

JANET News

World's first 100Gbit/s trial now extends
to live network!

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A New Regional Network for the East of England

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JANET Training makes Virtualisation more real

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Editorial

JANET(UK)'s new Corporate Plan for the period 2010-2012 has just been published (see page 6). The plan lays out the company's strategy for the next three years and provides the Strategic Objectives against which our progress will be measured.

To see what might have changed over the last three years it is an interesting exercise to contrast this issue with the company newsletter three years ago: *UKERNA News* no. 38, published in March 2007 (<http://www.ja.net/documents/publications/news/news38.pdf>).

The lead stories then were the launch of the JANET Voice Advisory Service and an update on transition to the (then new) JANET backbone. Tucked away on page 4 was a mention of the new Server Certificate Service – now replaced by the JANET Certificate Service – and on page 5 we got the first rumbles of the forthcoming restructuring of the company that would shape the present day JANET(UK).

It is also interesting to note what is not there but which does appear in this issue. If the as yet uninvented JANET Time Warp Service let a 2007 reader get hold of this issue, what would surprise them?

At first glance the answer might be: not that much. Looking at some of this issue's stories: the JANET Videoconferencing Service existed long before 2007, as did desktop videoconferencing technology; and while the 100Gbit/s optical trial reported here is a world first, the speed was always on the cards even when the present backbone was being planned under the SuperJANET5 project.

But: the green credentials of videoconferencing technology have assumed a much larger significance in recent years, and desktop videoconferencing lacked the flexibility offered by the new JVCS Desktop tool (page 4). The 100Gbit/s speed trial took place on an operational network alongside genuine user traffic, rather than a carefully sequestered test environment (page 3). And this issue is reaching a much wider audience than it would have in 2007, exemplified by the articles on Glow and the new East of England Regional Network.

Above all, would anyone in 2007 have guessed that the publicly-funded JANET network would be looking towards a future with a very challenging squeeze being put on public funds?

The better anchored you are in the present situation, the more you can adjust to change, foreseen or unexpected. That is why we publish a Corporate Plan. JANET's history has always been one of change: prediction of and preparation for forthcoming changes, and adjustment to changes no one foresaw. The Corporate Plan keeps JANET(UK) and its customers fully aware of where they are, where they are going, and why.

Ben Jeapes
Technical Editor
ben.jeapes@ja.net

World's first 100Gbit/s trial now extends to live network! 100Gbit/s trial now conducted within an operational environment

Following the completion of a successful network trial last year, a second trial has just been completed of 100Gbit/s optical transmission circuit operation over the JANET core network.

As requirements for network capacity continue to grow, 100Gbit/s circuit technology will play an important role in underpinning the requirements of providing a scalable and reliable JANET network service. It is therefore important that JANET(UK) is fully prepared to exploit this technology at the earliest opportunity.

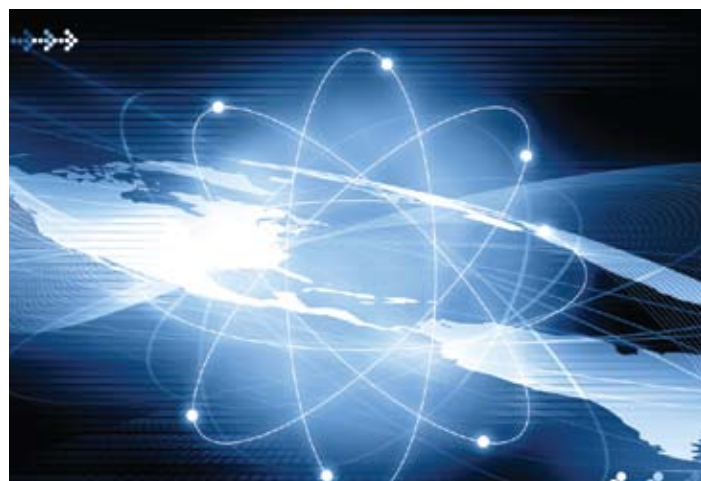
This latest trial was conducted in partnership with Verizon Business and Ciena using Ciena's first generation 100Gbit/s optical transmission product. The trial took place over a live operational section of the JANET backbone between the Reading and Bristol network Points of Presence, with a 100Gbit/s wavelength injected into the fibre as an additional "alien" wavelength alongside wavelengths carrying operational traffic.

