JANET
news

100Gbit/s on
core network

contents

Editorial - Realising Value

The announcements of the Comprehensive Spending Review and the Browne Report are behind us and now the real work of responding to the changes necessitated by the cuts is gathering momentum. Whether it is improving academic standards with less resources, attracting students in an increasingly competitive marketplace or developing alternative revenue streams through Business and Community Engagement, the academic landscape of the UK faces considerable upheaval.

When faced with such significant changes it is essential that the underlying systems and processes are flexible and scalable enough to assist rather than restrict adaptation to new operating environments. Too often IT is seen in terms of its cost to an organisation, and cost reduction measures are often easier to implement than increasing revenue. While IT should not be exempt from scrutiny it is vital to balance the cost perspective with that of value delivery. So, how do you ensure that your infrastructure and applications deliver real value?

Standards

By ensuring your infrastructure and applications follow the appropriate standards you will be building long-term flexibility into your systems. Proprietary systems may offer beguiling features in the short term but in fact will constrain rather than enable adaptation in situations such as the one facing us today. Standards enable interoperability which should be a key consideration in system and application design and selection.

Habitual change

Infrastructure and applications are tools; however the changes required within an organisation to ensure their effective use are often neglected at the planning stage. For example, consider the case for videoconferencing. It offers clear benefits of time, cost and environmental savings, so why is usage relatively modest compared to its potential? JANET's simplified booking and dedicated technical support make the use of Videoconferencing a straight process. The primary reason is habit; we are used to meeting face-to-face or picking up a telephone but there are still few whose first thought would be to fire up a videoconference. Whether it is for tutorials or administrative meetings, the benefits of videoconferencing should not be ignored.

Value

The first step in ensuring that you maximise your return on IT investment is to ensure that you don't pay too much in the first place. With volume inversely proportional to cost, JANET's model of aggregating demand and articulating it to the commercial sector has consistently proven to be a highly effective means of driving down initial costs across a diverse range of services, from connectivity, through server certificates to SMS services.

Scalability

At the core of JANET's service portfolio is connectivity. Not much now happens within an academic organisation that is not either directly or indirectly dependent on connectivity beyond the organisational boundary. JANET's approach to network provision will be to ensure that our customers are able to exploit the opportunities promised by cloud services and shared data centres without needing to worry about whether their connectivity will support these new approaches. The results of our recent requirements gathering process to plan capacity for the JANET network will ensure that JANET remains a cornerstone in realising value from your IT investment.

In short, Browne and the Comprehensive Spending Review do present some significant challenges to the public sector. How your organisations faces them is up to you; however, taking full advantage of your JANET connection can help you in the task and JANET(UK) is committed to doing just that.

Ben Jeapes
Editor
ben.jeapes@ja.net

100Gbit/s on core network

An upgrade to four central locations on the JANET network mean that from March 2011 the JANET core will run at 100Gbit/s: the first national research and education network in the world to do so.

Bandwidth demand doubles every 18 months, and the upgrade is the latest stage of the consistent evolution of the network

"

Bandwidth demand doubles every 18 months, and the upgrade is the latest stage of the consistent evolution of the network in line with a bandwidth growth plan drawn up in 2006

in line with a bandwidth growth plan drawn up in 2006. It is also the best strategic and economic response to ever-increasing user need, as more and more organisations move towards cloud services and outsourcing of suppliers and as research projects generate ever-larger amounts of data. As bandwidth demand continues to grow it would not be economic simply to keep adding extra 40Gbit/s technology. By moving to 100Gbit/s, JANET(UK) not only anticipates demand well in advance but becomes an early adopter of this next generation technology, as is appropriate for a world-class network. Meanwhile, existing investment in 40Gbit/s technology will be preserved as the 40Gbit/s components released by the upgrade are

moved out of the core and into the wider JANET network. The existing routers can accommodate 100Gbit/s interface cards, avoiding the need for an expensive router replacement.

