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JANET *News*

*The new name for
UKERNA News*

Contents

Editorial

An article in this issue of *JANET News*, 'Regional Networks: a Wider Perspective?' (page 6) uses news of JANET(UK) being asked to take over the operation of the MidMAN regional network, and our work with the Welsh Assembly on the PBSA project, to explore future directions in 'joining up' – interconnecting public sector networks in ways that enable and promote effective access to major applications, and fostering 'human networks' within the public sector. As the article concludes: 'it is only by individual services providers, managers and technicians working together and trusting each other that any of these aspirations can be made a reality.'

With this in mind it is especially worth noting two new offerings from JANET(UK) that are announced in this issue.

JANET Collaborate is a pilot project that had its official launch on 3 October at the National Maritime Museum. The basis of the service is that academics and educators do not operate in isolation or a vacuum. They need to find and work with others with shared educational and research interests. Furthermore, schools, colleges and universities are always looking for high quality content, and educational content providers are also looking for ways to reach students and teachers. The JANET Collaborate pilot exists to encourage opportunities for collaboration, especially using videoconferencing technology, with basic collaboration tools available for use across the UK education community. It is hoped it will provide a focus for discussion, and form the foundations for a full collaboration service.

The other offering, JANET Aurora, is a dark fibre network to support research on photonics and optical systems. The research groups which are interconnected by JANET Aurora, at the universities of Cambridge, Essex and UCL, have a broad range of interests, ranging from the device level – for example, investigating new photonic components such as lasers, modulators and amplifiers – to how optical networks might in future be able to provide dynamic capacity on demand to high-end grid and e-Research applications. There are also projects looking at optical burst and packet switching which might be extended from laboratory work to wider area trials. These may be precursors to new architectures and patterns of use for future optical networks.

These two offerings, taken together, explore the two ends of the research spectrum – one highly technical, one all about harnessing the power of JANET for human networking, both vital in the way that JANET delivers its services to education and research.

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The Welsh Public Sector Broadband Aggregation Network

The Welsh Assembly Government recently announced the launch of a £74m network which will initially interconnect over one thousand public sector sites across Wales and, in so doing, deliver JANET services to higher and further education across the country. The PSBA (Public Sector Broadband Aggregation) network is groundbreaking. For the first time, organisations across the public sector from education to health and local government will not only be sharing the same network, but a network which has been designed by the public sector to be capable of meeting its users' long-term needs and aspirations.

From the inception of the PSBA project, both JANET(UK) and the North and South Wales MANs have been fully involved in the specification and procurement of the network – a process that has been conducted with great rigour (see picture, over). This involvement has built on previous collaboration with the Welsh Assembly Government in the procurement and management of the LLNW (Lifelong Learning Network for Wales).

The LLNW is a network interconnecting the 22 Unitary Authorities in Wales and is connected to JANET as its route to the outside world. Welsh Networking Ltd, the higher education consortium which operates the South Wales MAN, and – then – UKERNA originally procured this network on behalf of the Welsh Assembly Government. In 2006 both the North and South Wales MANs moved onto the LLNW. This was the first step in an ongoing aggregation initiative, of which the PSBA contract has been the next stage.

The PSBA network will be a resilient core across Wales, connected to the JANET backbone at two separate locations within Cardiff. It will initially run at 2.5Gbit/s to give adequate capacity to meet demand over the next few years. (The LLNW has a 622 Mbit/s core.) From this core will be built out a number of NAPs (Neighbourhoo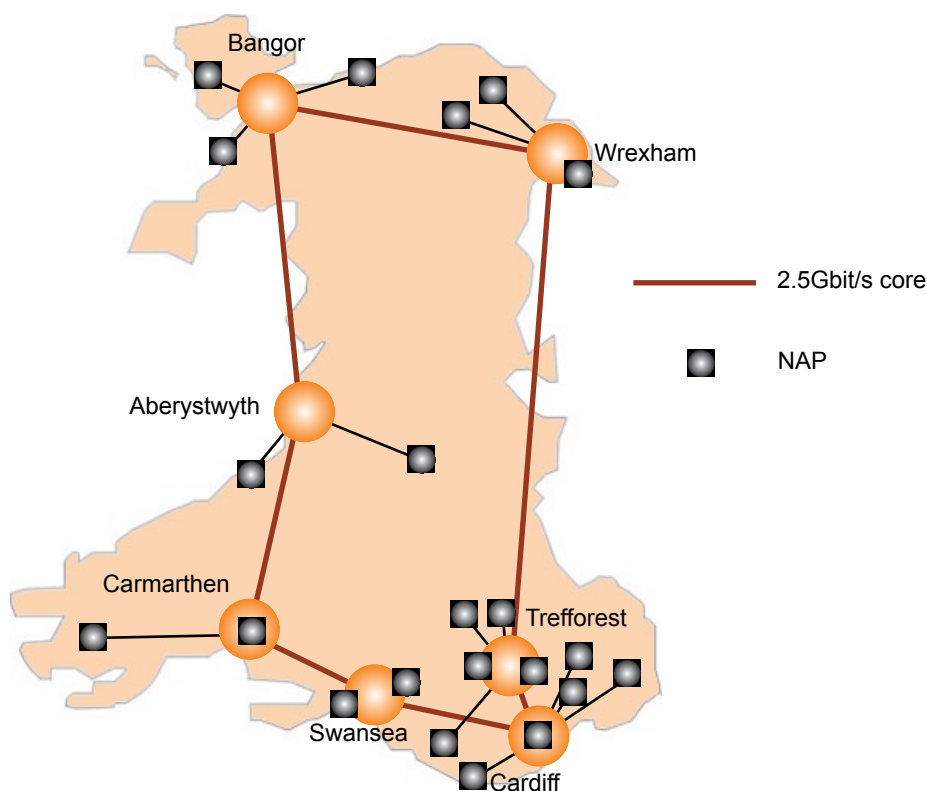d Access Points), one located in the main data centre of each Unitary Authority and each dual-connected to the core. The larger higher education institutions will be directly attached to the core; other HE institutions and FE colleges will be connected via a NAP. The schematic diagram of the new network illustrates this topology.