Verizon Business is the supplier and operator of the JANET backbone optical transmission network and the network is constructed using Nortel and Ciena optical

equipment. Last year's 100Gbit/s trial was conducted using Nortel transmission equipment on an isolated fibre pair, away from fibre carrying live JANET operational traffic. Not only did this latest trial look at the 100Gbit/s development from the Ciena equipment that is used to build the JANET optical transmission infrastructure, it also tested 100Gbit/s technology in an operational environment.

By conducting these types of trials over the network at this early stage, we will be in a perfect position to address any future requirements whilst providing a robust, flexible and scalable network for our customers.

Jeremy Sharp
Head of Strategic Technologies
jeremy.sharp@ja.net



During the trial data was delivered over a single wavelength with an actual line rate of 112 Gbit/s; a true 100Gbit/s payload is delivered within an OTN frame. The full C-band tunable transceiver used in this trial was a CN 4200® RS FlexSelect™ Advanced Services Platform and uses dual polarization RZ-DQPSK modulation, allowing for deployment alongside 10G and 40G channels on existing DWDM systems.

JANET publishes its Corporate Plan for 2010-12



JANET(UK) has published its Corporate Plan for the period 2010-2012.

Since the last

Corporate Plan was published, JANET has moved to 40Gbit/s; the company has moved into new, flexible accommodation; the Network Operations Centre has been integrated into the business in London; and new services such as JANET Aurora have

been established while existing services such as videoconferencing are seeing a steady flow of enhancements. Working closely with JISC and Becta we have become the operator of the UK Access Management Federation, the largest of its type in the world. Meanwhile new challenges have arisen: financial constraints, changes to educational and research policy, and the increasing impact of the environment on the political agenda.

In the next three years we will be planning for the next version of the network,

continuing to launch new services and tackling the problems facing our customers. The new Corporate Plan lists both the values which underpin our professional behaviour and the four Strategic Objectives that will direct all JANET(UK)'s activity between now and 2012. As the UK recovers from the downturn a key driver will be a vibrant knowledge economy. At the heart of such an economy will be a thriving research and education sector enabled by powerful frontline services such as JANET.

Snowy BETT Show defrosts Desktop VC in 2010

For the last five years JANET(UK) has videoconferenced from the BETT Show with more than 20 Museums and Schools Content Providers around the world, from the National Coal Mining Museum in Wakefield to, this year, Direct Education in Llandudno Wales and the Natural History Museum. Without exception, this has been great fun.

BETT 2010 was always going to be slightly different, with the launch of three new JANET Video features last year, but little did we appreciate how different one feature – the new JVCS Desktop – would make it.

JVCS Desktop (see page 9) is a new software client for use with JANET Videoconferencing Service bookings that lets users of JVCS (who can be staff at any school, college or university in the UK) add a guest to their videoconference even if that guest does not have any videoconference equipment. By simply adding their email address a guest can be emailed a link that lets them download and activate the videoconferencing client on their Windows PC, and then fully join the conference using a webcam, at no extra cost.

With such a useful new tool to demonstrate on the JANET Stand at BETT we decided to go the whole hog and have two standard classroom laptops set up in addition to the normal videoconference system. The simplicity of JVCS Desktop was immediately apparent to anyone who stopped by to watch the Beamish Museum or the National Space Centre videoconferences and saw teachers using the laptops to join in by clicking on a URL. The response was very positive

and teachers instantly saw the potential and the new freedom in being able to videoconference to any PC in the world simply by sending a link. Questions came thick and fast:

“Can I use this to VC with my partner school in Germany?” – Yes!

“Can I use it to bring an employer into the classroom by VC for my 14-19 Diploma course?” – Yes!

“Will JVCS Desktop allow me to include students who cannot make it to the classroom?” – Yes!

...and most relative to the inclement weather:

“I’ve got a teacher snowed-in. Can they speak to their class and still attend the staff meeting from home?” – Yes!

JVCS Desktop is available to all JVCS users via the JVCS Booking System at www.jvcs.ja.net/

booking. Other new features of the JVCS Booking Service include the ability to record any of your videoconferences (for later download) and the facility to stream your conference live to a web page.

For more information on Schools Videoconferencing, Videoconference Content Providers and finding a VC Partner School, visit www.ja.net/schools.

Tim Boundy
Schools Content Coordinator and BETT
2010 Stand Manager
tim.boundy@ja.net
www.twitter.com/timboundy



Certificates for financial transactions available at discount

JANET-connected organisations can now secure financial transactions with Extended Validation (EV) certificates available through the JANET Certificate Service. The no-cost certificates currently provided under this service cannot be used to secure financial transactions but the discounted EV certificates are well suited for this purpose.