The upgrade builds on the review of bandwidth capacity announced in our June 2010 issue and on our recent trial of 100Gbit/s technology. JANET(UK) is pleased to be continuing to work with its established industry partners: Verizon and Ciena on the transmission technology involved in the upgrade, and Juniper and Alcatel Lucent on the IP service that the network delivers. The four locations affected – Telehouse and Telecity in London Docklands, Reading, and London – are the four identified as most needing the increased capacity.
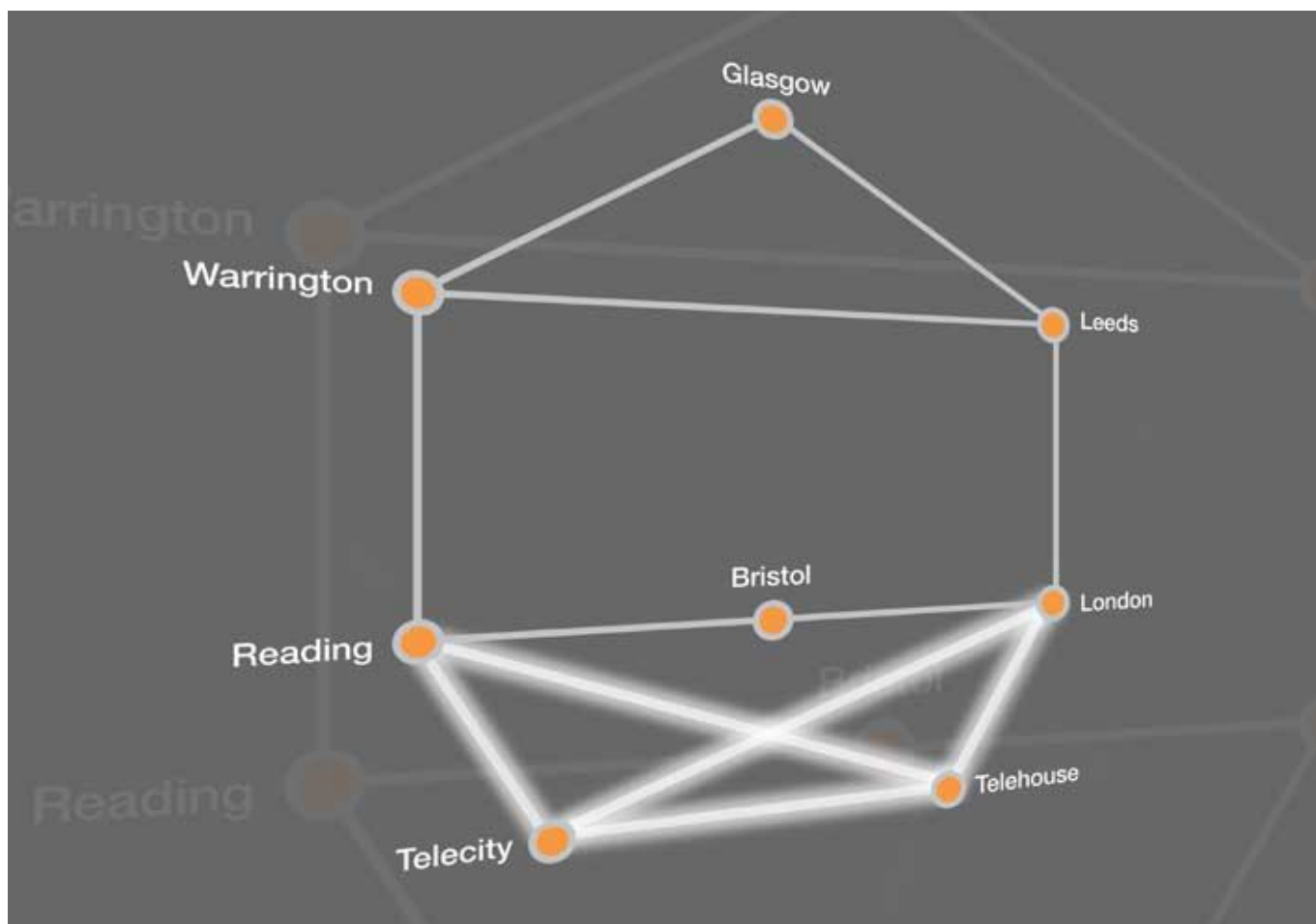
news

Telecommunications Framework nets savings of £50m for LGfL

The JANET Telecommunications Framework agreement, announced in the September 2010 issue of *JANET News*, has helped London Grid for Learning (LGfL) make substantial savings of both time and money in reprocuring its entire infrastructure.

LGfL is the consortium of 33 Local Authorities that provides regional infrastructure services for schools and children services directorates in London, acting as a communication portal between all 33 authorities for secure traffic. More recently the LGfL infrastructure has been overlaid with the London PSN network which has provided gateways to both N3 and GCSx, the Government extranet, as well as an interface for the London Libraries Consortium. The infrastructure serves several data centres and over 2,500 school and Council sites.

In autumn 2010 LGfL put a procurement process in hand with a view to refreshing the infrastructure aspects of its service portfolio. It was eligible as an educational organisation to use the JANET framework for its purchases, which it found gave "access to a wide range of suitable vendors and offering significant time and cost savings in comparison to a 'from scratch' process. Confirmation was secured that use of the Framework by LGfL and its member local authorities would be fully compliant within the EU procurement regulations."

> *The framework agreement is open to universities, colleges and other organisations connected to JANET, such as the Regional Broadband Consortia. It is also open to members of the Purchasing Consortia for education.*

LGfL opened a mini-competition among the suppliers to the framework to match its precise needs. All suppliers were invited to bid on 1 October and the preferred supplier was selected during November.

LGfL says that "The levels of savings which will be enjoyed by the schools and Councils over a five-year period are confidently estimated to be in excess of £50m and all sites will benefit from a complete network refresh with no requirement for forward capital expenditure by the client.

"The effort that JANET had made in creating the Framework and supporting documentation such as the Buyers Guide proved invaluable in assisting the LGfL to produce its compliant processes."

Brian Durrant, Chief Executive of LGfL, says that "The JANET transmissions framework provided the London Grid for Learning community with direct access to an array of suitable vendors and an ideal vehicle to undertake a very successful, fully compliant, competitive process within an exceptional timescale and with a significantly lower cost of process."

