more information regarding JANET txt please contact PageOne via <http://www.pageone.co.uk/janettxt>

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## Business Continuity and Communications

On 23 May, JANET hosted a Business Continuity and Communications event in London. The event was attended by around 40 people, mostly network managers from the post-16 sector.

The theme of the morning was business continuity. The opening speech was given by Andy Black of Becta, who spoke about the bigger picture in terms of e-learning strategy. Presentations followed from JANET about resilience and how JANET services can help; and from InTechnology who presented their VBAK offsite backup service. There was a great deal of interest

in the JANET co-location and backup services.

The afternoon session focused on electronic communications. Satwant Deol, Director of Academic Planning at West London College, gave an inspiring presentation about innovations the college has made. These include implementation of a virtual learning environment throughout the college, with online registration at every lecture, widespread use of their management information system and a facility for online payments.

The remainder of the afternoon looked

at new and potential JANET services which are being developed to help the post-16 sector with their electronic communications. PageOne presented the new JANET txt service while JANET staff introduced the JANET Collaborate pilot.

Feedback was very positive and the group work sessions identified key issues and technologies for the future.

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# JANET and DANTE Online Poll Aims to Highlight Science Issues



Almost 300 people have voted so far in an online poll designed to gauge public opinion on the issues that science and academic research should be addressing.

The poll gives the UK public the opportunity to express their key concerns on current issues threatening our planet and well-being today. It is also intended to act as a catalyst to drive awareness of the advantages that a 'global scientific workforce' can have in achieving faster and more effective results on issues such as global warming and medical research.

The new JANET network resulting from the SuperJANET5 project, together with GÉANT2's international connectivity, provide powerful network resources that enable UK scientists and researchers to participate in global research.

Dai Davies, General Manager, DANTE (operators of GÉANT2 on behalf of Europe's NREN community), says: "Global challenges require global collaboration, both at a political and scientific level. Tackling issues such as climate change requires scientific solutions, not just behavioural change. High speed research networks encourage cross-border collaboration, creating a global scientific community that pools resources for more efficient and effective research."

Jeremy Sharp, Head of Strategic Technologies at JANET agrees: "We must continue to ensure that the underlying infrastructure meets the increasing demands of the research community. With the implementation of SuperJANET5 we

are able to provide scientists in the UK with high bandwidth, highly resilient connectivity that enables the sharing of huge amounts of data with their international counterparts. This not only enables the process of scientific research to be speeded up substantially but opens up new means of conducting that research."

The results of the poll will be published to coincide with September's Festival of Science.

**Simon Watts**  
Public Relations Officer, DANTE

## Scottish HEI Visits



During the period from April to June 2007, the JANET Scottish Account Manager visited 14 of the 18 Scottish Higher Education Institutions. The purpose of these visits was to promote customer relations, raise awareness of new and existing JANET services and to receive feedback concerning JANET services from the institutions.

The HEIs visited were generally

supportive of JANET and JANET services, with one institution commenting that JANET is "a high-quality product" and that it was "well-regarded" by the sector.

Use of JANET services varied according to the needs of the institution. Most HEIs have adopted or are intending to adopt some form of Voice over IP and wireless networking technology. New JANET services such as JANET txt and the JANET Collaborate pilot were welcomed in principle by the majority of HEIs.

JANET Roaming and the UK Access Management Federation remain of interest to the Scottish HEIs, with the majority of them hoping to implement Shibboleth within the next 12 months.

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## Customer Satisfaction Survey

During June, JANET undertook a customer satisfaction survey of all of its independent (self-funded) customers. An e-mail survey questionnaire was used, and questions focused on the processes of connection and installation, use of the JANET connection, help and support, JANET services and overall satisfaction.

There was a good response rate from customers. In general, comments were very positive. 100% of respondents were pleased with the service they receive from JANET and would recommend a JANET connection to others.

There was some lack of knowledge about services and training, and these have since been addressed by follow-up visits or by sending out information.

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# Router Support Arrangements for LSC-Funded Sites

From 1 August 2007 support for routers supplied by JANET to LSC-funded sites becomes the responsibility of JANET. Previously this support has been provided by the JISC Regional Support Centres.