Because the PSBA network is being built out of the LLNW, transition from one to the other will be a relatively easy undertaking in the case of those institutions served by JANET. Nevertheless, this transition process will be managed closely to ensure that there is minimal impact during the changeover, and that all that users experience is the gradual rollout of enhanced services. The target is that this transition will have been completed for this sector by the spring of 2008.

The aggregation of demand embodied in the PSBA procurement will bring economic benefits to each sector. In the case of higher and further education, it will mean access to a much higher bandwidth and more resilient network than would otherwise have been affordable. In this way the PSBA network will help to deliver to JANET users within Wales two of the overall objectives of the SuperJANET5 project.

Notwithstanding this bottom line benefit, it is also important that the PSBA initiative delivers other benefits. The Welsh Assembly Government is naturally looking for improved public services to the Welsh citizen, and an early focus will be enabling more effective collaboration between local government services across the country, and with the NHS in Wales. More efficient and cost-effective network provision within the neighbourhood around a NAP should also be possible, and a potential further four thousand or more sites have been identified with this aim in mind.

Collaboration is second nature within education and research, and the PSBA network should prove an ideal vehicle to continue this. For example, thought is now being given to how the PSBA network might foster collaboration between tertiary education and health within Wales, complementing the N3/JANET Gateway work reported on elsewhere in this edition of *JANET News*.

The advent of the PSBA network means that JANET service delivery relationships within Wales will change from the present arrangements involving the North and South Wales MANs. JANET(UK) will maintain a strong presence in the operational governance of the PSBA network and will also continue to work closely with colleagues in Welsh Networking Ltd in carrying out this task.

The Welsh Assembly Minister for Finance and Public Service Delivery, Andrew Davies AM, said, as part of the Assembly's announcement, that 'It will give Wales opportunities to lead the rest of the United Kingdom in "joined-up" government and improved service delivery, and will mark a major step forward in achieving the aims of Making the Connections – the Assembly Government's future vision for better public services for the people of Wales.'

JANET(UK) is proud to have been part of the project to date, and we are looking forward to continuing to play our part alongside our partners in Wales. This article is also an ideal opportunity publicly to thank those individuals within the Welsh education sector, and within Welsh Networking Ltd, who have devoted so much personal time, energy and expertise to achieving the results the PSBA project has so far.

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Never knowingly under-documented: Dave Morgan, University of Glamorgan and HE/FE representative on the PSBA User Board for the procurement, contemplates just some of the paperwork that the procurement generated.

Praise for New Pilot Service

The JANET Collaborate pilot had its official launch on 3 October at the National Maritime Museum in London.

The event was well attended. Guests included a variety of content providers, educational institutions and support agencies, and were given the opportunity to browse the new website and learn more about the opportunities that this technology could bring to them.

Following a short reception, John Craven (*below*) opened the proceedings by speaking about JANET Collaborate's wide potential in terms of enhanced learning. He compared the prototype to the 1980s TV show *SwapShop*, but instead of swapping toys, he said, JANET Collaborate was about 'swapping "opportunities" and enhancing

John Craven

collaboration amongst schools and with content providers.'

Tim Marshall, JANET(UK)'s CEO went on to re-iterate this point and to highlight how JANET Collaborate aligns with the overall mission at JANET(UK) 'to support UK competitiveness and learning by delivering ICT services that really enable research and education.'

'The schools sector is now an integral part of the JANET community,' said Tim, 'and we are working with the network support agencies as well as content providers to enable interactive educational activity across the UK, including videoconferencing.'

Andy Tyerman, Assistant Director of Content from Becta talked about the government's e-strategy, focusing on the importance of collaboration and the need to harness technology and explore new opportunities. 'The development of a service like JANET Collaborate,' he said, would 'save teachers time in finding a content provider or like-minded school to interact with. It would provide a central trusted resource, leaving them more time to spend on their lesson planning.'

Chas Bishop, CEO of the National Space Centre says that the Centre initially took up videoconferencing as a way of extending its service to both UK and international schools,

without the restriction of its physical location in Leicestershire. 'The remit of the Centre,' says Chas, is 'to inspire young people to take a greater interest in Science and Technology through space. Using JANET Collaborate will enable us to cast the net wider and spread the message quicker than traditional outreach methods would allow.'