The framework agreement is open to universities, colleges and other organisations connected to JANET, such as the Regional Broadband Consortia. It is also open to members of the Purchasing Consortia for education.

www.ja.net/telecommunications-framework

JANET News Online

Last issue's announcement of an electronic JANET News (available at www.ja.net/janetnews-online/) drew a very encouraging response, with a large proportion of our readership opting to receive it as an HTML newsletter delivered direct to their inbox. We encourage the rest of the readership to follow suit!.

JANET News has always been available as a PDF on our website and the FSC tree logo at the back of each printed issue tells you it was produced to a very strict environmental standard. The HTML version goes one step further in both environmental responsibility and usability, combining the interactivity of a website with the same design style as the printed issue.

To sign up, please send an email to janet-news@ja.net or visit **https://www.jiscmail.ac.uk/JANETNEWS-ONLINE**. Please note that you will also need to sign up to a JISCmail account, if you do not already have one. JISCmail will send you a confirmation email to which you need to respond for your account to become active.

news

All Aboard!
LMN service transfers to JANET(UK)

From 1 November 2010, responsibility for the operation of JANET services in London has transferred from London Metropolitan Network Ltd to JANET(UK). The change is the latest in the series of projects that will implement a more directly managed regional delivery model for JANET services, reducing cost, better serving the present and future requirements of our customers and enabling a more cohesive use of technology.

Responsibility for fault management and circuit provisioning has also transferred to JANET(UK), and fault reporting letters have been sent to customers to advise of the new contact procedures. All faults should now be reported to the JANET Service Desk (JSD), which is also the first point of contact for enquiries concerning new line connections, upgrades and downgrades.

Contractual relationships with the relevant telecommunications companies that supplied LMN have been novated to JANET(UK). A number of JANET customers in London also benefit from two non-JANET services – offsite data backup from InTechnology and email filtering from MessageLabs – and JANET(UK) will ensure that the customers receiving these services will continue to do so.

As part of the transitional arrangements, a major upgrade to the network's capacity is planned which will ensure that the network continues to meet customer requirements over the next few years. New IP routers and 10Gbit/s connections are currently being installed at the three major London PoPs at Imperial College, King's College and

Stuart House, and additional 2x10Gbit/s uplinks to the JANET backbone are also being installed. Initially this new network will run in parallel with the current infrastructure while connections are migrated.

Once all customers have been migrated off the old network, its 10Gbit/s core links will be connected to the new routers, doubling the core capacity to 20Gbit/s. The two resilient connections to the JANET backbone will be similarly upgraded to become 40Gbit/s. The migration process is planned to complete by the end of March 2011.

Continuity of network services remains paramount while the transfer of the connections is taking place, and LMN and JANET(UK) are working closely together to ensure there is no operational impact upon customers' use of the two networks. A website has been

set up at www.ja.net/london to keep customers up to date with developments.

Both parties continue to work closely together on the transition. JANET(UK) is especially grateful to Andrew Kerl of LMN who has worked tirelessly to ensure a smooth handover and to the LMN Board for its support in the process. The transition timetable will be posted and kept up to date on the JANET London web site.

www.ja.net/london/

news

eduroam Evolution

To keep pace with growth in demand, JANET(UK) is developing the UK eduroam infrastructure and service portfolio with a particular focus on extending the service in environments where less technical expertise is available.

eduroam meeting support

JANET(UK) has successfully trialled an open source based system developed by Southampton University that lets an eduroam service be provided for visitors at venues that do not belong to the JANET eduroam federation. It is envisaged that the system could be used for meetings and small conferences to provide a small-scale temporary eduroam guest network service.

The organiser takes a specially enabled pre-configured wireless access point (AP) to the non-eduroam venue and simply plugs

> **"**
>
> *Use of the eduroam service in the UK continues to reach new peaks as more organisations join the eduroam federation, implement services and roll out device configurations to users.*

it in to a suitable wired network point. The AP uses the venue's Internet connection to link to the JANET eduroam infrastructure, which enables the user's logon request to be forwarded to their home organisation for authentication, and it is the venue's Internet connection that carries the user's web browsing and e-mail traffic after authentication. From the user's point of view, the eduroam service is no different from that at a full eduroam member site, though limited to the range of the single access point.

The concept was proved at a recent JISC event where JANET(UK) staff brought along their own AP which, after connection

Use of the eduroam service in the UK continues to reach new peaks as more organisations join the eduroam federation, implement services and roll out device configurations to users. Worldwide the service is also experiencing record usage. In Europe, Montenegro has joined the federation, whilst in the USA a growing number of institutions are implementing the service.

In the UK, with the return of students to campuses following the summer break, the usage of eduroam reached a new high and has continued to grow throughout the autumn.

to the venue's network, provided a trouble-free service. At the end of the conference it was rewarding for the technical staff involved in the trial to be able to report that the authentication logs showed a significant number of attendees had used the service.

