

JANET News

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300th member of the UK Federation

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Front cover image: Masks in Kelvingrove museum, Glasgow, venue for the Networkshop 36 conference dinner.

Editorial

JANET launched in April 1984, springing fully formed from the pre-existing SERCnet of the Science & Engineering Research Council. Its remit was to link together the UK's universities and Research Councils. Its main use was to shift large quantities of research data from one location to another.

It might have come as quite a surprise to JANET's founders to learn that it would one day be used to broadcast rugby matches.

IPTV rears its head twice in this edition of JANET News. On page 4 there is a report on the IPTV broadcast of the 2008 Real Varsity rugby match between Loughborough University and Team Bath – over JANET, naturally. Meanwhile page 8 reports that JANET(UK) has formed an IPTV Special Interest Group to help understand how JANET-connected organisations are dealing with IPTV, and what JANET(UK) needs to do to support this.

In the history of networking, advances have always come from responding to user needs rather than dictating them. JANET has always been the medium, leaving the messages to its users. JANET's primary purpose is to support UK education and research, and that is how it defines its user community; but what that community then requires of JANET is up to those users. There is no secret JANET committee that frowningly studies JANET usage to decree what is and is not in line with the JANET vision; rather, there are Special Interest Groups and Networkshop and account managers that listen to the requirements of the community and help JANET respond to them.

The rugby match was not just broadcast to please Loughborough's sporting aficionados – though it did of course demonstrate the university's excellence in sport. Such demonstrations have underlying university business benefits as well as progressing the technology – a principle that can be applied by any JANET connected organisation. From JANET's point of view, it also demonstrated the possibilities of the backbone's high-speed, multicast-enabled infrastructure; and as the article concludes, "The event sets a bar for future streaming multimedia productions, both academic and non-academic, within the JANET community."

JANET(UK) is currently working with a number of student-focused IPTV based projects, including INUK's Unibox TV and the Open Student Television Network (OSTN); and also, at the other end of the scale, with organisations such as the IET to deliver scholarly lectures. The range of academic activities made possible by TV is enormous. Videoconferencing with your students enables other interactive tools to be brought online as well to enhance the session; access opens up to a huge range of resources; and the medium encourages collaboration between students, researchers and organisations. Key to all this, and to all future development, is a very high standard of transmission – and that is what JANET provides.

That is why at Networkshop 36 in April there was discussion on delivering not just standard definition TV services but also HD, ultra HD and other TV-enhancing technologies. This would have been extremely forward thinking in 1984; in 2008 these are all well on the way to being elementary requirements for any network. JANET gets there first.

Ben Jeapes
Technical Editor
ben.jeapes@ja.net

Real Varsity 2008 IPTV Broadcast

April 2008 saw the culmination of months of planning on the part of Loughborough University's IT and Media Services departments and its student union TV station (LSUTV), leading to the IPTV broadcast of the 2008 Real Varsity rugby match against Team Bath.

Planning started in February 2008 as the impact of social IT networking was articulated by Loughborough's Director of IT, Dr Phil Richards. The power of the global Internet, combined with the bandwidth and facilities available on the JANET network, allows organisations to reach far wider than terrestrial or satellite broadcasting; students, prospective students, alumni – anyone could be watching from all around the world.



Photo: Seamus McDonagh

The responsibility for the technical aspects of televising this year's Real Varsity match over the Internet was given to Gary Parker from the Network and Security team at Loughborough

University. Initial expectations were for a static camera covering the whole field that would be accessible from the Internet. Whilst being perfectly feasible with JANET's high-speed, multicast-enabled, infrastructure and multiple, high-speed, peerings with the wider Internet, this would not have demonstrated the best use of the technology now available to the industry.

The IT Services department within Loughborough has a very good working relationship with LSUTV. The quality of their programming is exceptional and LSUTV have won many awards in various areas due to this. Following discussions, the Real Varsity rugby match appeared to be the ideal project for a joint venture to produce a more entertaining and professional programme whilst showcasing modern technology and the benefits of the JANET network. Inuk Networks were enthusiastic for the programming to be available via their Freewire platform on an exclusive student generated content channel and this seemed like a natural partnership.

At 16:45 on 30 April programming went live with a selection of unicast and multicast video streams in MPEG4 and H.264 formats, generated using Vara Software's Wirecast3 application, Apple's QuickTime Streaming Server and an EN5930

encoder kindly loaned to the University by Tandberg UK. Unibox student TV supported the event, bringing some invaluable technical guidance and, importantly, additional camera equipment to increase the number of concurrent feeds available to the programme director. The show was broadcast live across the Internet for four and a half hours, covering both the men's and women's matches with live commentary and score cards, a studio presenter with pundit interviews, pre-recorded interview segments and features, team line-up graphics and a pitch-side roving reporter. Within excess of 3,000 fans in the purpose built stadium around the First XV pitch and wins in both matches for Loughborough, the atmosphere was electric and made for an amazing show. In addition to being watched live on the Internet we were also asked to provide a live feed of our coverage into the VIP area of the hospitality suite for match attendees and various communal locations at Loughborough University and other JANET connected sites.

The quality of the content produced by LSUTV and Loughborough's Network and Security team in IT Services, coupled with the performance of world-leading JANET, has set a high bar for future streaming multimedia productions, both academic and non-academic, within the JANET community.

Gary Parker
Loughborough University
IPTV Special Interest Group Member
g.j.parker@lboro.ac.uk

JANET wins Government Computing shared services award

JANET won the Shared Services category at the Government Computing Awards for Innovation. The awards were launched in 1996 and provide accolades for public sector organisations that have harnessed technology to provide better services and a better deal for the taxpayer. The award was presented by Michael White of the Guardian.