The service is intended to provide technical support for the routers which connect the organisation to the JANET network, and covers the following areas:

- diagnosis and resolution of hardware faults, including replacing faulty equipment
- diagnosis and resolution of software and configuration problems, including maintaining security patches and bug-fixes

- support for the configuration of the router and occasional changes to that configuration.

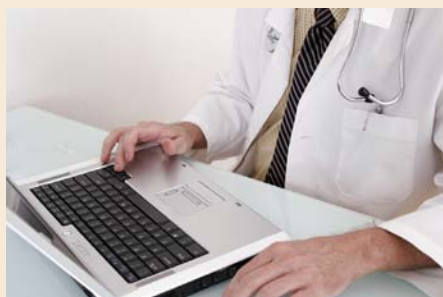
For sites connected to the regional networks CANLMAN (Cumbria and North Lancashire MAN), EMMAN (East Midlands MAN), Net North West and YHMAN (Yorkshire and Humberside MAN), this support will be delivered through the regional network operator. In other regions the support will be provided by the JANET Network Operations Centre.

All sites affected by this change have been sent notification of the revised arrangements, including details on how to contact their new support organisation.

Sites may opt out of the new arrangements should they wish to manage their own router, in which case the JANET Service Desk ([service@ja.net](mailto:service@ja.net)) should be informed. JANET will continue to provide hardware maintenance for routers in these circumstances.

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## NHS-HE Forum News



### NHS JANET Gateway

The N3 JANET Gateway infrastructure is now planned to be in place at the end of August. In the meantime, JANET and the early adopters are working through NHS Connecting for Health's Statement of Compliance requirements.

For more information see <http://www.nhs-he.org.uk/n3-janet-gateway.html>.

### NHS-HE Forum meetings

There was an NHS-HE Forum meeting on 10 May 2007 in London. The meeting included presentations on the following subjects:

- London Connects project linking London Boroughs with the NHS network N3
- NHS England plans for e-learning
- Pilot use of NHS patient data for research
- Ongoing development of systems by the National Institute for Health Research.

Further details are at: <http://www.nhs-he.org.uk/10-may-2007.html>

There was a Scotland NHS-HE Forum meeting in Edinburgh on 7 June 2007, which included presentations on the following:

- SINAPSE (Scottish Imaging Network: A Platform for Scientific Excellence)
- Plans of NHS Education Scotland in Knowledge Management and Library Services
- Matthew Hay Project at Aberdeen University in conjunction with NHS Grampian.

Further details are at: <http://www.nhs-he.org.uk/scotland-forum070607.html>

The next NHS-HE Forum meetings are scheduled for November (exact dates to be confirmed).

### The NHS and the UK Access Management Federation

A number of discussions have taken place with the Knowledge Management and Library Service leads at the NHS in England and Scotland to see where the use of Shibboleth and the UK Access Management Federation might fit in with their plans.

JISC-funded studies such as the Identity Management project with the University of Cardiff and LSE and the survey undertaken by the University of Newcastle will help to pinpoint the issues and opportunities. A full report will be made when the discussions reach a conclusion.

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## DANTE – Working with Europe’s NRENs to Create the Global Research Community



### Global facilities for global challenges

DANTE and the European NRENs together build the networks that are helping to create a truly global research community, where advanced resources and new learning can be shared to the benefit of every partner. Networking projects led by DANTE now span the globe, extending connectivity far beyond the GÉANT2 network in Europe to deliver trans-national connections in other world regions. This brings added value both to European research and to the countries within those regions.

DANTE is actively involved with partners in every world region, with networking projects in Latin America (ALICE), South East Asia (TEIN2), and the Mediterranean (EUMEDCONNECT), as well as direct connectivity to North America, South Africa, China and India. JANET is an active project partner in both TEIN2 and ORIENT, helping to foster closer working relationships between the UK and China.

With the increasing emergence of China and India in industry, science and technology, Europe’s researchers are well placed to benefit from the new opportunities created by the direct connections to GÉANT2.

### Where Europe leads...

GÉANT2’s leading position and role among European infrastructures is widely acknowledged. In the FP7 (7th Framework Programme for research and technological development) for 2007, the EU recognises that GÉANT2 is “[...]the fundamental underlying enabler for the realisation of e-Science and the European Research Area.