Under the current agreement with TERENA and Comodo CA Ltd for the provision of

certificate services to JANET-connected organisations, EV certificates are available at a discounted price of \$150 per annum (currency requesters will need to pay in US dollars). This represents a substantial saving for JANET customers as the same product purchased directly from Comodo would cost around £468.50 per annum, currently worth about \$700, and many other EV certificate providers charge more than this for their own certificates.

EV certificates are high assurance certificates that require stricter checks during the request validation process. Browsers with EV support display more information to the website visitor regarding the EV certificate than for previous SSL certificates. Further information on how to obtain EV certificates can be found on our web pages at: www.ja.net/services/jcs.

A New Regional Network for the East of England

JANET(UK) has procured a new regional network contract for the east of England.

Eastnet, the regional network presently serving higher and further education in the region, was procured a number of years ago. JANET(UK)'s contract with the telecommunications provider required re-testing in the marketplace, in accordance with public procurement regulations. Equally pertinent, the regional backbone was constructed from relatively old 1Gbit/s circuit technology. Whilst it has served its purpose well, increasing demand from institutions in the region means that it requires a major update.

The new procurement was against this background. Like its predecessor, what has been contracted is a regional telecommunications infrastructure to provide the bandwidth needed to supply the JANET IP and Lightpath services. But the new network will be constructed from 10Gbit/s circuits – a tenfold increase in backbone capacity – and will have both a more extensive geographical reach and improved resilience than before. There has also been a change of telecommunications provider; from ntl: to Easynet. One aspect has not changed however: the JANET Network Operations Centre will continue to operate the JANET IP service in-house, to the same high standards as it does at present.

A schematic of the new regional backbone is shown top right. The aim is that this will be ready for service in early summer 2010, with migration of institutions from the present to the new network taking place over the summer.

Benefits

What does the new network bring to higher and further education institutions in the region? Clearly it brings the bandwidth capacity to meet the continuing rise in demand from institutions: for example, two of the region's universities will now be provisioned with access circuits of 10Gbit/s in

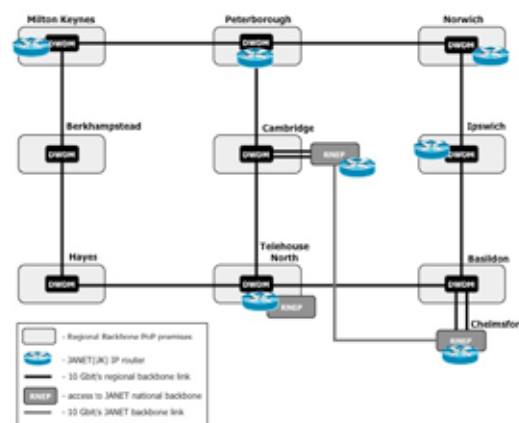
recognition of their need for greater than the 1Gbit/s capacity they have at present. The re-procurement has also reduced the costs of many other access circuits from institutions, which means that where an institution is paying for or contributing to the cost of an access link, the ongoing cost to the institution should often be reduced.

The additional resilience built into the network should also benefit institutions by providing increased reliability. The major nodes on the regional backbone will now be located in telecommunication supplier premises, bringing more uniform 24x7 operation. This also means that more effective access-circuit resilience can be provided to those institutions whose premises were previously part of the regional backbone. There will also be a third connection to the JANET national backbone, in London, in addition to the Cambridge and Chelmsford access points.

Collaborative procurement: a shared service

The new network was procured as a shared-service exercise with E2BN, the consortium of local authorities in the East of England which aggregates and supplies the common broadband ICT needs of primary and secondary education. This was possible because E2BN also needs to replace its existing regional network during 2010. The aim of procuring jointly was to reduce the costs to each sector of providing a new network and thereby to reduce overall cost to the public sector as a whole. This can be done because there is a strong correlation of requirements, and aggregating these leads to a more cost-effective design and solution.

JANET(UK) and E2BN are now finalising an operation agreement whereby each shares the costs of the regional backbone. E2BN's customers



will also use the JANET IP service and will also share the costs of providing this.

A new name: a wider potential?

To recognise this collaborative approach, a new name for the new regional network will replace the Eastnet name: EastERN – the East of England Regional Network.