This implementation is a development of the method used by Southampton University's open wireless network, SOWN, for deploying its own APs out into the community. Whilst an advantage of the system is that is it based on open source code, in its present form it piggybacks onto SOWN's eduroam facilities, which limits the portability of the solution. In parallel, JANET(UK) is therefore also testing a more flexible alternative approach using APs produced by Aerohive Networks Inc. which have eduroam functionality built into the firmware. Once again these can simply be connected at non-eduroam venues by organisers but they are less sensitive to port restrictions that may be encountered on the venue network. They also have the capability of routing all applications traffic as well as authentication traffic over a secure VPN tunnel to the home organisation network, which makes the service independent of the venue, giving the home organisation total control of the wireless service provided through the Aerohive AP.

eduroam zero-effort deployment

Work is also going on to develop the functionality of the Aerohive product family to provide it with eduroam specific features and to improve accessibility of eduroam

to venues that lack the resources to set it up for themselves. The aim is that once it is plugged in, a brand new, out of the box Aerohive AP will connect to the Aerohive Cloud service, learn that it was part of an acquisition for JANET(UK), acquire eduroam data, and self-configure to enable the provision of a remote eduroam service as a spur from a central controller. Such a solution could be used for venues such as a museum that wants to cater for visitors but does not have the requirement to offer roaming capability for its own staff, or a rural school that wants to be fully eduroam-enabled for both visitors and staff but lacks the resources to develop an eduroam instance independently. In such cases, a batch of JANET-branded APs could be installed at a site where they would self-organise into a mesh and be deployed as the venue saw fit to provide an extensive eduroam service.

A single eduroam tier?

A development of relevance to the thousands who already use eduroam daily is also being planned, to make the eduroam experience more consistent to users whatever site they might visit.

JANET(UK) has always aimed to provide a uniform service and experience to the user, but at the same time there have always been some aspects of the service that have depended on the implementation choices of the participating organisation. For example, eduroam at the user's home site can be provided on a network using IPv6 but not every eduroam-participant site may be ▶

ready to implement IPv6 on their network.

The original response to this when roaming was first established in the UK was to define a series of three eduroam service tiers with successively more advanced levels of encryption and technical features. A disadvantage of this approach is that a visitor from a Tier 3 site might visit a Tier 2 site and not be able to logon using their existing connection profile, despite having the more advanced and secure setup on their own machine, or else find that some applications such as desktop videoconferencing do not work or require additional parameters to be set before they do.

The proposed solution currently under discussion is to release a single, all-defining tier for all eduroam users, with a common core of features so that a single user profile will always work at any visited site. Local advertisements utilising a standardised graphical format with tick box options of the optional features supported will account for site differences. In parallel with this, a roadmap of standards and requirements will be introduced that participating organisations must adhere to as the service evolves technically.

JANET(UK) is currently reviewing the eduroam technical specification to accommodate the single tier, and will give all eduroam participants due notice of the change, with a possible introduction date of the end of 2011.

Students from Southampton University participating in the 2010 Group Design Project in partnership with JANET(UK) are developing a website to help with the single tier implementation. A user connected to eduroam may visit the website and it will effectively tick

the relevant option boxes itself by analysing and evaluating the user's current network connection. A proof of concept for this is due in January 2011. Another Southampton student is developing an iPhone app that will locate the nearest eduroam connection and assist the user with reporting any problems they encounter.

RadSec trial

The eduroam service depends on communication between RADIUS servers. RADSEC is a secure protocol that avoids perceived insecurities within the original RADIUS specification, essentially transmitting the same data but through an encrypted tunnel, and is therefore a desirable feature to bring into the UK's eduroam infrastructure. The problem with this is that the old version of RADIUS allows the end points of a connection to be identified and usage data gathered, which is needed from a system administrator point of view: by aggregating all traffic to a common port, RADSEC prevents this data from being gathered directly.

What will be needed is a communication channel which will report that a user from site A has roamed to site B. This could be achieved in a number of ways. For example, at present

Conclusion

This is an interesting and exciting time for eduroam in the UK, with these developments set to result in the eduroam service becoming more pervasive, reliable and easier to deploy. It is already the exception for eduroam not to be available at a major academic institution and it is increasingly becoming expected that the service will be available to visitors.

JANET(UK) is reporting roaming statistics using syslog, which reports to a central European aggregator where stats are gathered to give the big picture of eduroam operation. JANET(UK) is trialling a more flexible metadata reporting method that implements the same functionality but uses the IF-MAP protocol (Interface to Metadata Access Point). Metadata is gathered locally and replicated at a central JANET MAP database. Unlike RADSEC, it lends itself to other uses such as distributed intrusion detection, network 'weathermaps' or anything that requires JANET(UK) to see the big picture from aggregated data.

A trial that demonstrates all the components of the system is being conducted at Loughborough University. Any other organisations that would like to participate are invited to contact Matthew Cook at M.S.Cook@lboro.ac.uk.

news

JANET in Super-Hi Vision Definition

JANET(UK) has taken part in a first-of-its-kind broadcast of Super Hi-Vision TV from Britain to Japan, in collaboration with the BBC and Japanese public broadcaster NHK. The technology, developed by NHK, is four times sharper than HDTV with a signal that shows 7680x4320 pixels, transmitted at 24Gbit/s. NHK hopes to broadcast in the standard by 2020.