Tim Marshall, Chief Executive of JANET(UK) commented: 'Following on from our success in

the eGovernment awards earlier this year this is further confirmation of the tangible benefits that JANET delivers to both its customers and the tax payer. Driven by the exacting demands of research and higher education the benefits of the network are then able to be shared to meet demands right across the UK educational landscape.'

Sir David Wallace, Director of the Newton Institute at Cambridge and formerly chair of the

UK e-Science Programme said: 'I am delighted that the JANET team has received this award. They provide services which are internationally competitive and really serve the UK academic community. In such a fast moving field, they are always looking to innovate and have a proven track record in doing so. The award is thoroughly deserved.'



JANET(UK) Appoints New Chair

JANET(UK) has appointed a new Chair from August 1st. Oxford University alumnus Roger McClure has recently retired as Chief Executive of the Scottish Funding Council. His informed knowledge of JANET's stakeholder community provides him with a unique insight into the needs and challenges of this important sector.

Tim Marshall – CEO, JANET(UK) said 'We are very grateful to the current incumbent Professor Peters for his period of chairmanship.

He has overseen key developments and changes within JANET(UK). We are delighted that Roger McClure will be joining us, bringing his distinguished track record and experience.'

Dr Malcolm Read, Executive Secretary of JISC, said: 'I'm delighted that Roger McClure has been appointed to the post. We at JISC look forward to engaging in a positive and strategic dialogue with the Board.'

Professor David Eastwood, Chief Executive of HEFCE, said: 'I am confident that Roger McClure will use his wide knowledge of HE and the different stakeholders to take JANET(UK) forward as it meets the challenges for all its users'



JANET Gears Up for New Netsight Release

Summer 2008 will see the release of the 2nd generation JANET Netsight. The service provides visibility of current and past JANET performance and is available to organisations with JANET primary connections and the Regional Network Operators. The new system is built on a powerful, extensible architecture, designed to support our vision for its measurement and monitoring activities.

Developed in-house and deployed in 2002, the original Netsight grew from just two servers at the then-UKERNA offices and JANET Network Operations Centre to a presence in each Regional Network. The tool is much used by organisations and Regional Networks alike, and while Netsight is not an operational network management tool, providing end sites with visibility of the network and their own connections is an essential part of the overall JANET service.

Today's JANET community has greater measurement and monitoring needs, as highlighted by the high-level SuperJANET5 project requirement to improve 'visibility'. In response, JANET(UK) worked with an external software house (Tessella) to develop the second generation Netsight.

Major Improvements

Migrating to a central, relational database realises two major advantages: it supports powerful analysis and removes the need for data aggregation (averaging). Both Netsights make measurements at one or five minute intervals, however the original system removes raw

data after three months, replacing it with daily averages and maximums. Detail is thus lost.

A central database makes all data available at one point. The original stored data locally on regionally based machines. A user requiring data for x regions thus needed to access x machines.

Initial Release

The initial release of the new system will have broadly equivalent functionality to that of the original system. The system will collect traffic data from router interfaces and run ping tests, with the data presented via graphs of traffic levels, availability and Round Trip Time; traffic light pages; and a schematic map of the network core.

That said, the initial release does offer immediate improvements:

- Graphing supports flexible ('click and drag') selection of timescales.
- Schematic network maps can be defined for regional and local areas, featuring clickable areas which allow users to 'drill down' for more local detail.
- Ability to annotate graphs for particular paths, e.g. to explain past outages.
- Users can be sent alert e-mails based on pre-defined test conditions (initially available to ja.net e-mail addresses only).
- Resilience of data collection and delivery

The Future

Subsequent releases of the new Netsight will build on the system's extensible architecture to

enable the collection of further measurement types. For example, previous JANET(UK) projects, such as the QoS project, have used the IP-SLA functionality of sets of distributed Cisco® routers to create networks of dedicated test nodes. IP-SLA is capable of providing extra measurement types, including jitter. Plans exist to deploy IP-SLA nodes at various points across the network, which will accept tests from 'master' nodes in the core.

Keeping data at its full resolution (no aggregation) combined with additional measurement types will provide users with a richer view of JANET performance.

Returning to the SuperJANET5 'visibility' requirement, an area for future focus will be the dissemination of Netsight data to academic researchers within the JANET community. The new Netsight's flexible user permissions and extensible architecture have been in part designed to meet this need. JANET(UK) has also developed a legal and policy framework for the release of data, which will be anonymised where appropriate.

JANET(UK) is also procuring a new solution for the analysis of network flow data. Correlation of NetFlow and Netsight data is highly desirable, allowing us to relate analysis of how the network is used (NetFlow) with 'how much' and 'when' it is used (Netsight). Work is now progressing to see how these two aspects might be brought together in the future.

Mark Leese

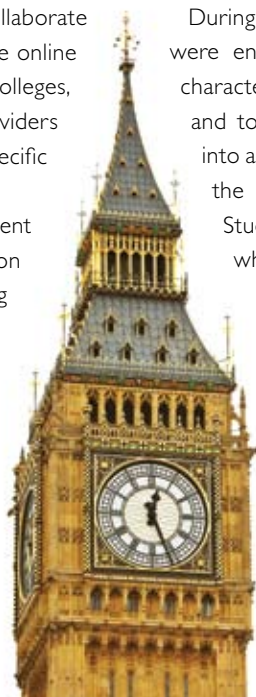
Measurement & Monitoring Technical Specialist
mark.leese@ja.net

Hear, Hear, Say the Schools

JANET Collaborate teamed up with Parliament's Education Service in May to offer a new interactive videoconferencing programme for Primary and Secondary schools. This was available to schools via the JANET Collaborate videoconferencing pilot, an interactive online interface which links schools, colleges, universities and content providers looking to initiate, join or deliver specific conferences and conference topics.