Although the primary purpose of the network is to serve the broadband ICT needs of education and research in the region, this name also recognises that the infrastructure has a potential benefit more widely to the public sector and is not limited to use for education only. This is very much in line with both national and local government strategy, which encourages the sharing of public sector infrastructure where possible to drive down costs and reduce unnecessary duplication.

JANET has already acquired a widely recognised and growing track record in adopting a shared services approach. We expect to continue to pursue this strategy vigorously as part of our contribution to this overall strategy.

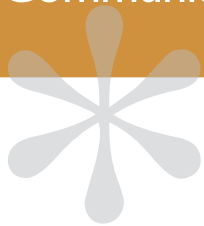
Bob Day
Chief Technology Officer
bob.day@ja.net

JANET Board

Elections to the JANET Board for 2010 were held on 3 February. For the HE constituency (64 votes total), Ian Griffiths of Nottingham Trent and Brian Gilmore from Edinburgh

University were returned. Following the retirement of John Peacock the FE constituency (14 votes total) elected Neville Dart from Stockton Riverside College.

Full details of votes cast are given at: <http://www.ja.net/documents/company/aggm-election-report-2010.doc>.



Asterisk at Canterbury Christ Church University



The JANET community approaches the provision of its internal telephony services in many ways, ranging from traditional PBX based solutions and SIP trunking to open source virtual VoIP platforms. JANET(UK) is always keen to see innovative uses of technology,

especially where they can be opened up and used across JANET. Canterbury Christ Church University has been looking into the potential for offering a telephony solution based upon an Asterisk open source virtual PBX, and has just completed its second stage deployment.

Few conversations about VoIP get very far without talking about open protocols, such as SIP (Session Initiation Protocol). These open protocols are designed to allow us to weave together a solution from a number of heterogeneous components. However, most of the telephony solutions we have seen are very much homogeneous; one supplier, one standard, and generally on a closed platform.

At Christ Church we have successfully deployed Asterisk for over three years, more than two years of which were in a restricted pilot scheme within the Computer Services department. During this time our experience with Asterisk has shown it to be a reliable and flexible platform. As a result, we opted to extend the Open Source pilot to a new building housing the Strategic Directorate; but what are the tradeoffs?

Open Source is not a new endeavour for IT departments; most of us already rely on well known OSS for services such as email, DNS and DHCP. However, selling non-proprietary solutions to other departments requires a thought-through argument. For us this is a combination of flexibility, cost and options in the future. Asterisk provides us with a platform on which it is easy to implement custom solutions, yet it also provides many standard telephony features out of the box. Then there is the benefit that it can 'speak' most current VoIP protocols; when looking at building a heterogeneous solution this becomes very attractive. Perhaps most importantly it stacks up very favourably cost wise when compared to standard proprietary solutions.

We are considering closed source telephony solutions. The question we are asking ourselves is whether we want to replace one proprietary solution with another. Yes, there is the advantage that support is readily available, but at a cost. In the telephony world it is very easy to become beholden on a single supplier and become trapped paying support costs for

their solution. This requires strategic consideration.

Our latest deployment covered over one hundred members of staff in the HR, Finance, Marketing and Estates departments. Clearly this is a set of users for which getting it right is important. The solution we provided has all the standard features to be expected, including call forwarding and voicemail. The building is connected to a breakout located at the main Christ Church campus via our dark fibre ring.

One of the most important features of Asterisk that we utilise is DUNDi (Distributed Universal Number Discovery). Each node in our system exports a mapping between

registered extension numbers and the SIP URLs that can be used to reach those extensions. This allows us to build a solution spread across a number of virtual servers without the hassle of maintaining static routing (more details of which are in our upcoming talk at Networkshop). This in turn means that a telephone extension does not need to be explicitly tied to a single server. Overall, this gives us both the scalability and the fault tolerance we require.

Looking forward, we are considering a number of interesting side projects. Firstly, investigating a switch to soft-clients; this has many potential benefits including: lower cost, reducing energy usage, and follow-me style semantics. For us the next logical step would be to offer the service over edu roam. Finally we are interested in experimenting with some inter-institution VoIP over JANET, another interesting application of DUNDi.

For large organisations VoIP is inevitable within the medium to long term, whether proprietary or Open Source. Our experience of running Asterisk in our virtualised environment, with mid-ranged handsets connected to a standard HE LAN, has been a positive one.