The trial involved the broadcast of a live gig by rock group The Charlatans to a Japanese audience, and was made possible by high speed network connections to Tokyo using parts of the JANET, GÉANT and NTT (Japanese) networks. However, while the possibilities for entertainment and the performing arts might drive widespread take-up of the technology, the implications for science and research are also considerable. The quality and speed of the data processing enhance the user experience and open up new possibilities for applications. For example, in a recent experiment involving bloodflow modelling in the brain, visualisation models were developed from real-time data within 10-15 minutes while the patient was in the operating theatre. The clinician in charge was able to model the effect of his proposed interventions to see the full implications of the procedure for the patient's health, before actually carrying them out in real life.

Super Hi-Vision lies on the boundaries of what is currently technologically possible and the trial has helped JANET(UK) understand how the JANET network can be engineered to support this technology in the future on behalf of the JANET community. JANET(UK) will continue to work with the BBC and NHK to build on the trial's success. Meanwhile JANET(UK) and members of the Ultra High Definition Special Interest Group are working together on a programme of activities aimed at showcasing this technology over JANET, used to explore the high capacity Lightpath infrastructure, and to highlight the key drivers and applications for Ultra High Definition such as medical imaging, cultural exchanges and broadcast. The standard could also be used on giant public viewing screens, some of which may be in place for the 2012 Olympics.

Roger Bolam, Product Portfolio Manager at JANET(UK), says "We are extremely pleased to play a key role in enabling such an historic event. We look forward to working with the BBC and other organisations to trial this technology."

www.ja.net/development/ultrahighdefinition.html

Images kindly supplied by the BBC

news

New email whitelist helps JANET community save money

In response to the requirements of JANET customers, JANET(UK) has taken further measures to reduce the false positives of legitimate email being caught in spam filters, and to speed up the filtering process generally, by subscribing to a new DNS whitelist from dnswl.org on behalf of the JANET community. JANET has also included whitelists from Spamhaus in its data feed service. As a single subscription can serve the entire community, rather than individual organisations each having to subscribe themselves, the combined effect of whitelists and blacklists made available through JANET could have potential savings of over £4m.

Whitelists are the opposite of blacklists: mail from a whitelisted email address, domain or IP address will always be allowed. They are based on the assumption that most legitimate mail will be from a relatively small and fixed set of senders. Whitelists and blacklists can be used together to block unwanted messages while allowing wanted messages to get through.

JANET(UK) will host a mirror of the dnswl.org whitelist data which is freely available to JANET customers. Organisations wishing to use this service should contact the JANET Service Desk.

As part of the agreement with dnswl.org, JANET(UK) will process queries made to the whitelist and provide feedback on the addresses queried. The statistics provided will not contain any information about sites making queries: all that will be reported are the addresses looked up, and the number of times the query was made.

JANET(UK) now has a collection of DNS blacklists and whitelists from several leading sources:

dnswl.org
MAPS RBL+
Spamhaus Zen lists, SWL and DWL
SURBLs
URIBLs

www.ja.net/services/mail/janet-rbl/janet-dnsbls.html

JANET: The First 25 Years

To mark 25 years of operation, JANET(UK) has published the first official history of the network. Meticulously researched by Professor Christopher S. Cooper, the book covers the period from the Flowers Report of 1965 that led to the setting up of the Computer Board; through the technological and political challenges that followed the recommendations of the two Wells Reports that there should be a national education and research network; to the creation of JANET in 1984, the launch of the SuperJANET project in 1990 and the unveiling of the SuperJANET5 backbone in 2006 that finally realised the SuperJANET goals.

Along the way the book covers such diverse but vital topics as: the birth of technologies such as packet-switching and Ethernet, without which modern networking would be impossible; how JANET's remit extended beyond the first university and Research Council networks to include further education, schools and museums; and how the proposed ISO protocol standards, which everyone saw as the way ahead, were driven out by the upstart newcomer, IP.

As well as being there to support UK education and research, the very existence of JANET itself has spurred research in computer networking with effects felt around the world.

The table of contents can be read at www.ja.net/services/publications/history.html.

JANET: The First 25 Years is available to readers in three formats.

- As a print on demand publication from your nearest online or bricks-and-mortar bookseller.
  £22 / ISBN 978-0-9549207-2-2.
  A nominal price of £22 covers JANET(UK)'s costs in printing each copy.

- As an ebook (EPUB format): download from **www.ja.net/services/publications/history.html.** Other formats are being developed and will be available from the Apple iBookstore.

- As a PDF: download from **www.ja.net/services/publications/history.html**

news

JANET(UK) commissions Networking Skills Review

A review commissioned by JANET(UK) will provide a full picture of all the different skills that make an effective network technician and is a unique opportunity to benchmark the skills required by the JANET community for this vital role. A free place at Networkshop 2011 will be offered to one respondent in the review, selected in a draw.

The key skills required for an effective network technician might include hardware configuration, network design, the use of JANET services, and soft skills such as project management and customer service. Results of the review will assist with both staff development and recruitment; give technical staff themselves a useful framework in which to focus their development activities, whether self directed or professionally delivered; and identify any gaps in the JANET Training portfolio, both in terms of what new courses may be required and whether the content of existing courses is addressing the skills identified.

The review is being overseen by JANET Training and will include:

- Consultation with national bodies such as UCISA and AoC
- Interviews with IT and Networking Managers
- A survey of technical staff.