“The advanced communication capabilities of GÉANT and the associated NRENs will foster new paradigms of collaborative research across Europe and

globally. [...]GÉANT should represent an instantiation of the ‘Internet of the future’ by making timely use of state-of-the-art communication technologies...”

GÉANT2’s ability to create dedicated OPNs for demanding users is a networking innovation that opens up new service possibilities. Use of P2P links is on the rise, and DANTE is working closely with organisations such as CERN (the European Organisation for Nuclear Research), which is currently building the largest scientific experiment ever undertaken — the LHC (Large Hadron Collider).

Scheduled to go live in early 2008, LHC experiments will create conditions similar to those in the immediate aftermath of the Big Bang and are expected to generate some 15 million gigabytes of data each year. This amount of data is too much for one centre to handle, so it must be distributed immediately and safely to processing centres around the globe for analysis. GÉANT2 and the NRENs have been tasked with meeting this challenge, which in the UK means working with JANET to connect national researchers to their global partners.

Other projects such as DEISA (Supercomputing) and EXPReS (Radio Astronomy) are also working with DANTE to deploy their own OPNs, upgrading their networking facilities to further their research. The recent implementation of trans-Atlantic P2P connectivity between Europe and the US demonstrates that OPNs are possible on an inter-continental scale.

Like JANET, DANTE appreciates that simply providing connectivity is no longer enough. UK and European networkers require service provision that goes beyond what is available commercially, both in terms of technology and affordability. Through the GÉANT2 project, DANTE participates in research aimed at developing tomorrow’s advanced networking services. This research in a number of key areas is now yielding exciting results that are

Science research has traditionally been undertaken by small groups working on their own and sharing their methods and findings at the end of the task. Communications technology has revolutionised the process by allowing researchers geographically remote from each other to collaborate fully at every level and in real time — as though they were sharing a laboratory.

Research networking helps to bring together colleagues working across both the European and worldwide research landscapes. It actively contributes to their research, supporting new scientific and academic discoveries.

DANTE has been building and operating advanced communication networks for almost 15 years. Formed by Europe’s National Research and Education Networks to implement a co-ordinated approach to pan-European connectivity, DANTE has deployed seven generations of advanced networks. The latest, GÉANT2, is the first international hybrid network, connecting 34 countries, and extending 50,000km.

The network’s hybrid nature allows it to switch data packets and data streams, facilitating the creation of dedicated P2P (Point-to-Point) connections for users. This essentially creates OPNs (Optical Private Networks) away from general research traffic, allowing huge amounts of data to be transferred directly between collaborating research groups.

being translated into new services for the European academic community.

## Not just 'plug and play' networking

Analysing performance in global research networks is complex. Any single path between two endpoints might run through a variety of domains – university networks, backbone and national networks as well as GÉANT2. It might be subject to an even wider range of policies, monitoring tools and network information collection methods, creating confusion rather than clarity when investigating faults and other network performance issues.

The result of research into network measurement and monitoring is the perfSONAR (PERformance Service-Oriented Network monitoring ARchitecture) suite of software and tools. DANTE and GÉANT2 engineers have been founding partners in this worldwide collaboration, building and deploying an inter-domain infrastructure to make network monitoring more transparent and more user friendly.

Individual networks use their own

tools for routine performance monitoring and perfSONAR acts as an intermediate software layer between these tools and the diagnostic applications using the data collected. perfSONAR is deployed worldwide, with implementations in Europe, Latin America and the US, and regular workshops and development courses bring together engineers from across the NRENs.

The collaboration is now creating training and deployment programmes to give guidance and advice to those NRENs wishing to install perfSONAR within their own domain.

## Roam where you want to

To achieve the vision of a truly open European Research Area, individual researchers need to be able to log on to the network wherever they are working and access their resources wherever on the network these are located. JANET organisations will already be familiar with eduroam® (known as JANET Roaming in the UK), the federated service that makes it possible to move freely across

network borders. The key to achieving this is to build interoperable systems that allow 'roaming access' by verifying users' identities and rights (authentication) and granting access to resources as appropriate (authorisation).

Powering the eduroam service is EduGAIN, the enabling technology that acts as a bridge between the federations. EduGAIN offers three important elements to users: the trust fabric so that a user can be sure of safe access; the technology to make roaming authentication possible; and the service which authorises a user's rights to access their home environment.