Dave Reeve
Canterbury Christ Church University
dave.reeve@canterbury.ac.uk



Your reputation on the board

A new application to monitor the reputation of universities and FE organisations within social media throughout the UK has been developed jointly by Loughborough University and ESISS (EMMAN Shared Information Security Service). Initially funded by HEFCE to improved

UK information security shared services across higher and further education, the application is set to change the way we monitor our campus networks and the social media environment.

The Reputation Dashboard is described by Matt Cook, Head of Networks & Security at Loughborough as 'Social media monitoring, and so much more ...!' Once it has identified a reference to the organisation in social media, the tool uses Bayesian technology to rate the reputational risk automatically. It will also provide support and guidance on how to address a problem identified, and it is 'smart' in that it learns and adapts as the institution manipulates the results data according to its needs.

The interface is web-based and has been developed to provide easy-to-use features, with simple, non-technical language. There is also an automated translation facility available in international languages with an option to correct the automatic transliteration.

'We are really pleased that ESISS has already delivered some outstanding results and has traction in the sector, particularly as it is the first HEFCE funded shared service pilot to go live' – Paddy Walker (HEFCE)

The project was initially rolled out to institutions in the East Midlands and now counts eight universities as its users. It went live to the wider community on 1 March. 'The feedback so far,' says Matt, 'is very positive. The tool provides a perfect opportunity for IT and Marketing Departments to work together; it not only tracks the reputation of the organisation through social media, it also enables testing to be done on a more technical basis (checking for network vulnerabilities etc).'

Benefits

The tool has been developed with the specific needs of academia in mind, focusing on the activities of the sector, and can be used for a number of activities including monitoring Twitter, Facebook and forums specific to academia (TheStudentRoom, WhatUni and RateMyProfessor).

The dashboard can also be used to track marketing campaigns, for example for the launch of a new course, and it can be a useful tool to encourage managers to embrace social media, showcasing its use in developing risk mitigation strategies. In the case of the research sector, the dashboard can also provide statistics mapping for later analysis and anonymous positioning can be

done against other institutions to help universities set their reputation against others.

Technical monitoring provides staff with an immediate high level view of Internet accessible risks and discovers vulnerable Wordpress installs, open relay checks, user credential theft and over 30 other tests.

The Reputation Dashboard was born out of a variety of needs identified through Networkshop, JANET training courses and various mailing lists common to the JANET community. It took six months to develop and was piloted throughout the East Midlands region in December 2009. In order to sustain and develop the model for future enhancements and staff support, the application will be charged on an annual subscription basis. However ESISS will be making certain components available on an open-source basis for others to use after the service has matured. Support is provided through a dedicated phone line, open 8.30-5.30 weekdays, and an email alias. Many additional components are planned and will be added on an ongoing basis.

For more information on the Reputation Dashboard please go to: <http://www.esiss.ac.uk/subscription/reputation-dashboard/>

Matthew Cook
Network & Security Manager
Loughborough University
M.S.Cook@lboro.ac.uk

JANET Training makes Virtualisation more real

In response to increased interest in virtualisation, JANET Training has updated its popular 'Introduction to Virtualisation' course and added an upgrade to the NetLab training facility that will give delegates realistic, hands-on training.

Infrastructure virtualisation has multiple benefits to an organisation and the financial benefits are a key driver in the current financial climate. Materials for the course provide delegates with an introduction to the technology, focusing on the networking and security aspects of the software and how to integrate the technology onto the campus network.

As part of our commitment to realistic training activities in JANET courses, delegates can use the NetLab training facility to gain access to real networking hardware to configure and interact with. The addition of VMware Lab Manager in NetLab's recent upgrade to VMware ESX 4.0 vSphere allows training courses to be provisioned automatically on NetLab and removed once the training has been completed. This reduces the time taken to prepare activities each time a course is run as well as providing a rich and diverse environment that models campus networks.

Meanwhile a new course is now being developed, 'Implementing Virtualisation and Cloud Computing', which will be integrated into the JANET Training portfolio later in 2010 and will provide delegates with a practical overview of what is required to support this technology now and in the future.

Katharine Iles
E-learning Service Manager
katharine.iles@ja.net

Business & Community Engagement Workshop

Business and Community Engagement (BCE) is increasingly important for universities and colleges at a local, regional, national and global level, and it is important that JANET both enables and continues to make a contribution in this area. In order to help inform the JANET strategy a JANET Stakeholder Group BCE Workshop was held on 19 January, chaired by Professor Di Martin and attended by 25 representatives from Government Departments, Research Councils, HE, FE, schools, funding bodies, sector membership organisations and JANET(UK). Case studies were presented by John Latham (Coventry University), Mark Toole (University of Stirling) and Matt Cook (Loughborough University).