The first of the hour-long Parliament videoconference sessions focused on the issue of Prison Reform, bringing to life the role of Parliament, both historically and in the present time. The conferences included the opportunity for students to communicate directly with members of the House of Commons or House of Lords.

Set amidst the backdrop of Victorian prison reform, the session was based in 1878 as the government took control of the



prison system. Students had the opportunity to meet a Victorian prison governor and a long-term prisoner as they talked about their experiences of life in Pentonville Prison.

During the workshop, the children were encouraged to engage with both characters, played by costumed actors, and to ask questions before being led into a debate on the issues surrounding the prison system and its purpose.

Students had the chance to explore what prison is for and whether it works from both historical and contemporary angles; developments in the prison system and the role played by Parliament in its reform; as well as the future of prisons today.

Each workshop was concluded by a member of the House of Commons or House of Lords, who discussed the role of Parliament in relation to this issue.

A pack of preparation materials was sent to schools in advance of the sessions, including background information and discussion topics, to help students prepare their arguments in advance of debating the issues involved.

'We are delighted to be helping Parliament deliver this videoconferencing programme to schools,' said Tim Boundy, Schools Content Co-ordinator at JANET(UK). 'We hope that JANET Collaborate will continue to play a key role in facilitating this and future exciting initiatives.'

Tim Boundy
Schools Content Co-ordinator
tim.boundy@ja.net

To find out more and register for free on JANET Collaborate for similar opportunities, please visit: www.janetcollaborate.ac.uk

New Videoconferencing Partnering Programme for Schools and Colleges

A new programme from JANET Collaborate allows schools and colleges to find another partner school or college to videoconference with on any topic or in any age group.

A growing numbers of teachers and schools have access to videoconferencing technology. The VC Partners service is designed to allow schools to share educational opportunities with other schools, working collaboratively with partners across the country.

Teachers and lectures can find the VC Partner opportunities on JANET Collaborate by searching for the term 'partner' on the JANET Collaborate site. 'We signed up last week and got a partner school within half an hour! It seems to work well,' says Mike Prince, Headteacher at Staveley CE Primary School.

Currently partnerships are available for all year groups. Interest can be registered and a partner requested by clicking 'Join' on one of the VC Partner opportunity pages. There are also partnerships for schools in both rural and inner-city communities to compare lifestyles with a school from the opposite environment.

Once two members of JANET Collaborate have joined the same VC Partner opportunity they are introduced and provided with guidance towards using videoconferencing to collaborate.

The VC Partners programme has got off to an excellent start; it went live on Thursday 24 April and on the first day of launching the service, 7 partnerships between 14 schools were created. These partnerships span different cultural, geographical and year groups.

The JANET Videoconferencing Service (JVCS) now has almost 3000 school venues registered with more joining every month. It is estimated that around two thirds of the schools conferences booked via JVCS are school-to-school videoconferences. The remaining third involve a school and an educational content provider such as a museum, library or archive.

Ideas for content and activities will shortly also be available via the VC Partners programme on JANET Collaborate.

Tim Boundy
Schools Content Co-ordinator
tim.boundy@ja.net

Happy Birthday JANET txt



Launched on 7 May 2007, JANET txt has reached its first birthday as a service to the JANET community. JANET txt is a suite of web-based SMS services which allow users to communicate via text messaging for a multitude of educational applications.

The service had been taken up by almost 120 JANET connected organisations from all sectors across education, with 1.25 million messages sold into the community.

The service has a multitude of administrative applications and is continually providing benefits to communications and marketing activities. It is making its way into Business Continuity Plans for many JANET connected organisations. Notifications of EMA payments for college students proved particularly useful during the postal strikes; the service also proved its worth during the recent teachers' strike where SMS was used as a key communication tool for teachers, parents, guardians and administrators; and a key impact has been the application of text messaging for development and mentoring purposes, particularly with special needs students and vulnerable adults.

Anyone wishing any additional information can find it at: <http://www.pageone.co.uk/janettxt>

Paul Wakefield
JANET Account Manager
paul.wakefield@ja.net

JANET(UK) and PageOne have been selected as finalists for the Best Service Category for the 2008 GO Awards which reward excellence in public procurement.

JANET txt to Integrate with Moodle

The user base of the JANET txt messaging service will expand with an open source add-on module for the Moodle Virtual Learning Environment (VLE). Developed by PageOne in conjunction with Kidderminster College, MoodleMobile lets Moodle users send and receive text messages directly within Moodle using JANET txt. It will launch this summer and be free to download.

<http://www.pageone.co.uk/janettxt/moodle.aspx>

The UK Federation

The UK Access Management Federation for Education and Research continues to grow rapidly, with membership passing 300 organisations.

One of the big drivers in the growth of take-up is associated with the availability of educational software and content within the federation from service providers that include the BBC, Microsoft and Science Direct. At the time of writing JISC Collections predicts that at least 72% of the content services it procures will be available within the federation by the end of July. Already 80% of Becta's schools Learning Platform providers have deployed UK Access Management Federation technology, with the remainder committed to become members.