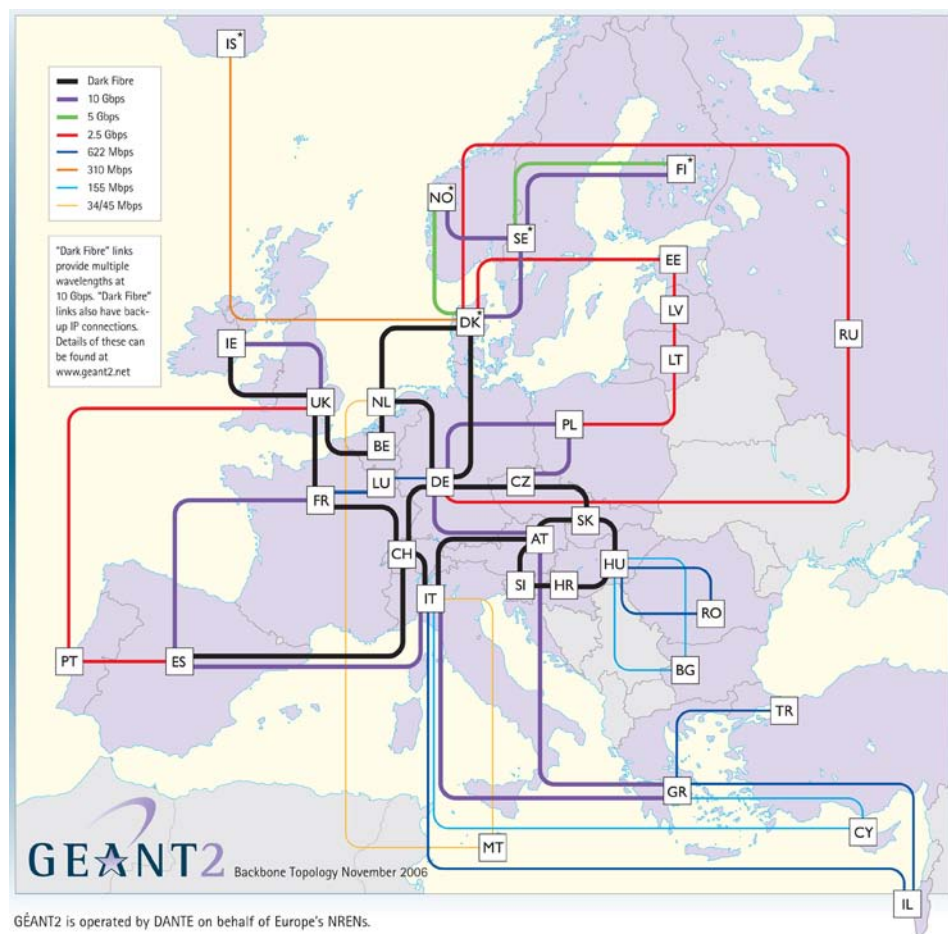
## The future

GÉANT2 represented a step-change in technology over the first GÉANT network. The project's decision to acquire and manage its own dark fibre was a long-term investment that will continue to pay dividends. Preparation for GÉANT2's successor is already underway, and while we can expect some upgrades to certain links, GÉANT3 is likely to be based on existing technology.

The key for GÉANT3 will be to successfully deploy the services that have been developed within the current project's research programme. Deploying multiple OPNs for different user communities creates its own problems. With each user feeling far greater ownership of 'their' network, there will be an increase in service expectation.

Meeting the expectations that come with this expansion will be the real challenge for DANTE and its partner NRENs, but it is one that the community is more than ready to deal with.

**Simon Watts**  
Public Relations Officer, DANTE



### Weblinks

<http://global.dante.net/>

<http://www.geant2.net>

<http://www.perfsonar.net>

## JVCS to the Rescue!



The JVCS (JANET Videoconferencing Service) came to the rescue of the TF-CSIRT group in June, when they were suddenly left unable to involve international sites by videoconference for their latest workshop.

TF-CSIRT, a TERENA task force which promotes collaboration between CSIRTs at a European level, had planned a RTIR (Request Tracker Incident Response) workshop for 4-5 June. The workshop was to be hosted in Amsterdam, but involved several sites around the world including

Portugal, Lithuania and the USA. Two days before the workshop, it became apparent that the European system expected to be used to facilitate this would not be available.