Former Executive Chair of NAACE Terry Freedman confirmed that the teaching community 'is crying out for something like JANET Collaborate. It is getting increasingly difficult to get teachers out of the classroom, so videoconferencing is a perfect tool to help them engage with others. They no longer have to trawl through the hundreds of web sites offering educational content, as JANET Collaborate will offer a central repository for ICT, as well as much more. It is technology agnostic, so there is no need to learn new ways of working; it is easy to use and teachers can collaborate with genuine users through a trusted site.'

'Videoconferencing is not just for the students either,' said Tim Arnold who spoke from Devon Educational Services. 'Teachers are also using the technology to share experiences and talk to their peers. Videoconferencing is now very much part of the teachers' lesson planning.' To give the audience first hand experience of how the technology works, Tim linked up live with

JANET Brings Royalty to Wakefield

The 10,000th schools videoconference booked through the national JANET Videoconferencing Service (JVCS) was managed by JANET(UK) on 4 October. This landmark is evidence of the growing trend towards videoconferencing in education, especially within the schools sector.

The 10,000th videoconference took place between Southdale Church of England Junior School, in Ossett, Wakefield and the National Archives in London. During the conference students in Key Stage 2 discussed the life of King Henry VIII with experts from the National Archives.

'We normally start by showing some of the more famous documents that we hold – Guy Fawkes' signed confession and the last SOS telegram received from the doomed Titanic are quite exciting examples. We then move on to a letter taken from the Court of King Henry VIII around the year 1517,' says Rachel Hillman, On-site Education Manager at the National Archives. 'The students seem to really enjoy themselves and with videoconferencing technology we are able to really bring it all to life for the students!'

With the use of videoconferencing becoming more mainstream in classrooms across the country, more educational content is now in demand. The new JANET Collaborate prototype provides a 'one-stop-shop' to allow educators from schools, colleges and universities to find relevant opportunities to videoconference with national content providers. 'The 10,000th videoconference is certainly a milestone,'

says Dr Rob Symberlist, UK Schools Strategy Group Manager from JANET(UK). 'We hope that the use of videoconferencing in the classroom continues to increase, then more teachers will be able to use the JANET Videoconferencing Service to enhance the learning experiences available to their students.'

The launch of the JANET Collaborate prototype will make videoconferencing even easier to plan for content providers as well. Rachel from the National Archives commented, 'We will be able to raise the awareness about videoconferencing sessions and will be able to deliver content to even more classrooms. In the last academic year the National Archives delivered 150 videoconferences to schools on a wide range of content to students in Key Stages 1 to 5 and we are committed to new ideas to add to their collection of videoconference material.'

There seems to be a healthy dose of enthusiasm from the school side of this particular collaboration too. Southdale School regularly uses videoconferencing to connect with content providers such as the National Archives, the National Portrait Gallery, the Churchill Museum and the Cabinet War Rooms. They also collaborate in activities with other schools in Spain and Australia.

'We look for anything that can add that extra dimension of excitement and expertise into the children's learning experience,' says Margaret Jackson, ICT Subject Leader at Southdale. 'We had teachers accessing resources on

The signature of Henry VIII, from the National Archives

documents from the time of Kin Henry VIII as well as expertise that would never normally be available to them; they can share this with both their peers and students. They are not the only ones to benefit either – videoconferencing is great for the children as they benefit from the human element and get the opportunity to interact with an expert.'

To find out more about videoconferencing over JANET, please visit:
http://www.ja.net/services/network-services/video/

More information about the National Archives videoconferencing sessions can be found via the JANET Collaborate prototype site at:
http://www.janetcollaborate.ac.uk

To find out more about the National Archives, please visit:
http://www.nationalarchives.gov.uk/

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teacher Will Davies and some of his pupils at Manor Primary School in Devon. The children gave their own accounts of activities with local schools and enthused about how they had shared cooking and dance classes with schools in the US and China.

For some of the attendees the benefits of JANET Collaborate are obvious. Christopher Rogers of the London Symphony Orchestra says it will 'allow us to spread our educational programme further, both in the UK and internationally. It will create a central repository and directory of users so new opportunities about classes, visiting artists and events can be disseminated.'

Roger Bloxham of the Westminster, Kensington & Chelsea City Learning Centre says the site will save him a lot of time and money. 'I will no longer need to create a new website for each of the projects I run and will be able to announce events in one central place and direct them at the correct person in an organisation. Videoconferencing is not just about teaching students, but also provides a focus for developing their social skills through interaction with others. Anything that make this process easier and more effective has got to be a winner,' he says.

Since the launch event the number of members has more than doubled, showing

the levels of interest and demand for the types of facilities that the prototype provides.

For those who couldn't be present at the event, recordings of the speakers can be found at:
http://www.ja.net/development/collaboration/pilot

Visit and register on JANET Collaborate at:
http://www.janetcollaborate.ac.uk
or for further information please contact Tim Boundy.

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Regional Networks: A Wider Perspective?

Earlier this year the MidMAN consortium of universities in the West Midlands asked JANET(UK) to take over the operation of the higher and further education network in the region, with effect from the expiry of the present RPAN agreement in September 2008. (This is the agreement under which the consortium distributes JANET to the higher education institutions and further education colleges within the West Midlands.)