JANET(UK) is also exploring the options available to it in terms of providing accreditation for its training courses and the results of the skills review will help to shape the qualification themes designed by JANET Training. This will be vital in providing qualifications that develop and identify individuals who can have a real impact within their organisation.

Get involved, for a place at Networkshop

Your participation in this study will be vital in getting a representative result. Respondents from a JANET organisation with a Primary Connection will be entered into a draw for a free place at Networkshop 2011*. Respondents can participate in one of two ways:

- Interviews. Interviews will take place before Christmas. It would involve an hour or so of your time and would take place over the phone at a time that suits you.
- Survey. The survey will be sent to relevant mailing lists and JANET contacts in the New Year.

If you have any questions or comments, or would be willing to participate in the interview stage, please send an email to skillsreview@ja.net. We can also send a copy of the survey link directly to you on request to the same address. In both cases, please note how you would like to be involved.

(* Offer is one residential place at Networkshop 2011 for the selected respondent or for one member of the respondent's team, who must be on the staff of a JANET-connected organisation with a Primary Connection. Travel expenses are not included.)

Job descriptions wanted

Associated with the review, JANET(UK) is interested in gathering job descriptions from members of the JANET community for roles that cover networking activities: for example, IT Support, Networking Officer, etc. Readers are invited to send such descriptions to skillsreview@ja.net. Rather than any details of the organisation that employs you, our sole interest is in the skills, experience and training outlined in the descriptions.

This review is being carried out by Gill Chester from Little Man Project Ltd under contract to JANET(UK). As such all information received by Little Man Project Ltd will be stored and managed under JANET(UK) data protection procedures.

development
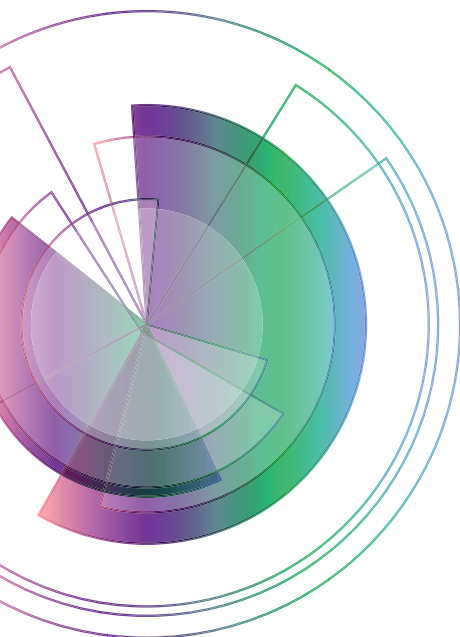
Lightpath illuminates the universe

JANET(UK) is helping UK scientists contribute towards an international astronomy project that will reveal how the first large-scale structures in the universe came into being, map the origin of high-energy cosmic rays, and even contribute to SETI – the search for extraterrestrial intelligence.

LOFAR – the Low Frequency Array – is a grid of radio telescopes that ultimately will consist of over 5,000 antennae spread across Europe, studying the lowest frequency radio waves that can be detected from Earth. With computing based at the University of Groningen in the Netherlands, stations are currently based at sites in the Netherlands, Germany, France, Sweden and the UK. The British component at Chilbolton in Hampshire is just nearing completion and will be plugged into the wider LOFAR array in the Netherlands via a 10Gbit/s JANET lightpath by the end of 2010. The Dutch endpoint of the lightpath will be configured by SURFnet.

LOFAR is a very cost-effective method of gathering vast amounts of data. A typical LOFAR station consists of around 100 antennae constructed from everyday mass-produced components with no moving parts. Unlike a conventional dish-shaped radio telescope, which rotates and can only look into one part of the sky at a time, LOFAR can be configured electronically to look into many parts of the sky simultaneously – or indeed all of it at once. As a result of the cheap construction, the entire project has so far cost in the region of €100 million, which is about the same as constructing a single 40m diameter radio dish. Most of the cost of the array lies in the data transport technology and vast amounts of computing power needed to keep the antennae synchronised to each other and to ensure the scientific information within the signals makes sense. The task is made more challenging by the sheer amounts of data: the Chilbolton site alone will be producing seven petabytes of raw data every year. (One petabyte is approximately 1 million gigabytes.) Real-time flows of data from the antennae are gathered on-site and then passed via the JANET lightpath to the data correlation centre in the Netherlands, to produce a detailed image of the sky.

As well as being a self-sufficient project in its own right, LOFAR is also an ideal testbed for methods of processing the vast amounts of data expected to flow from the even larger project SKA (Square Kilometre Array), which is scheduled for completion in about 2022. It is estimated SKA will produce 1 terabyte – 1000 gigabytes – of data every minute.

www.ja.net/lightpath

> "
>
> *LOFAR is a very cost-effective method of gathering vast amounts of data. A typical LOFAR station consists of around 100 antennae constructed from everyday mass-produced components with no moving parts*

community

Videoconferencing extends health care to remote patients

Videoconferencing has been used successfully to deliver a physiotherapy rehabilitation programme to a group of patients suffering from a debilitating illness. As well as displaying its green credentials through reducing the environmental impact of travel, the technology proved ideal for delivering health care into a remote area with limited communications and transport infrastructure.