As well as simplified access to electronic resources, other reasons why organisations join the federation include improvement in privacy protection for students and teachers; security improvements in moving away from legacy

authentication systems such as IP address based checks; and the fact that the federation is free at the point of use for educational organisations and service providers.

Organisations that have joined the federation are now considering how to use federation technology to help them consolidate the management of access to internal services and allow them to provide access to these services to other partner and customer organisations, in line with the government's drive towards shared services.

The technology underpinning the federation continues to develop rapidly with the release of Shibboleth 2 by Internet2 and the development work undertaken by the OASIS standards body. To ensure that the federation keeps pace with the developing environment, an updated version of the federation development roadmap will shortly be available from the federation web site.

Organisations still planning to migrate to federated access management have a range of participation options available:

- deploy software such as Shibboleth, which at this time is deployed by over 95% of members
- commission the deployment of suitable software by a third party provider
- outsource their identity management solution to a third party.

Further details of these options are available from <http://www.ukfederation.org.uk/content/Documents/Participation>

Henry Hughes
Middleware Group Manager
Strategic Technologies
henry.hughes@ja.net



300th Member of the UK Federation

YHGfL, the Yorkshire Humber Grid for Learning, has become the 300th member of the UK Access Management Federation. Frances Burton, JANET(UK)'s Schools Co-ordinator for the UK federation, and John Chapman, Project Adviser: Strategic Technologies at Becta travelled to the YHGfL offices in Scunthorpe on 25th April to present CEO Phil Moore with a plaque to celebrate the event.

YHGfL joins a growing number of Regional Broadband Consortia and Local Authorities that are helping schools to take advantage of simplified and secure access to online content and resources.

The federation is operated by JANET(UK) on behalf of Becta and JISC, and brings the entire UK education and research sector a step closer to achieving single sign-on to network and online resources. For schools, the federation helps address government objectives such as the Harnessing Technology e-strategy which advocates 'anytime, anywhere' access to educational material. Participating in the federation enables schools to meet the requirements of Becta's ICT technical infrastructure framework.

The Government's e-safety initiative refers both to education and ICT infrastructure,



Left to right: Frances Burton, JANET(UK); Phil Moore, YHGfL; John Chapman, Becta

and Becta's National Digital Infrastructure framework makes recommendations for digital security. Authentication via the federation forms part of this framework, protecting personal data and preserving the privacy of its users. Federated access management allows children to have access to trusted online educational sources, and as no personal data is released during authentication, organisations can more easily comply with Data Protection Act (DPA) requirements.

Phil Moore commented, 'We see membership of the federation as an important and logical step towards securing eSafety for all learners in our region. The benefits of membership are significant and will enable us to be more responsive to the needs of our consortium of local authorities.'

Frances Burton
Schools Co-ordinator – UK Federation
frances.burton@ja.net

Lost in the Access Management Maze?

At the beginning of the year, JANET Training launched two oneday courses on topics relating to the UK Access Management Federation. Both of these courses are led by individuals who are working at the forefront of the roll-out of the UK federation and actively involved in supporting organisations in this area.

- **Introduction to the UK Federation** provides an overview of what's required of organisations wishing to join the UK federation. The course includes suggested ways of deploying UK federated access management and the likely challenges

of doing so. This course will be relevant to anyone interested in knowing more about the UK federation, particularly those involved with implementing the service or deciding on deployment strategies. Delegates do not need to come from a technical background but due to the nature of the topic, some technical terminology will be used.

- **Implementing Shibboleth at your Organisation** provides a number of hands-on labs for delegates to work through centred around the installation and advanced configuration of a Shibboleth Identity Provider. This will then be tested

against a reference Shibboleth Service Provider. This technical course is aimed at anyone responsible for implementing a production federated access management service who has system administration skills with either Windows Server 2003 or Red Hat Linux.

Development of a further course on the implementation and configuration of a Shibboleth Service Provider is planned for September this year.

Further details, dates and online booking are available at: <http://www.ja.net/services/training/courses.html>

JANET Aurora and Next-Generation Networks

An experimental network testing project funded by the DTI and EPSRC is using the JANET Aurora dark fibre infrastructure as a core facility.

The HIPNet (Heterogeneous IP networks) project (www.hipnetproject.org) is run by a consortium of five universities (Aston, Cambridge, Essex, Leeds and Swansea) and three industrial partners (Ericsson, Freescale Semiconductor and Emerson). Through the combined use of simulations and experimental network testing, the project aims to better understand the implications of converged service delivery across heterogeneous wired/wireless networks, and to develop methods and techniques that economically ensure the required end-to-end quality of service for multiple heterogeneous services in next generation networks. The project will conclude in June 2009 with industrial and academic network testbed demonstrators. The academic network testbed will be hosted by Cambridge and Essex universities and demonstrate the transportation of a variety of current and future traffic types across an agile, multi-layer network employing future optical and wireless technologies.

The JANET Aurora link enables Cambridge and Essex universities to function as a joint virtual research centre and to share research network resources, services and test equipment, amalgamating the complementary expertise and facilities at both organisations to enable a larger and more representative network to be evaluated than could otherwise have been achieved. Traffic emulators have been constructed to produce large quantities of data flows, representative of real services such as streaming video, interactive video, IP telephony, data traffic, peer-to-peer and other future services. The performance of real applications and services in the presence of these controllable background traffic sources will be monitored in network congestion scenarios to evaluate the multi-layer traffic management techniques and concepts developed within the project.