The background to this decision was the ending of a previous collaboration with the Regional Development Agency and local authorities in the West Midlands to provide a pan-regional broadband network to serve public-sector needs. The collaboration has to date successfully provided a network meeting higher and further education needs, but diverging requirements going forward led the parties to agree that this was no longer the appropriate vehicle. The MidMAN consortium therefore felt that a fresh start was required.

In preparation for this, JANET(UK) recently launched a procurement for a high-bandwidth transmission network across the region, over which it will build an IP network and other JANET services. This model is the same as that adopted in the East of England and in the Thames Valley where, in both regions, JANET(UK) operates the regional network itself.

As part of this process we are engaging closely with the local authority sector in the West Midlands, via both the WMnet Regional Broadband Consortium (representing schools' educational needs) and the West Midlands Local Government Association (representing authorities' wider broadband needs). Connectivity to other public-sector networks is one of these latter needs, and the progress on a JANET/N3 gateway reported upon in this edition of *JANET News* (page 10) may have its part to play in this context.

All feel intuitively that there is continued mutual benefit in working together. This should lead to better economies of scale, particularly in the more rural parts of the region, and also to an enhanced collaborative environment within the education community and across the public sector as a whole.

The West Midlands and similar developments (for example, the Welsh Assembly Government's Public Sector Broadband Aggregation project, also reported upon in this edition) are perhaps indicative of a growing trend towards 'joining up'. Some are beginning to suggest that, looking ahead, there can no longer be the concept of an 'education only' network – that all such networks must also be capable of serving a wider community. Whether this will be the case or not is moot, but the SuperJANET5 project's underlying design of a network that can serve a broad range of differing sectoral needs should stand us in good stead in meeting such challenges.

'Joining up' may in the end take the form of sharing infrastructure and services, but is equally about interconnecting public sector networks in ways that enable and promote effective access to major applications. It is also about fostering 'human networks' within the public sector, for it is only by individual services providers, managers and technicians working together and trusting each other that any of these aspirations can be made a reality.

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Web Streaming Helps Share Research

Academic institutions can web stream important research seminars, conferences and lectures following an arrangement between JANET(UK) and the IET (Institution of Engineering and Technology), Europe's largest professional society for engineers.

Universities can host their own live or on-demand webcasts and upload their video footage and synchronised media to the Research Seminar Channel on the IET's web streaming service, IET.tv (www.iet.tv). The service is available to the education and research community via JANET, and can be accessed by universities worldwide through JANET's links to other education networks. Eleven universities are now using the free of charge service following a beta trial.

Dr Lee Gillam of the Department of Computing at the University of Surrey has already taken advantage of the Research Seminar Channel and enjoyed the opportunity to engage with much wider audiences. He says: 'IET.tv offers the opportunity for research groups within universities to become content producers. This has significant potential for extending the dissemination and potential impact of research activities. Distances and time-zones are general difficulties in international collaboration; IET.tv can bring researchers just that bit closer together.'

Video footage on IET.tv can be synchronised to any media, e.g. PowerPoint slides, flash or Excel spreadsheets, letting viewers see the slides transition as the speaker changes them. Video and synchronised media are distributed across a timeline, which lets the viewer fast-forward or rewind to any point in time within the presentation.

Viewers who tune in to a live webcast can put forward their views via the Q&A forum facility and interact with other viewers and the speaker.

Meanwhile, IET Faraday – a programme of activities and events for secondary students to explore science in action – has initiated 'Technology for Life', an exploration of the technology that is saving lives and improving quality of life for millions of people across the world. As part of the programme the IET Faraday team has produced a series of specially made short films to illustrate how scientists, engineers and technologists apply their knowledge of engineering and health to their daily working lives. The films can be viewed from the IET Faraday website (**http://www.theiet.org/education/faraday/**) and through JANET.

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JANET Aurora: New Dark Fibre Testbed Supporting Photonics Research

JANET(UK) is launching a dark fibre network to support research on photonics and optical systems. JANET Aurora will interconnect research groups at the universities of Cambridge, Essex and UCL, with access to intermediate locations along each fibre path where additional equipment can be sited. This is a national facility funded for two years' operation by HEFCE via JISC, and if projects require it, the JANET Lightpath service can provide circuits for use as an access mechanism to other locations on JANET, and also internationally.

The term 'dark fibre' means that JANET Aurora provides access to the fibre itself and the research group 'lights' the fibre by connecting its own equipment. This is essential in this context as research groups may wish to connect equipment they have designed and built themselves, rather than use off-the-shelf commercial equipment. This lets them pursue their research with minimal constraints in a way which would be impossible on a production network carrying traffic from many other customers.

The concept of building a small-scale dark fibre network to support photonics research projects was included in the UKLight programme from its inception, but full approval to proceed with this part of the programme was not obtained until 2006. JANET(UK) then conducted a procurement for the infrastructure and NTL (now Virgin Media) was selected as preferred supplier in late 2006.

Although it had been hoped that the network might be extended to other institutions, this was not possible within the budget available. Other research groups wishing to use the facility will however be able to locate equipment at the three sites noted above, and gain access to it via JANET.