Chronic Obstructive Pulmonary Disease (COPD) includes lung diseases like chronic bronchitis and emphysema, and is one of the most common respiratory diseases in the UK, affecting at least 900,000 people. An effective treatment for COPD is pulmonary rehabilitation, a regime of physical exercise combined with education that is usually supervised by a clinician and undertaken as a group-based activity in a hospital or clinic. However, for Scottish patients in the NHS Board area of Highland this is not always viable as they live in mountainous terrain in the largest and most sparsely populated part of the UK, and even patients in urban settings can be put off participating in a programme by location and travel demands. Purely home-based individual training is an option but this lacks the group-based element that characterises a successful programme. Videoconferencing was able to overcome all these obstacles.

The Remote Rehabilitation project is a collaboration between Distance Lab and the Centre for Rural Health, funded by a £63,000 grant from Chest, Heart & Stroke Scotland. Andrea Taylor of Distance Lab says that while the project realised videoconferencing could be used in this situation, they also wanted to run their own software on it in the form of an on-screen timer activated by the physiotherapist. Furthermore, while they had funding, the funding was not large. They therefore did not want a closed or expensive, big budget system.

Informed by previous research and by feedback from a focus group, the project constructed a videoconferencing system that let patients take part in a rehabilitation group from their own home, while still being able to see and speak to the physiotherapist and the other members of the class. For eight weeks, a physiotherapist was able to deliver a pulmonary rehabilitation programme to four users in their own homes in the form of twice-weekly exercise sessions. All participants were visible and audible to each other, all showed clinical improvements comparable to a conventional programme, and satisfaction was high.

The system combined off-the-shelf hardware with commercial and custom software. JANET Videoconferencing enables up to 12 users to dial in to a videoconference from a Windows-enabled desktop or laptop PC. A focus group had identified that many patients, especially older ones, were unfamiliar with the Internet and with videoconferencing: however, the system could be activated by the patients in their own homes simply by pressing a button, after which they were connected to the physical trainer. The commercial and custom software was able to interoperate without difficulty: the image from the timer was simply overlaid on the screen and the other programs, one developed to simplify and automate the process of joining a videoconference and the other to transmit real-time pulse data from the patients to the physiotherapist, operated without interference. Apart a single Internet connection failure for one of the patients, no further problems were encountered in using the videoconferencing system, and even in an area having the slowest broadband speeds in Scotland, the video was satisfactory.

Paul Bonnett, JANET(UK)'s Videoconferencing Technical Co-ordinator, comments: 'We have been working with Content Providers like Distance Lab to reduce the cost and time overhead of providing specialist courses to groups that are often remote or for whom travel poses problems. These groups have found our desktop facility to be a real benefit.'

www.distancelab.org/projects/remote-rehabilitation/

www.ja.net/videoconferencing

training & events
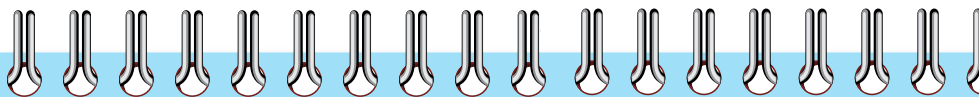
Events Calendar

JANET Aberdeen Technical Briefing
20th January 2011
Doubletree by Hilton,
Aberdeen City Centre
Beach Boulevard
Aberdeen
AB24 5EF
Find out more and book online at:
http://www.ja.netservices/events/2011/
AberdeenTechnicalBriefing/details.html

UCISA Conference
23rd - 25th March, EICC, Edinburgh
The premier IT event for UK universities and colleges. Find out more at: http://www.ucisa.ac.uk/events/2011/conference2011.aspx

JISC Conference
14th - 15th March 2011
BT Conference Centre, Liverpool
Find out more at: http://www.jisc.ac.uk/events/2011/03/jisc11.aspx

NETWORKSHOP® 39

12th - 14th April
University of Hertfordshire,
de Havilland Campus

http://www.ja.net/services/events/networkshop-39.html

---

ja.net Training

Forthcoming Courses 2011

JANUARY

JANET Roaming Fundamentals
January 11th 2011, Bristol

Information Security Policies
January 27th 2011, Manchester

FEBRUARY

Introduction to DNS
February 1st 2011, Manchester

Virtualisation Fundamentals
February 8th 2011, London

IP Fundamentals
February 22nd 2011, Birmingham

MARCH

Implementing a Shibboleth 2 Identity Provider
March 2nd 2011, Glasgow

Implementing a Shibboleth 2 Service Provider
March 3rd 2011, Glasgow

Managing IT Security
March 17th 2011, Cambridge

Information Security Policies
March 18th 2011, Cambridge

Wireless LAN Fundamentals
March 24th 2011, Birmingham

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 and suggestions for new courses, locations or course frequencies are also welcomed. To join this list, access the JISCmail site at: www.jiscmail.ac.uk/lists/janet-training.html.

event reviews

Paleontology, Painting and Prizes at the Schools Videoconference User Group event

" ""

Too explain all nature is too difficult a task for any one man or even for any one age. 'Tis much better to do a little with certainty, and leave the rest for others that come after you. — Sir Isaac Newton

The first Schools VC User Group Awards were handed out to educators and content providers, and many useful VC applications described in talks and debate, at the highly successful Schools Videoconference User Group event, held on 22 November at the Royal Society under the watchful gaze of portraits of Newton, Hooke, Halley and other science greats.