Delegates concluded that BCE covers many areas including knowledge transfer, research and consultancy, employability, up-skilling a workforce by continuing professional development, conference provision and work placement. Often where facilities exist on campus such as theatres and sporting facilities, it is seen as appropriate for local people to use them as part of linking with the community. At the same time, a global presence was seen as being important for many organisations: only having a UK presence is probably suboptimal for most universities.

The customer base of organisations is now much greater and more diverse than ever. There is an emphasis on research and how it can be used to create economic wealth. Partnerships are made with companies, other public sector bodies, the NHS and often the voluntary sector. University and college staff have increasingly dynamic roles within different contexts, engaging with continually changing groups.

There is an increase in employer-based learning which requires complex arrangements to integrate university, college and employer systems. Retaining a connection with the

student or learner, wherever they are – at university, college or in a business location – is a fundamental aspect of BCE. BCE partner expectations can be demanding too: global companies increasingly expect organisations to work in the same commercial manner as they do.

The workshop helped to identify that the JANET policies for acceptable use and connectivity may need to be clearer in the area of providing a JANET connection for commercial activity on campus. Differing interpretations of JANET policies at local level are leading to inconsistent arrangements, with time limitations and the complexity of legal terminology causal factors. It is often unclear where policy interpretation occurs within the organisation and therefore it is difficult to direct communications.

The key JANET features of bandwidth provision, stability and resilience were regarded as excellent. For the future, JANET is increasingly going to be about network access and, perhaps more importantly, will be about the services provided over the network, with JANET being seen as a carrier of services or platform provider. The funding bodies recognise that every sector in education is better served by a single homogenous network rather than having separate links and arrangements. For HE the provision of JANET is seen as a supplement to the universities grant and there is no wish to see restrictions placed on JANET that will be a barrier to meeting future demand.

Delegates suggested a number of ways that JANET(UK) should consider permitting organisations to provide access to JANET, possibly through a strong gateway policy, determined and managed by individual organisations, within principles and a framework set by JANET. This would allow the equivalent to the current sponsored connections for third stream initiatives to

'The key JANET features of bandwidth provision, stability and resilience were regarded as excellent.'



be handled more easily, rather than each application being determined individually by JANET.

Finally, it was noted that the potential of JANET and its services is not always recognised by the community. This was referenced in the recent Value for Money study, which had a section focused on the provision of services and transparency of costs. It was felt important for an organisation to be able to identify what JANET services have been used and what have been paid for.

It was commented that if barriers are present in BCE it may be as a result of organisational processes and perceptions of JANET rather than whatever JANET itself is offering.

Comments and suggestions from delegates will help to shape the future JANET strategy to ensure that the BCE activities are both enabled and supported. Notes and presentation slides are available for download at www.ja.net/company/stakeholders.html.

Robert Prabucki
Business Manager (Local Authorities)
robert.prabucki@ja.net

Glow Interconnect 2 – Connecting Scottish Schools

March 2010 saw the official launch of the newly procured **Glow Interconnect 2.0**, previously known as the **Scottish Schools Digital Network**. The new network connects all of Scotland's 32 Local Authorities and five other educational sites onto the JANET network. The Interconnect 2.0 provides high bandwidth communications between the local authorities, the Glow datacentre and other national bodies such as Learning Teaching Scotland (LTS), the Scottish Qualifications Authority (SQA) and SEEMIS. It is managed by LTS and delivered by Thus and JANET(UK).

JANET plays a major role in providing global Internet access and services within the backbone of the Interconnect 2.0 across Scotland. Thus delivers the Interconnect 2.0 to the five JANET PoPs in Scotland, which are located at Aberdeen, Dundee, Edinburgh, Glasgow and Inverness. All local authority traffic, once it reaches the PoP, is transferred over the JANET network.

Glow and JANET

The Interconnect 2.0 allows all of Scotland's state primary and secondary schools to access the Glow Intranet (the world's first national intranet), web-based resources and the rest of the JANET community, while the Glow Intranet has the means to reach its potential 800,000

users including teachers, administrative staff, pupils and parents. All of Glow's services will be underpinned by the Interconnect including videoconferencing facilities.