Fibre Challenges

The standards for optical fibre cables for telecommunications purposes have evolved over the years, with more recent types being capable of operating at higher capacities. Because of the nature of the research that will be conducted. the latest fibre types are required for the Aurora infrastructure. Obtaining this fibre presented a number of challenges due to the mixture of older and newer fibres that is actually deployed around the country. It was particularly important that a number of characteristics associated with the fibre for the Aurora infrastructure met stringent parameters that newer fibre is able to provide. Loss (or attenuation) of the optical signal along the fibre path has to be acceptably low so that it can still be detected reliably at the end of the path; and two forms of dispersion which tend to distort or spread out the optical signal (Chromatic and Polarisation Mode dispersions) have to be low enough to enable the fibres to be used at high data rates such as 40Gbit/s and above.

At the time of writing Virgin Media is in the final stages of provisioning the infrastructure, with the expectation that the research groups will be able to begin installing their equipment during October.

Research Projects

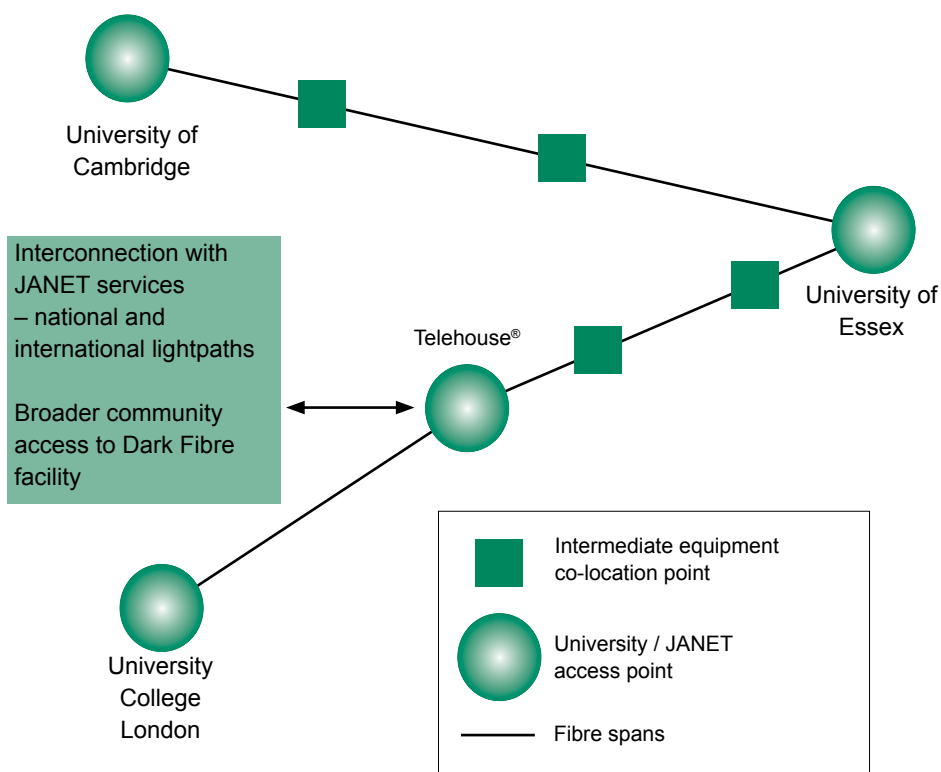The research groups have a broad range of interests from device to systems levels.

For example, at the device level they might investigate new photonic components such as lasers, modulators and amplifiers for use in transmission systems with higher bit rates and fibre capacities. At a higher level there are also interests in how optical networks might in future be able to provide dynamic capacity on demand to high-end grid and e-Research applications. There are also projects looking at optical burst and packet switching which might be extended from laboratory work to wider area trials over JANET Aurora. These may be precursors to new architectures and patterns of use for future optical networks, and JANET(UK) will be watching developments in all these areas with interest.

It is expected that JANET Aurora will be used by current and future projects funded within Research Council and other programmes, and any research group interested in gaining access to the facility should contact JANET(UK) via the JANET Service Desk (**service@ja.net**) to discuss details.

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Interconnection with JANET services – national and international lightpaths

Broader community access to Dark Fibre facility

University of Cambridge

Telehouse®

University of Essex

University College London

Intermediate equipment co-location point

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Fibre spans

JANET Wireless Event

JANET(UK) hosted a well-attended Wireless Technology Briefing on 25 October at Manchester Conference Centre. The event involved speakers from both the community and commercial world and was designed to provide an overview of hot topics and new developments in wireless.

The day began with a thought-provoking overview, from Steve Kelby of Luton Sixth Form College, of the ways in which a 'joined up' approach incorporating wireless into the business processes of an educational organisation can facilitate and extend its teaching aims.

John Peach of Foundry Networks introduced attendees to the concepts behind the single channel operation and virtual cell technologies recently reaching the market. Particularly interesting to delegates was independent research cited that exposed the unexpectedly high throughput losses due to client roaming in a busy WLAN, making a strong case for considering access points and management technologies that mitigate this problem.