Photonic switching at the optical layer is key to alleviating future congestion at network hotspots as it will provide optical bandwidth to the electrically switched layers dynamically and on-demand. The photonic switching nodes located at the universities will help

Introducing JANET Aurora

One of the largest test-beds in Europe for optical networking, JANET Aurora is a dark-fibre facility to support photonics and optical systems research and was described in December's JANET News 2. With 350 km of dedicated fibre, it enables research groups to undertake research and development projects on new optical networking techniques and concepts in an environment without the constraints of production services with their attendant service level agreements.

The research topics will range from greatly increased transmission rates when compared with current norms (10Gb/s), to closer interaction between the applications using the networks, and the networks themselves. The results of these projects may in turn influence the features to be found in future commercial systems which will underpin networks such as JANET.

Following acceptance of the infrastructure in December 2007, research staff have been installing transmission equipment to commission Aurora as a platform to support their projects, and the research work has now begun. The first phase of use involves extending existing projects to take advantage of the new facility, and this will evolve to supporting new projects as they are funded. One of the first projects to use Aurora is the DTI and EPSRC funded HIPNet project which is described in more detail here. Future articles will cover the work of other projects as they become established

<http://www.ja.net/services/aurora/>

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

demonstrate the optical technologies by the simultaneous transportation of heterogeneous signals consisting of multiple protocols, modulation formats and bit-rates between the sites. The optical impairment-aware algorithms developed and verified through network simulations will also be validated across the link between the sites for a variety of bit-rates and modulation formats.

Through the experimental validation of the network simulations of traffic and network behaviour, it is anticipated that a better understanding of the control and management requirements will be gained for next-generation networks. Indeed, it is anticipated that the hardware infrastructure developed within HIPNet will help to spawn further projects that will rely and make use of this unique JANET Aurora network infrastructure.

Kenneth Guild
Senior Lecturer, University of Essex

Adrian Wonfor
Senior Research Associate,
Photonic Systems group,
University of Cambridge



Internet TV on JANET - *Special Interest Group*

JANET(UK) has formed an IPTV Special Interest Group whose role will be to help understand how JANET connected organisational strategies are dealing with IPTV, and in turn what JANET(UK) needs to do to support this.

The company is also in the early stages of working with the BBC to help understand how access to BBC online content services can be improved. Exploratory work is also underway with CineGRID and the JANET community to help understand how ultra High Definition technologies such as 4K (i.e. video with 4000 pixels of horizontal resolution; and soon 8K (8000 pixels)) can be effectively used on JANET, depending upon coding; these technologies require multiple gigabits of bandwidth so careful consideration will be focused on how best to operate these technologies within the JANET environment.

JANET will continue to work with content and service providers in this area where there is a clear benefit to the JANET community.

Past, Present and Future

Throughout 2007 and early 2008 we have seen IPTV become an increasingly prevalent technology throughout the JANET community. Whether this takes the form of traditional television services delivered on JANET, the delivery and viewing of user produced content or the use of streamed video clips, the package of audio and visual services contained under the IPTV umbrella has arrived.

The nature of JANET, and more importantly the JANET community, means that currently IPTV is used on a much larger scale than most other network communities in the UK. IPTV providers are in the early throes of understanding how IP can be used to deliver TV; however at present these are mostly

limited to pay per view type video download services linked in with a set-top box and a hard drive. To the user it may appear that the package of TV services are delivered over an IP connection, but for those domestic DSL users, thankfully this is not the case!

In true JANET style, the community is not satisfied with simple standard definition TV services being delivered. At Networkshop this year numerous discussions took place on how we can push boundaries with the incorporation of High Definition (HD) TV services, and even ultra HD services used by the CineGRID community such as 4K.

Ever increasing bandwidth seems to be the only scalable way to fully embrace HD. While moves are being made to increase the current freeview spectrum to accommodate HD, is this too little too late? Cable is not everywhere and not everyone wants a house on the side of their satellite dish!

The adoption of video on demand was also a key topic for discussion over the last few months. Linear – i.e. traditionally broadcast – TV may not be the appropriate model for media delivery. The take-up of services such as BBC i-player, in isolation, may suggest that video on-demand (VoD) is the future, but it is more likely that a combination of push and pull media – media that is broadcast out to users and video on demand pulled down by users – will be at the core of any future services.

For further information please visit www.ja.net/iptv

Roger Bolam
Voice and Video Development Manager
roger.bolam@ja.net



Networkshop 36 at Strathclyde University, Glasgow

On the 8th to 10th April, Networkshop 36 was hosted at Strathclyde University in Glasgow, returning to the city where Networkshop began in 1977. The event was centred around the magnificent Barony building, with the main plenary sessions and registration being held in its Great Hall. This year's accommodation was held in two separate hotels, rather than halls of residence as in previous years. Those lucky enough to be based within the Travel Inn had only a 10 minute gentle stroll to the university. The remainder based in Jurys Inn had a more challenging, yet scenic, 25 minute uphill walk through the city centre to reach the university, if they were unlucky enough to miss the early morning bus!

The Barony Great Hall and the university's lecture theatres in the John Anderson Building provided a prime location for the range of parallel and plenary presentations on offer through the course of Networkshop.

Deep Sea Fibres and Chocolate Monkeys

This year Derek Law of Strathclyde University opened, with an engaging and entertaining introduction, welcoming us all to Networkshop 36. He continued on with his talk entitled 'Lean mean and green: enhancing the University research machine' outlining a university's perspective on current and future JANET services.