The JANET video services team offered their assistance and the use of the backup system (so as to avoid any possible impact on scheduled service). With the help of the JVCS in Edinburgh, they took over management of the videoconferencing aspects of the meeting.

After some brief testing with the sites involved, the workshop proceeded without any major technical hitch — despite one attendee being located in a hotel room in the USA. The workshop participants were very impressed at how smoothly everything ran.

**Paul Bonnett**  
**Video Services Manager**  
[paul.bonnett@ja.net](mailto:paul.bonnett@ja.net)

## JANET-CERT Has a New Name

Following recent rebranding and some service name changes, JANET-CERT will now be known as JANET CSIRT (Computer Security and Incident Response Team). The new name emphasises our proactive protection of the JANET network and our promotion of computer security within the JANET community, as well as our traditional role of responding to computer security incidents.

From 1 August 2007 our e-mail address will change to [irt@csirt.ja.net](mailto:irt@csirt.ja.net). All messages to this address will enter our incident response system, but the existing e-mail address will also continue to be available for some months. Outgoing messages will use the new originator address.

Our web pages will now be based at <http://www.ja.net/csirt/> but the current URLs will also be maintained for some months.

The postal address of JANET CSIRT is:

JANET CSIRT  
 JANET(UK)  
 Lumen House  
 Library Avenue  
 Harwell Science and Innovation  
 Campus  
 Didcot, Oxon  
 OX11 0SG

Telephone and fax numbers remain unchanged.

**Wally Jackson**  
**Head of JANET CSIRT**  
[wally.jackson@ja.net](mailto:wally.jackson@ja.net)



## VTAS Call for Authors / Reviewers

The JANET Video Technology Advisory Service is looking for enthusiastic technical authors for its ongoing schedule of documentation reviews and new publications. As always, we are also open to suggestions for new documentation which may be of interest to users and technical support staff in the field of videoconferencing or video technology.

For further information, please contact VTAS at [vtasdocs@ja.net](mailto:vtasdocs@ja.net)

## VTAS Call for Case Studies

Are you involved in video technology? Would you like to share your experiences? Do you have an interesting case study to present? We would like to hear about your experiences in deploying, running, or participating in videoconferencing projects.

Whether you are a new user, an enthusiastic advocate of video technology, or a member of staff charged with providing technical support, we would like to hear from you. If you feel you have an interesting story to tell, and you would like to share your experiences for the benefit of other users, please contact VTAS at [vtasdocs@ja.net](mailto:vtasdocs@ja.net) for further information.

## TERENA Networking Conference



This year's TERENA networking conference took place from 21-24 May in Lyngby, Denmark (near Copenhagen). The event was held at the Danish Technical University, which is well known for international research programmes. The conference programme each day consisted of plenary sessions in the Oticon Theatre, followed by four parallel tracks of sessions hosted by speakers from across Europe's education and research networks.

The title for this year's conference was 'Visible Services — Transparent Networks'. This was reflected in the speaker sessions, in particular by a theme of federated access management to enable users to access online protected services. Mark Tysom from JANET gave an interesting talk about future developments in the UK

Access Management Federation, and the challenges that lie ahead due to the sheer size and scope of the service. In the same parallel session, Ingrid Melve from the Norwegian network UNINETT focused on the challenges that lie ahead in confederating, the interaction between different federations.

Steve Williams from JANET gave an account of his experiences in developing a monitoring architecture at layers 1/2 for the purpose of data research across the JANET network. Josh Howlett, also of JANET, provoked interest with his presentation entitled 'Why eduRoam Sucks, and How to Fix It', which praised the success of the system but also discussed how it could be used to its full potential.

The opening plenary was given by Katherine Richardson, a biological oceanographer from the University of Copenhagen, who gave a thought-provoking account of her Galathea 3 expedition. The aim of Galathea 3 was to circumnavigate the globe to research the biology and geology of the world's oceans and the effects of man-made gasses on marine life. The expedition was aided by modern networking technologies which allowed large amounts of data to be transmitted

from the ship, while a videoconference facility also enabled Danish schoolchildren to interact directly with the researchers.