Alistair Mutch from Trapeze Networks gave some valuable insights into the ongoing evolution of the 802.11n standard and the silicon that will implement it. He was frank in his evaluation of the state of market today, and of required supportive technologies such as PoE (Power over Ethernet). It is clear that sites looking to exploit the undoubted benefits of 802.11n in the near future will need supportive expertise in developing their infrastructure.

The programme gave delegates a chance to see how Loughborough University had managed a large scale wireless rollout in Scott Armitage's presentation of their case study. Their experiences underlined the value of a dedicated management platform in getting an overview of a large WLAN, addressing 'dead spots' and equipment failures, and handling mass firmware and configuration changes.

Finally, Andy Pearce of Identity Engines Inc. took the stand as a founding Contributor Member of the OpenSEA Alliance to discuss the development of the OpenSEA 802.1X supplicant. He outlined the case for an open source option in robust authentication, how the OpenSEA alliance came about to meet that need, and how he sees JANET(UK)'s contributions in terms of testing, feedback and documentation influencing the development of the supplicant. He closed the day with some thoughts on how the free, open core application could be extended commercially to add additional functionality in a modular fashion.

Another feature of the day was the breakout group session, allowing delegates to share experiences and put across their points of view. Tim Chown of Southampton University provided a short introduction, posing some provocative questions in each of the three areas to be addressed, namely WLAN management, clients and supplicants, and wireless-specific applications. The party then broke into these various interest groups and some lively discussion resulted. Feedback from the breakouts will be collated into a summary for delegates.

This wireless briefing was held back to back with JANET Training's 'Fundamentals of Wireless Networking' course on 24 October, also in Manchester, giving some attendees the opportunity to attend both events and cover the basics of the technology, plus current hot issues facing our community, in a single package.

To take a look at the speakers' slide presentations and feedback from the break-out sessions, please go to:
http://www.ja.net/services/events/calendar/2007/wirelessbriefing/programme.html

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A More Complete View of the Universe

JANET Lightpath, the service announced in our September 2007 issue and which provides end-to-end optical connectivity for large research projects, has helped connect four of Europe's biggest radio astronomy facilities using high-bandwidth point-to-point circuits. The four telescopes – located in Medicina, Italy; Torun, Poland; and Jodrell Bank and Cambridge in the UK – can now track transient events right at the edge of the known universe.

The telescopes were connected through the EU's EXPReS project to GÉANT2 via the research networks of each country. This allows them to work together simultaneously and create, in effect, a single telescope as large as Europe. Each telescope location sends vast amounts of data for processing at a central supercomputer. EXPReS aims to

Image courtesy of Jodrell Bank, University of Manchester

establish 1 Gbit/s network connections between the central processor at JIVE (the Joint Institute for VLBI in Europe) to each of the partner telescopes involved.

Connecting the telescopes in this way lets astronomers work with greater speed and allows them more control when problems occur. Also, because images can be created so quickly, astronomers can now respond more quickly to short-lived astronomical events, dedicating the necessary resources before the events have passed and helping to get a far more complete view of the universe.

David Salmon, Research Support Unit Manager at JANET(UK), said, 'This is exactly the kind of application for which JANET Lightpath was designed, with its high capacity data transfer, real time visualisation and capacity for international collaboration on research. We look forward to the next stage, increasing the network capacity of Jodrell Bank as EXPReS connects up to sixteen of the most sensitive radio telescopes around the world.'

UK Access Management Federation

Briefing Event for Organisations

Organisations were given an introduction to federated access management when JANET(UK) hosted the latest in a series of briefing events for the UK Access Management Federation on 17 September.

The event outlined the options and technical considerations for joining the federation. Staff from Leeds City Council and Cardiff University also shared their experiences of participating.

The event was fully subscribed, with delegates from both educational institutions and resource providers. A questionnaire distributed at the event showed that 29% of the respondents had already joined the federation, with a further 74% planning to join within the next 12 months.

The UK federation thanks all those people who attended the event and filled in the feedback forms. Their feedback will be incorporated into the federation roadmap for future development and support.

JANET(UK) is planning a series of technical training events on the federation; as soon as details are available these will be posted on the mailing lists and federation website.

Recordings of sessions from the briefing event and individual presentations are available at:
http://www.ja.net/services/ ukfederationbriefing/programme.html

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Workshop for Schools Sector

JANET(UK) held a workshop for organisations within the schools sector on 10 October at the Church House Conference Centre, Westminster.

The workshop was an opportunity for representatives from Regional Broadband Consortia, Local Authorities, Becta and JANET(UK) to discuss an agenda around the implementation of federated access management in the schools sector, and proved to be an extremely well attended event. Discussion was constructive with a strong message emerging that identity provision was best provided by aggregation at a regional level where ever possible.

All parties were urged to declare their intention to implement federated access management by joining the UK federation as a first step, ahead of technical deployment. It was felt that as more schools sector agents showed their commitment by signing up as identity providers, so this would encourage service providers to assess the benefits of joining the UK federation.

The workshop finished with a commitment to provide further such events for the schools sector.

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IPTV Briefing

A briefing day was held on 4 October to stimulate thought and promote discussion within the JANET community on IPTV. Over 90 members of the community attended the event which included presentations on IPTV deployment and development case studies, copyright and regulation, the BBC's perspective on IPTV, and updates on JANET(UK)'s involvement in the area.