Following this, an update on the year's activities was provided in the form of a double act by Jeremy Sharp, Head of JANET(UK) Strategic Technology and Tim Kidd, Head of JANET(UK) Operations. This entertaining presentation included an informative piece on the finer details of maintaining deep sea fibres as used in the JANET infrastructure.

The afternoon's events moved into Parallel sessions, offering a wide variety of presentations for people to attend. Topics ranged from VoIP, to network engineering and security, with the addition of a number of interesting presentations by a selection of the exhibitors at Networkshop.

The VoIP session began with an overview of the recently launched JANET Talk Trial. Two further talks explored a carrier's and university's

perspective on the transition to VoIP, providing a valuable insight to anyone thinking of taking this path. Network access, privacy and security were the hot topics in the remainder of the sessions.

The evening saw a return to the exhibition marquee, where a reception was laid on for all delegates, speakers and exhibitors. The exhibition comprised of 40+ stands, with a wide variety of products and services on display. Each exhibitor enticed delegates in a variety of different ways, including competitions, freebies, chocolate monkeys and even a tarot card reader! An early(ish!) night followed, leaving us all fresh for the following day.

Lightpaths and Salvador Dali

Wednesday began with a plenary session providing an update on standards and a glimpse into the future of wireless technology by Matthew Gast of Trapeze Networks. This was followed by an informative talk on Digital

regional network developments, Mobile IP and Location Awareness Trials, and the use of lightpaths in research in the JANET community. The afternoon sessions consisted of talks surrounding 802.IX supplicant, network technology development and IPTV which included a live demonstration and broadcast on a local community radio station. Both parallel sessions offered the opportunity for exhibitors to give relevant presentations to the Networkshop community.

For like minded people who wished to discuss the finer details of presentation topics further, Birds of a Feather sessions were open to all at the end of each day.

On Wednesday evening the conference dinner was held in the impressive surroundings of the Kelvingrove Art Gallery and Museum,



Video Broadcasting over the Internet by Erik Huizer of Technicolor.

Parallel sessions took place throughout the day. The morning sessions covered

where we were greeted by a champagne reception and freedom to roam through the marvellous exhibitions from around the world, including a prized Salvador Dali painting. A

warm greeting was issued to all by the Lord Provost of Glasgow's Baillie, welcoming us to the city. The dinner was held in the grand surroundings of the Centre Hall, where delegates were presented with a three course meal consisting of some of the finest local produce, to the delight of many. The meal gave everyone the opportunity to mingle with their peers in a relaxed and enjoyable atmosphere.

The final day of Networkshop saw the last set of parallel sessions, including a lively talk by Mark Leese of JANET(UK) on Network Measurement and Monitoring. Other sessions focused on campus residential networking and a separate session on Shibboleth. After some brief refreshments, the final presentation and closing speeches were made by Phil Male from Thus Plc and Tim Marshall of JANET(UK).

The flight home allowed us to reflect on an enjoyable, if exhausting Networkshop. All those who attended will agree that they gained



a plethora of knowledge during the event, with the opportunity to use this information in their own organisations.

Thank you to the organisers of the event. We look forward to next year's Networkshop at the University of Cambridge.

David Richardson
david.richardson@ja.net

Emma Smith
emma.smith@ja.net
Voice and Video Team Members

Networkshop Online is now available to all EdLab users. The area includes presentation videos, audio clips and discussion boards.

<http://www.ja.net/services/training/edlab.html>



More Early Adopters of the N3 JANET Gateway



The University of Birmingham Department of Primary Care and General Practice and the Wellcome Trust Sanger Institute have become the latest two early adopters to use the N3 JANET Gateway.

The University of Birmingham early adopter represents a significant breakthrough as this for the first time involves patient identifiable data across the Gateway. NHS Connecting

for Health has agreed that it is an NHS Trust responsibility to ensure that information governance is in place for sessions initiated within N3 (the NHS) that access external sites, such as on JANET. The University of Birmingham has the appropriate mechanisms for research ethics approval, security and confidentiality already in place.

JANET(UK) was approached by the Wellcome Trust Sanger Institute because the Institute was concerned about the response time for NHS clinicians adding details to its chromosome anomaly database, DECIPHER, using the general N3 access to the internet. It is currently evaluating any improvements using the N3 JANET Gateway.

These join the existing early adopters: the five Universities in the North East of England and their NHS Trust partners (CETL4Health NE project) and the University of Bristol and University of West of England working with their Clinical Academies in NHS Trusts in Avon, Gloucestershire, Wiltshire and Somerset.

Discussions and developments are proceeding with others interested in becoming early adopters.

NHS HE Forum News

The latest NHS-HE Forum took place on 14th May in London. This was the fourteenth such meeting since 2001 and the last one as chair for its instigator, Professor Roland Rosner. There will be a fuller report next time. Presentations will be available at www.nhs-he.org.uk as soon as possible.

Malcolm Teague
NHS-HE Coordinator
malcolm.teague@ja.net



Imperial War Museum joins JANET Community

Wishing to make full use of the wide range of JANET services, the Imperial War Museum has started the process of enabling JANET connections for its main sites in London, Duxford and Salford.

The Imperial War Museum seeks to provide for, and to encourage, the study and understanding of the history of modern war and war-time experience from the First World War to the present day. As well as its main sites, other sites include the Cabinet War Rooms and HMS Belfast on the Thames. An exciting

new development – Collections Online – provides online searchable resources and databases, and many schools and colleges make use of the innovative videoconference sessions provided by the museum as part of the National Curriculum agenda.