For the final plenary session, delegates were treated to a fascinating talk from Max Ibel from Google on the Google File System, a petabyte-scale distributed file system designed for large data-intensive applications.

Outside the conference hours, delegates attended an opening reception in the impressive Copenhagen town hall (see picture). The Wednesday evening gala event also took place in Copenhagen, within view of the statue of the Little Mermaid.

Delegates were given vouchers for public transport to and from the conference venue and around the city, and any initial reservations were quickly removed by the efficiency and ease of using the service. Congratulations on a full and interesting programme and a well-hosted event must go to TERENA, UNI•C (the Danish IT Centre for Education and Research) and the Danish Technical University.

Presentations are available from:  
<http://tnc2007.terena.org/programme/>

**Simon Cooper**  
UK Federation Service Manager  
simon.cooper@ja.net

## JANET Strategic Briefing

A highly successful JANET Strategic Briefing event was held at the Royal College of Obstetricians and Gynaecologists in London on 19 June 2007. The day was organised to allow a wide variety of talks by JANET staff, while also giving plenty of time for discussion.

Jeremy Sharp, Head of Strategic Technologies, began the day with a talk about the advantages that the new JANET backbone will give the JANET community, especially those in the research community who need increased bandwidth to support projects such as the Large Hadron Collider at CERN. This was followed by an informative presentation from David Salmon, Research Support Unit Manager, on research use of the network from the science community to the music community.

The morning session was brought to a close with a talk by Steve Williams (Senior Technical Specialist, Strategic Technologies) about network monitoring and measurement.

The afternoon began with a presentation by Tim Kidd, Head of Operations, on Third-Party Services over JANET. This led to a lively discussion about the potential of the services. The following talk on Business and Community Engagement was given by Bob Day, Chief Technology Officer. This looked at the potential for widening the JANET network and at the regulatory implications if JANET is to move further in this direction.

Mark O'Leary (Technical Specialist: Network Access) gave a thought-provoking talk about network access beyond the

organisation, and the implications for the network and the organisations connected to JANET. The day was brought to a close by Tim Marshall, CEO of JANET(UK), who spoke about shared services and the advantages that these could bring to the community.

Feedback from the event showed that the audience found it a very useful day and appreciated the opportunity to engage with the speakers throughout the event. A number of topics were suggested for future events.

**Shirley Wood**  
Head of Communications and Support  
shirley.wood@ja.net

# Training Update

<http://www.ja.net/training>



## Upcoming Courses

### Introductions and Theory

- Introduction to DNS:** 25 October, Cambridge
- Introduction to JANET:** 12 December, Manchester

### Technical

- Basic Networking:** 9 October, Manchester
- Basic Router Configuration:** 24 October, Cambridge

### Wireless

- Wireless LAN Fundamentals:** 24 October, Manchester

### Security

- Using Logfiles for Security:** 3 October, Birmingham
- Information Security Policies:** 25 October, Cambridge
- Firewalls: Planning and Implementation:** 7 November, London
- Managing IT Security:** 4 December, Glasgow
- Firewalls: Planning and Implementation:** 4 December, Glasgow

### Videoconferencing

- Introduction to Videoconferencing:** 31 October, Edinburgh
- Technical support of Videoconferencing:** 1 November, Edinburgh

Dates and online booking for all courses are available on our website.

A mailing list is available for the distribution of information regarding JANET training courses. Discussion of training requirements relating to the JANET network, suggestions for new courses, locations or course frequencies are also welcomed. To join this list, access the JISCmail site at: <http://www.jiscmail.ac.uk/lists/janet-training.html>



# Forthcoming Events

## Business Continuity and Communications via JANET

**14 September 2007**

JANET are running a one-day event aimed at the post-16 sector at the Glasgow Menzies Hotel on 14 September. The event will cover business continuity and JANET services which can help to achieve this, and also three new or potential JANET services: JANET txt, JANET Talk and the JANET Collaborate pilot. The keynote speech will be given by Bill Harvey, Deputy Director of the Scottish Funding Council.

For further details and booking, visit:

<http://www.ja.net/services/events/calendar/2007/>

### Events Calendar

<http://www.ja.net/services/events/calendar/2007/>

## UK Access Management Federation Workshop

**17 September 2007**

JANET will be running a one-day access management workshop on 17 September 2007 at Woburn House, London.