Schools within Glow have two videoconferencing solutions available: Glow Meet, which allows videoconferencing within the Glow environment for registered users, and the JANET Videoconferencing Service which allows schools to hold videoconferences outside the Glow environment and outside of Scotland. Local authorities can make use of this excellent facility to reduce travel times and associated costs. Interfaces have been created to allow videoconferencing sessions between Glow Meet and any JVCS-registered H.323 or H.320 end-point.

Scottish local authorities can use the full range of JANET services, including the JANET Certificate Service, JANET txt and the JANET Videoconferencing Service. Local authorities are part of the JANET community and we look forward to developing our relationship with them, understanding more fully their needs and working with them in future developments.

Frances Neilson
Business Manager
(Scotland & Northern Ireland)
frances.neilson@ja.net

JVCS Desktop

The advantages of JVCS Desktop are becoming apparent as users trial the desktop videoconferencing system, launched in November 2009.

The JVCS booking service already provides the flexibility for registered users to invite anyone, anywhere in the world, with videoconferencing equipment to join them in a videoconference. JVCS Desktop allows guests without dedicated equipment or a venue to participate in a videoconference using just a Windows desktop or laptop PC, a webcam and a headset with microphone.

Universities have been using JVCS Desktop to conduct interviews and meetings with guests at home and abroad. Joe Gillett, Science Audio Visual Coordinator from the University of West of England, was one of the first to trial the feature from September 2009. He comments:

'We have been using the JVCS Desktop to interview potential PhD students across the globe. The real advantage is that it brings videoconferencing communications to users who do not have access to full-scale videoconferencing equipment. This means that we are able to offer such placements on a global scale with ease, thus widening the scope for talent and giving everybody an opportunity. Recently we have appointed a PhD student from India who was interviewed via JVCS Desktop without requiring any travel to the UK.'

Interviews are not the only area where JVCS Desktop has enhanced communications; we have been running research collaboration with links into industry, which would not have been possible without this system. The use of JVCS Desktop and videoconferencing has not only enhanced communications but saved time and money and of course, most importantly, it has reduced the university carbon footprint.'

Latest news: the next phase of the rollout of JVCS Desktop will extend its capability to allow users to talk desktop to desktop, making it even more accessible to the academic community we serve.

Helen Visram
Network Services Co-ordinator
helen.visram@ja.net

For further information on how to start using JVCS Desktop visit: <http://www.ja.net/documents/services/video/jvcsdesktopguide.pdf>



Optical Networking State of the Art: JANET Optical Briefing

Experts in optical networking from both the academic and commercial sectors were brought together to provide a fascinating peek at the future for the education and research community, at the JANET Optical Briefing which took place at the Institute of Physics in London on 8 February 2010.

Jeremy Sharp (JANET(UK)) chaired the morning session and opened the meeting with some background. He noted that the contract for the present JANET backbone will be extended to October 2013, and that significant effort has been made to ensure enough capacity and additional engineering to grow. He highlighted the recent tests with 100Gbit/s connectivity and also spoke about future opportunities for JANET, namely the JANET6 network. JANET(UK) is working with JISC and the funding bodies to secure funding. He also mentioned the research requirements workshop in June.

David Salmon (JANET(UK)) spoke about the requirements for an advanced optical infrastructure from an NREN perspective. David's presentation explored why JANET, as an NREN, and the education and research community in general are interested in the latest advances in optical infrastructure. He looked at our customer profile compared to the drivers for commercial providers and mentioned that the previous SuperJANET4 backbone was built on leased fibre but the present backbone provides access to the fibre itself, as will JANET6. While this level of control brings flexibility to the services that JANET can offer, David highlighted the significant cost reduction that this transition has also brought and concluded that there are a wide range of interesting possibilities and practical concerns.

Nigel Baker (NEOS Networks) spoke about the requirements for an optical infrastructure from the perspective of a telecommunications provider perspective, saying that their thinking is dominated by costs. It is a highly competitive industry driven by the need to make a profit. Nigel expanded on some of David's comments. He spoke about keeping an eye on major data centres for 40G and 100G connections, focusing on protection and restoration. Fast restoration depends on utilizing the control plane. Networks are coming to a situation where costs and delays are due to human intervention: there is a clear need for autonomous operation. A key point was the observation that network engineers are loath to give up manual control: however, when their engineers began to make use of control plane technologies, it worked well. Nigel said the key is measurement and monitoring, i.e. engineers need to see it is doing what it is supposed to do.