Rob Prabucki
Business Manager (Local Authorities)
rob.prabucki@ja.net



Schools Videoconferencing User Group Meeting

– 21st April 2008

The second Schools Videoconferencing User Group Meeting took place on 21 April 2008 at the National Maritime Museum in Greenwich, London.

The group consists of a mix of content providers, educational institutions and other organisations involved in videoconferencing at school level. In the true spirit of the event, some individuals joined the meeting via videoconference.

The event, organised by Heather Pettitt from South East Grid for Learning, and sponsored by JANET(UK) was kicked off by



Tim Boundy, Schools Content Co-ordinator at JANET(UK) who gave an overview of the current figures for videoconferencing over the network. The number of videoconferences has doubled and in some cases tripled year on year with the current figure reaching over 12,000; this is expected to reach 20,000 during the summer term. This technology has had considerable impact on the schools sector, facilitating collaboration between content providers and other peer groups to bring the classroom experience to life.

With the new JANET Collaborate pilot due to complete its first phase of the project (June 2008), Tim gave an update on activities to date and took the opportunity to get feedback from the group and invite them to shape the direction for phase two of the project. Popular issues raised were additional search functionality, additional content for Wales and other non-English areas, and further integration with JANET Videoconferencing Service (JVCS).

The Videoconferencing User Group also invited guest speakers, including Peter Evans of the National Football Museum and Jenny Gage from the Cambridge Motivate project. Both

showed how they used videoconferencing to promote interactive learning across the curriculum and how they used online characters to bring the subjects to life; the footballers by posing questions to modern and latter day footballers and, in Cambridge Motivate, interacting with people who use maths and science in their daily lives. Tim Arnold and Steve Cayley from Devon Education Services chose the event to launch a new book, Videoconferencing Across the Curriculum. This includes case studies from different organisations and guidelines for best practice. It also includes a 'getting started' section, gives ideas for using videoconferencing and helps with the preparation, management and support required for anyone wanting to use this technology. The book can also help teachers with lesson planning, and help those interested in spreading their wings to find UK and international partners.

In the afternoon the group linked up to the US where a similar group was holding a meeting on videoconferencing activities across the pond. It was interesting to share ideas and learn from their experience. From the discussions that ensued, it was apparent that there were plenty of opportunities to link up with America for videoconferencing activities, including 'Read around the planet', an annual project which the organiser Sue Porter was keen to promote.

Lara Van de Langeryt, Videoconferencing Service Co-ordinator at JANET(UK) gave an update on JVCS which included more flexible management tools already available in the Booking Service, and anticipated new features for this year. These features include an overhaul of the Booking Service's current user interface to improve usability and an integration of the JVCS and On-Demand services. There are also plans to introduce a recurrent booking feature in the next

month or so for users who have regular meetings.

JANET is currently running a procurement to replace the JVCS core infrastructure which should see a replacement of one of the MCUs this year. The new equipment is expected to incorporate new features such as High Definition capabilities, and improved data-sharing.

Lara also introduced a planned new service, JANET Videoconferencing Recording and Streaming. This facility would allow users to record and/or stream live events and then, once completed, download the recording to their system for future use. Procurement of this service is currently taking place and will depend upon equipment suitability and costs.

The event was a useful opportunity for attendees to put forward their requirements for videoconferencing over JANET and to do some

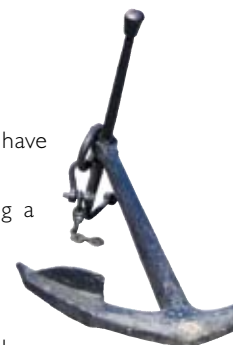
“The User Group plan to hold similar events in the future,” says Heather Pettitt. “The next meeting is likely to concentrate on a 'workshop' format so smaller groups can come together and discuss issues such as technical development and classroom pedagogy.”

networking with their peers and content providers. There will doubtless be a lot of collaborative activities born out of the event, some of which may involve collaboration with the US user group; there is already talk of

expanding the 'London Live' event to include a wider remit, and plans for the Olympics 2012 generated lots of interest throughout the group. Feedback from the meeting will be used to shape future developments within JANET(UK)'s videoconferencing activities.

For further information on JANET videoconferencing, please see www.ja.net/jvcs or to see some of the current videoconferencing opportunities, visit JANET Collaborate at www.ja.net/collaborate.

Rachel Freeman
Communications Manager
rachel.freeman@ja.net



Is Your Site Deploying 802.1X Technology?

This year has seen an increase in JANET-connected organisations deploying 802.1X technology to secure campus wired and wireless networks. The IEEE standard 802.1X provides a mechanism for network port access control and manages the process of authenticating and authorising attached devices over the wired or wireless network. 802.1X has become a popular topic, as demonstrated in the parallel sessions at Networkshop 36.

A Valuable Tool

Providing secure network access within large organisations is at best challenging and at worst near impossible. Users want the ability to be able to start up their operating system and have instantaneous network access. However this is usually in conflict with the organisational need to prevent unauthorised access to the network and also to provide accountability of users' actions.

The very purpose of 802.1X is to control port access and prevent unauthorised users from using your network. The obvious advantage to this technology is that people who are not members of your organisation or authorised visitors will be denied access to your network. 802.1X is superior to other older technologies which may already be implemented; significant weaknesses can be found in the ability to spoof key elements of devices connecting.

802.1X can be a valuable tool in preventing electronic crime as it is often very difficult to secure every socket that a visitor could gain access to. However, stopping unknown users is not where the 802.1X functionality ends. Every large network is likely to have seen computers which have been compromised by viruses, worms and trojans.