Much discussion took place after each presentation and over lunch, particularly relating to how this emerging technology area can play a part in local strategies and policies throughout the UK. Feedback has shown that the event was very well received, and as a next step JANET(UK) will create an IPTV discussion mailing list, with a view to creating a Special Interest Group relevant in the coming months.

For more information on IPTV please see:
http://www.ja.net/development/iptv

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N3/JANET Gateway Goes Live for Early Adopters

The N3/JANET Gateway infrastructure was handed over by BT, the N3 network service provider, in October 2007.

Before it could be used, the Gateway also needed to be cleared in terms of information governance by NHS Connecting for Health, the Department of Health agency that supports computer systems and services for the NHS in England. This has been achieved by having the Gateway in place to support sessions that are initiated within N3 and do not involve patient identifiable data. JANET(UK)'s Statement of Compliance and Connection Proposal have been agreed by NHS Connecting for Health for this type of application. It was further agreed that the early adopter universities would not need their own Statement of Compliance as long as, again, the sessions are initiated within N3 and there is no patient identifiable data involved.

So what will the first early adopters do?

Universities of Bristol and West of England

These two are trying out access to their Citrix services for the Medical School at Bristol and Faculty of Health and Social Care at West of England. Rather than use dedicated leased lines to the eight Clinical Academies based on NHS Trust sites in Avon, Gloucestershire, Somerset and Wiltshire they can use N3 as a way of getting to JANET and the universities instead. They are also planning to try other collaborative tools between the Academies and the base university – for example the e/pop web and videoconferencing tool which currently does not work from N3. The benefits envisaged are:

- connections could be made from any NHS PC with Citrix installed
- maintenance and support can be simplified with the loss of the separate Clinical Academy network
- maintenance of the Clinical Academy PCs could be integrated into the NHS Trust's normal support procedure
- flexible collaborative working will be possible, using tools like e/pop which is independent of whether the participants are in the NHS or University.

CETL4HealthNE Partnership

This involves the Universities of Newcastle, Northumbria, Durham, Teesside and Sunderland, and NHS Trusts in the north east of England. They will be using H.323 videoconferencing between university and NHS sites through JVCS, the JANET Videoconferencing Service, and making use of the Tandberg expressway purchased by the CETL4HealthNE project to sit at the Gateway. About 18 NHS videoconferencing endpoints are currently envisaged. Other applications include access from NHS sites to the university Virtual Learning Environments and, in Newcastle's case, applications provided by Citrix and streaming from their new Lectopia lecture recording and streaming system.

Next Steps

JANET(UK) will be looking for more early adopter projects which fit the criteria of its current Statement of Compliance: for example, further videoconferencing between

N3/JANET Gateway
http://www.nhs-he.org.uk/ n3-janet-gateway.html

the two networks via JVCS. Expressions of interest have already been received from the Universities of Edinburgh and Dundee about potential early adopter projects.

We will also be working with NHS Connecting for Health to extend the type of applications that can be supported, aiming to make acceptable those applications that are initiated within JANET rather than N3 and also those that do involve patient identifiable data. One of the existing agreed early adopters, the University of Birmingham, has had to wait because its application involves identifiable patient data.

The N3 JANET Gateway Project Board would be keen to hear from organisations who might wish to become an early adopter now that the initial infrastructure is in place. It is important to use the Gateway to gain as much information as possible during the currently contracted year to meet current needs and to make the appropriate case for future development.

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The next Scotland NHS-HE Forum meeting is in Edinburgh on Wednesday 5 December 2007.
http://www.nhs-he.org.uk/ scotland-forum.html

JANET txt Continues to Grow

The JANET txt service has been taken up by over 75 JANET-connected organisations, from every education sector, since its launch in May. Usage levels are growing steadily and well over 500,000 messages have already been purchased for uses such as non-payment reminders, student appointments and event information. Leeds Metropolitan University used the service to send a welcome message to each of its almost 7000 new undergraduates. Blackburn College uses JANET txt to send out vital information to its students regarding their loans and payments, and says it has found the system especially useful during the recent disruption to postal services.

'It's a great way to contact students and we have been amazed at how many ways we can use JANET txt within the college,' says Cecily Rogers, Information & Guidance Services Manager at Blackburn College.

For further information regarding JANET txt please refer to: **http://www.pageone. co.uk/janettxt** or contact me directly:

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Socitm Meets the Challenge

Socitm (Society of IT Managers in Local Government) held its annual conference at the Belfast Waterfront Conference Centre from 14-16 October. The theme was 'Meeting the Challenge of CSR07' – the government's comprehensive spending review. JANET(UK) had a stand presence and representation from Business Division.

A range of presentations included Richard Gerver, an award winning Primary School Headmaster outlining how a failing school was turned into a success using innovative approaches to teaching and learning. Sir Michael Bichard gave a progress report on local government IT. Parallel workshops on Computer Forensics, Greening IT and transitioning IT to provide real value to customers and citizens were all well received.

The venue and Belfast city proved to be a popular choice to host this event. JANET was specifically mentioned by several of the speakers in the context of its role in national infrastructure and applications that run over the network. Follow-up visits are planned with a number of local authorities who visited the stand.