Mark Gibbon (Nortel Networks) gave an interesting talk about high transmission rates – a review of 100G, exploring some of the issues involved in moving from 40G to 100G.

The afternoon session was chaired by David Salmon. David Boyle (Ciena) spoke about the state of the of art optical networking. He talked about switching at 100G line rate; covered some details regarding optical transmission networks and wavelength-division multiplexing; and spoke about Ciena layer 1 control plane for restoration. He went on to review operational issues with control planes, speaking about the real efficiencies and benefits and echoing Nigel's comments about the concerns of network engineers to give up manual control.

Eduard Escalona (University of Essex) spoke about network provisioning in optical networks,

complementing Nigel and David's perspective with a review of activities within the research and education community that highlighted operational costs and reviewed the activities of the DICE group, consisting of Dante, Internet2, Canarie and ESNET – the research and education networks for Europe, the US and Canada.

John Colton (Lucid Optical Services) spoke about fault finding and trouble shooting on optical networks. His talk was a fascinating insight into challenges that most users wouldn't think about. He extended some of the points mentioned in David Boyle's talk regarding characterization of fibre and added that careful testing is critical. The danger of poor testing is that it misses real faults and finds faults that don't exist.

Alwyn Seeds (University College London) concluded the presentations, speaking about new technologies for optical networks. He covered the advances made by several UK research groups in the area of fast optical switching and highlighted research published at several conferences. He also mentioned JANET Aurora, the photonics research network across JANET.

In conclusion, the briefing consisted of a fascinating series of presentations which provided an overview of the current status. The complementary views from the education, research and commercial sectors gave the participants a peek into the direction of advanced optical networking that will aid their planning and decision making. David Salmon closed the meeting: he thanked the speakers and participants and said he looked forward to seeing everyone again.

Warren Matthews
Research Support Co-ordinator
warren.matthews@ja.net

JANET Research Requirements Workshop

JANET(UK) is organising a workshop on 23-24 June this year to discuss the future research requirements of the JANET network.

The workshop will be held at Chicheley Hall, Newport Pagnell and will bring together a representative cross-section of people across a broad range of research disciplines to seek their views on how JANET should support their work.

A similar workshop was held in 2003 as part of the preparations for the procurement of the present JANET backbone. As this process begins again for the next backbone it is time to consult once more about the requirements of the Research Communities for a future network over the coming decade.

Anyone interested in contributing to this workshop should request an invitation to participate via the following web page, where further background information may also be found: <http://www.ja.net/services/events/2010/ResearchRequirements/details.html>.

If the workshop is over-subscribed, there will be other mechanisms for people to make their views known. JANET(UK) will balance the attendance across disciplines to seek the broadest community representation.

David Salmon
Research Support Unit Manager
david.salmon@ja.net

Forthcoming Events 2010

JISC Conference

13 April 2010

Queen Elizabeth II Conference Centre, London

Come and meet JANET(UK) staff at the Surgery Session "JANET: Working with the Community" 11:55 - 12:15 in Lounge 2 - Promoting Institutional Effectiveness

JANET Research Requirements Workshop

23rd and 24th June 2010

Kavli Royal Society International Centre - Chicheley Hall



Events Calendar

<http://www.ja.net/services/events/calendar-2010.html>

Forthcoming Courses



APRIL

- | | |
|---|------------------------------------|
| Firewalls: Planning and Implementation | April 13th 2010 - Glasgow |
| Virtualisation Fundamentals | April 14th 2010 - Glasgow |
| Wireless LAN Fundamentals | April 28th 2010 - Newcastle |

MAY

- | | |
|--------------------------------------|-----------------------------------|
| Managing IT Security | May 11th 2010 - Birmingham |
| Information Security Policies | May 12th 2010 - Birmingham |
| Basic Networking | May 25th 2010 - Manchester |
| Basic Router Configuration | May 26th 2010 - Manchester |
| IP Fundamentals | May 27th 2010 - Manchester |

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>

Reports

Quarterly Report to the Community (November 2009-January 2010)

<http://www.ja.net/services/publications/reports/quarterly-report/qr-winter09>

Corporate Plan 2010-2012

<http://www.ja.net/documents/company/corporate-plan-2010.pdf>

Newsletters

JANET News 10

<http://www.ja.net/documents/publications/news/news-10.pdf>

Leaflets

Videoconferencing for Schools (033 (11/09))

<http://www.ja.net/documents/services/video/vc-guide-for-schools.pdf>



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).

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