Restricting the network access for these infected computers is within the remit of most networking providers at any organisation. 802.1X together with other systems can help by providing the facility to quarantine compromised computers.

Implementing 802.1X

The implementation of 802.1X does not mean existing web-based logins have to be abandoned. 802.1X can happily co-exist with these. In most cases having an alternative solution is preferential as some devices may not be capable of 802.1X authentication. Also a dual system allows for a smoother transition of clients from the old system to 802.1X.

Major changes such as the introduction of 802.1X will almost certainly create concerns amongst various people involved in the process. The process of introduction will most likely involve a consultation process with the stakeholders, as it represents a fundamental change to the way users access the network and is a process which requires planning. Implementing 802.1X in an educational environment is a major undertaking and should not be undertaken without proper preparation.

New Technical Guide

Most sites where 802.1X is fully deployed are new builds or smaller self-contained sites. The deployment of this port security technology is complex and requires careful planning and project management. The time consuming nature and complexity of 802.1X has been cited as the main reason sites are holding back, from implementation now as a direct response

to this, JANET(UK) has published a Technical Guide to 802.1X deployment written by Scott Armitage, Dr Alan Buxey and Matthew Cook of Loughborough University.

The new technical guide provides an overview of the technology, before outlining steps for technical implementation; which includes enabling a site for JANET Roaming. Desktop supplicant configuration guides are included for the major operating systems and for the platform-agnostic OpenSEA supplicant, which is being developed by multiple bodies, including members of the JANET community working within the OpenSEA Alliance.

Matthew Cook
Network & Security Manager
Loughborough University
JANET(UK) Contracted Trainer
M.S.Cook@lboro.ac.uk

JANET 802.1x project page
<http://www.ja.net/development/middleware/802.1x-supplicant.html>



The guide is available from:
<http://www.ja.net/services/publications/technical-guides.html>

JANET CSIRT Conference

23rd October 2008, Holywell Park Campus, Loughborough University

JANET(UK) in conjunction with the JANET community are together planning the 6th JANET CSIRT Security Conference to be held on 23rd October 2008 at Loughborough University.

I would appreciate hearing from members of the community with ideas for content or recommendations for speakers.

I would also welcome volunteers from the community to present a security based or security topical talk/presentation to like minded members of the JANET community.

The conferences tend to be fairly short to allow the majority of delegates to travel to and from the venue, on the same day; therefore it is usual to have a full programme of short presentations with adequate breaks for networking and discussion. This does not exclude the odd longer presentation if an abridged version might lose its punch.

The security conferences have been very well supported and accepted by the community in the past and have been an excellent forum

for exchange of ideas and of course the social networking which takes place in events such as these. Please forward any comments or suggestions to wally.jackson@ja.net

Wally Jackson
JANET CSIRT Manager
wally.jackson@ja.net

Forthcoming Courses



JUNE

Introduction to JANET	June 11th - Bristol
Basic Router Configuration	June 12th 2008 - Bristol
Information Security Policies	June 12th 2008 - London
Introduction to DNS	June 26th 2008 - Glasgow

JULY

Basic Networking	July 4th 2008 - Birmingham
Introduction to UK Federation	July 10th 2008 - London
Implementing Shibboleth at your Organisation	July 11th 2008 - London
Firewalls: Planning and Implementation	July 22nd 2008 - Birmingham
Introduction to DNS	July 23rd 2008 - Birmingham
Using Logfiles for Security	July 29th 2008 - Taunton
Firewalls: Planning and Implementation	July 31st 2008 - London

AUGUST

Managing IT Security	August 6th 2008 - Manchester
Introduction to DNS	August 12th 2008 - Manchester
Introduction to the UK federation	August 20th 2008 - Cambridge
Implementing Shibboleth at your Organisation	August 21st 2008 - Cambridge

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

JANET IPv6 Briefing 11th June 2008

Lakeside Centre
Aston University
Aston Triangle
Birmingham
B4 7ET

JANET Strategic Briefing 16th June 2008

The Royal College of Physicians (RCOP)
11 St Andrews Place
Regent's Park
London
NW1 4LE

Events Calendar

<http://www.ja.net/services/events/calendar-2008.html>

Recent Publications

Requests for publications should be sent to: service@ja.net

Reports

**Quarterly Report to the Community
November 2007-January 2008**

<http://www.ja.net/services/publications/reports/quarterly-report/qr-winter07/>

JANET Report 2007

<http://www.ja.net/documents/publications/reports/janet-report/report2007.pdf>

Corporate Plan 2007-2010

<http://www.ja.net/documents/publications/corporate-plan-2007.pdf>

Newsletters

JANET News 3

<http://www.ja.net/documents/publications/news/news-3.pdf>

Technical Documentation

**IPv6 Management Briefing Document
020(04/08)**

<http://www.ja.net/documents/development/network-engineering/ipv6-man-brief.pdf>

**IEEE 802.1X Implementation at
JANET-Connected Organisations**

022 (04/08)
<http://www.ja.net/documents/publications/technical-guides/8021x-tg-web.pdf>

Service Documentation

**JANET Supporting Research
010(03/08)**

<http://www.ja.net/documents/communities/jvcs-cp-policyv2.0.pdf>

**JANET Development Programme
024(04/08)**

<http://www.ja.net/documents/development/development-booklet.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: 0870 850 2212
Fax: 0870 850 2213
E-mail: service@ja.net

JANET CSIRT

Tel: 0870 850 2340
Fax: 0870 850 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.

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Availability

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