This event is aimed at anyone interested in finding out more about the UK Access Management Federation. For further details and to book a place, please go to:

<http://www.ja.net/services/events/calendar/2007/ukfederationbriefing/>

For further information about the UK federation, please see: <http://www.ukfederation.org.uk/>

## IPTV Briefing Event

**4 October 2007**

JANET are running an IPTV briefing event on 4 October 2007 at UCL, London.

The event is aimed at network and technical managers responsible for investigating or implementing IPTV technology. Further details and booking information will be available soon at:

<http://www.ja.net/services/events/calendar/2007/>

## Wireless Technical Briefing Event

**25 October 2007**

A wireless technical briefing event will be held on 25 October at the Manchester Conference Centre. It is aimed at network and technical managers who are investigating the implementation of wireless technology at their organisation.

Further details of the event will be available soon at:

<http://www.ja.net/services/events/calendar/2007/>

## Networking Strategy Workshop

**26 - 27 November 2007**

The Networking Strategy Workshop will take place on 26-27 November at Burleigh Court, Loughborough University. The event will start with dinner on the evening of the 26th, followed by a full day's workshop on the 27th. We plan to follow the successful format from the last two years of splitting delegates into groups to discuss challenges raised by the speakers throughout the day.

Details of the event will be available in September from:

<http://www.ja.net/services/events/calendar/2007/>

## JANET Optical Event

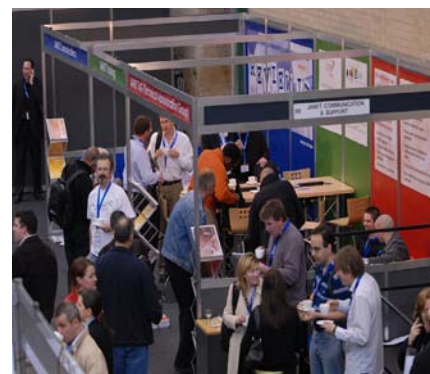
**5 December 2007**

JANET is organising a JANET Optical Event on 5 December 2007 at the Lakeside Centre, Aston University in Birmingham.

The aim is to explore the topics covered by the JANET Optical Development Programme (see *From UKLight to JANET Lightpath*, page 3) and to provide a glimpse into the future of optical networking technologies.

The event is aimed at network or technical managers responsible for the provision of network services at JANET-connected organisations, who are interested in understanding more about the future possibilities of JANET. For further information and to book your place please see:

<http://www.ja.net/services/events/calendar/2007/>



## Networkshop 36

**8 - 10 April 2008**

Networkshop 36 will take place at The University of Strathclyde from 8-10 April 2008. Further details are available from

<http://www.ja.net/networkshop/>

# Recent Publications

Requests for publications should be sent to: [service@ja.net](mailto:service@ja.net)

## Reports

Quarterly Report to the Community  
February - April 2007

<http://www.ja.net/services/publications/reports/quarterly/spring-07/>

## Newsletters

UKERNA News 39

<http://www.ja.net/services/publications/ukerna-news/2007/Summer/index-front.html>

## Service Documentation

JANET txt

<http://www.ja.net/services/janet-txt/janet-txt.pdf>

JANET Lightpath brochure

<http://www.ja.net/lightpath/lightpath-flyer-web.pdf>

JANET Lightpath service manual

<http://www.ja.net/lightpath/lightpath-manual-web.pdf>

## Factsheets

Guest and Public Network Access

PB/INFO/073 (05/07)

<http://www.ja.net/services/publications/factsheets/073-guest-and-public-network-access.pdf>

Wireless Rogue Suppression

PB/INFO/074 (05/07)

<http://www.ja.net/services/publications/factsheets/074-wireless-rogue-suppression.pdf>

## Case Studies

A Case Study of Changes Made to a Nokia/Check Point® Firewall-protected H.323Gatekeeper/Proxy Topology at WrexhamCounty Borough Council

<http://www.video.ja.net/cs/wrexham.pdf>

## Technical Guides

Firewall Implementation at JANET-connected Organisations  
GD/JANET/TECH/015 (06/07)

<http://www.ja.net/services/publications/technical-guides/firewallsTG-web.pdf>

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or use the JANET(UK) contact information above.

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