Who knows what the scientists and philosophers who founded the Royal Society 350 years ago would have thought of videoconferencing, let alone the fact that the event had a Twitter tag, #svcug10? However, there is no doubt that they would have approved of the enthusiasm with which the technology is used in schools by the day's attendees. Delegates were an unusual but welcome mix of school teachers and representatives of Local Authorities, hardware manufacturers, and museums and other VC content providers. The option to attend by videoconference was naturally also provided, and accepted by 11 delegates from as far afield as Dumfries, Montpellier, Sweden and Michigan.

Grace Kimble from the Natural History Museum – a relative youngster of an institution with only 250 years under the palaeontologists' belt – was the first to speak. The museum is doing significant work with videoconferencing – the Teacher session on how to dissect a squid being a notably graphic recent example – and

is committed to bringing the remote natural world of its overseas expeditions back into the classroom. It was exciting stuff to start the day with, and the novel ideas continued to flow. Beatrice Oakley from the Churchill War Rooms spoke on the development of their new VC session called Operation Fortitude, involving students in planning for D-Day, and was followed by Alison Walker from the Welsh Video Network with an artistic angle on videoconferencing life drawing.

In a room full of VC enthusiasts, the afternoon debate asking "is VC an expensive luxury or more important now than ever" was almost

the definition of preaching to the converted. The debate flowed quickly to other questions on how to win over reluctant a Headteacher and, aided by keynote speaker Janine Lim from (and in) Michigan, which factors make VC a success in school.

The day ended with the presenting of respect and the first Schools VC User Group Awards 2010 to some seriously hardworking educators. The judges commented how very impressed they had been with the number and quality of entries, but after much discussion deserving winners had been selected in three categories as shown below.

Infant/Primary/Junior - Sponsored by Cisco.
Won by Engayne Primary School, London as the judges were impressed with the variety of activities in which they were engaging in both in the classroom and for staff development. They had invested in training and support for all staff using this technology and hope to help other schools in their area.

Secondary/College - Sponsored by Polycom.
Won by Lincoln Specialist Schools Group for their successful delivery of A2 and AS courses across the seven schools in the group using videoconferencing, ensuring they can offer a wide selection of exam courses to all their students. They are also involved in many other collaboration projects with international schools, universities, student council and local primary schools.

Cultural Sector/Content Provider – Sponsored by LifeSize.
Won by the National Archives for long service, huge variety of content across the curriculum, innovative use of recordings for continuing professional development, and embracing a variety of video technologies.

event reviews

Beatrice Oakley in front of a picture of herself in a hat.

Tim Boundy, Applications Development Team Manager at JANET(UK), comments, "It's great to be able to give credit to institutions and individuals who have worked really hard to make the best use of videoconferencing in education, and good to end the day on the high note of the beaming faces of the winners. I'm already looking forward to next year's event."

Presentations from the event can be downloaded at: **www.ja.net/services/events/2010/schoolsvcuser/details.html**

Grace Kimble from the Natural History Museum joining in the debate

Paintings and VC kit

JANET
CSIRT
Conference

The 2010 JANET CSIRT Conference was held at One Wimpole Street, London, the home of the Royal Society of Medicine, on 20 October. The conference saw many attendees not only from the JANET connected organisations but the wider NREN community.

This year six speakers talked on security issues that they felt were important to the JANET community, ranging from the Digital Economy Act and password policies to open source VPN and intrusion detection systems. The presentations were aimed at both technical and managerial staff and the accessibility of the content was remarked upon.

A large amount of discussion took place not only during the sessions but also during the breaks, and we look forward to some of the collaboration and work that may result.

Presentations are available at **www.ja.net/services/events/2010/JANET_CSIRT.**

recent publications

REPORTS

Quarterly Report to the Community, August-October 2010

www.ja.net/services/publications/
reports/quarterly-report/
qr-autumn10

The JANET Report 2009-2010

www.ja.net/services/publications/
reports/janetreport/

NEWSLETTERS

JANET News 13

www.ja.net/documents/publications/
news/news-13.pdf

PUBLICATIONS

JANET: The First 25 years

www.ja.net/services/
publications/history.html

EMAIL UPDATES

JANET Development Update Bulletin

To receive regular updates from theDevelopmentTeamatJANET, sign-upatwww.jiscmail.ac.uk/lists/ janet-development.html

---

How to contact JANET(UK)

JANET(UK)
Lumen House
Library Avenue
Harwell Science & Innovation Campus
DIDCOT
Oxfordshire
OX11 0SG

Tel: +44(0) 1235 822 200
Fax: +44(0) 1235 822 399

JANET Service Desk

Tel: 0300 300 2212
Fax: 0300 300 2213
E-mail: service@ja.net

JANET CSIRT

Tel: 0300 300 2340
Fax: 0300 300 2341
E-mail: irt@csirt.ja.net

To be added to or removed from the mailing list for JANET News, e-mail

janet-news@ja.net

or use the JANET(UK) contact information above.

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).