Bill McCluggage gave a presentation on the changes in progress with the Northern Ireland Government and local government IT. The Northern Ireland Government is to enable broadband connectivity to every home in the province. Significant reform is being undertaken across the local authority sector and some aspects of shared services are being transferred to new arrangements; for example, 235 IT support staff are being moved into a centralised help desk function. This is an £800m IT investment programme.

Peter Gilroy of Kent County Council described a development of their Gateway cross agency approach which enables citizens to go to a retail location seven days per week and be able to interact with any local or central government function. This approach was seen as a significant step to make it as easy as possible for people to do business with Government. Webcams had been installed in the Council Chamber to let the public observe what is being debated and decided at a local level.

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Sponsored/Proxy/RNO Licence Fee Changes

The charges for Sponsored and RNO licences have increased with effect from 1 August 2007 for any new licences that are issued. The new charges are:

Sponsored	£1,200
RNO (up to 5 sponsored organisations)	£4,500
RNO (up to 10 sponsored organisations)	£6,600
RNO (additional 10 sponsored organisations)	£4,500

The Proxy Licence remains unchanged at £200. All charges are per annum and subject to VAT.
http://www.ja.net/services/connections/connecting/types/

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NLN Materials

A service representing one of the most substantial and wide-ranging collections of e-learning materials in the UK was launched on 23 October. The management of NLN Materials will be provided by JANET(UK) in partnership with the LSC.

Funded by the LSC and available free to authorised organisations in the post-16 sector, the NLN Materials are small, flexible 'bite-sized' learning objects. They are not whole courses but are designed to support a wide range of subject and topic areas. The Materials were created by commercial developers, in partnership with subject matter experts and a wide range of colleges and adult and community learning experts. All the Materials have been trialled by tutors and students and tested for accessibility at the Royal National College of the Blind in Hereford.

The new service has rationalised and simplified access for all sectors, and is now fully integrated into the one existing support site at **http://www.nln.ac.uk**. This site now provides a unified point of access to the Materials and supports the entire community of NLN Materials users. It includes features such as collection creation, powerful search and browse, and easy import into virtual learning environments or immediate use on CD, DVD or intranets, plus a range of new features and enhancements.

The hosting and support service contract has been awarded to Xtensis Ltd, which has been involved in the NLN Materials programme since its inception and has been successfully offering NLN Materials access to Adult Community Learning and offender learning providers for the last two years.

For further information, please go to:
http://www.nln.ac.uk
or contact JANET(UK) at:
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JANET and the FE Sector

JANET(UK) currently provides connections to 380 FE colleges across the UK (as of August 2007). In 2006-2007 our annual review process involved 40% of this sector and has helped us to identify opportunities for improved or additional facilities and services.

Connectivity

In England, specifically, there is still a requirement for increased levels of bandwidth as applications and network services become embedded in the curriculum. JANET(UK) continues to work closely with the LSC (Learning & Skills Council) to ensure provision is meeting community need.

Additional back-up connectivity is also a requirement for resilience, which is being driven by Business Continuity Planning and e-assessment activities within colleges across the UK. The new JANET backbone saw a step change in the resilience offered within the core and at Regional Network level, but JANET(UK) is investigating options that allow for the greatest level of, and most cost effective, availability at college level. Look out for market research activities that will be making their way into the community during the coming months.

Services

15-20% of the sector is currently seeing some kind of building or campus redevelopment. An element of this is a review of the network infrastructure required to support the delivery of functions and services which includes JANET connectivity. JANET(UK) can help with this process in regard to bandwidth and new technology through the JANET Advisory Services – MCAS, BMAS, VTAS and WTAS.

JANET(UK) is responding to demands from the FE community for additional services such as Moodle Hosting via the JANET Web Hosting Service and the new SMS service, JANET txt. These have both been developed as a result of community feedback.

There have been other developments in terms of communications technologies with the launch of two new pilots. The prototype of JANET Collaborate has gone live and in line with the JANET(UK) Voice Strategy a VoIP service, JANET Talk, will be trialled in early 2008.

Network Monitoring

There is also a demand for improved network monitoring and measurement, and as a result JANET(UK) has procured a new Netsight system for use by the community. The system will see increased levels of functionality to include protocol/application identification and reporting, which will be rolled out in early 2008.

Summary

The FE sector is undergoing a significant period of change with a number of high profile political initiatives. Increased political and economic support for FE is having tangible impact on colleges in terms of physical and IT infrastructure, accompanied by a strong support for the use of technology, both locally and nationally.

Time constraints, workload and staff turnover continue to impact on the ability of colleges to gain knowledge regarding the opportunities available through JANET facilities and services, but JANET(UK) is considered a vital partner for FE in the delivery of learning.

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JANET Web Hosting Service
http://www.ja.net/services/ network-services/web-services/ webhosting/

JANET Collaborate Pilot
http://www.ja.net/development/ collaboration/pilot/

JANET Talk
http://www.ja.net/development/ voip/janettalk.html

JANET Voice Strategy
http://www.ja.net/development/ voip/janet-voice-strategy-feb06.pdf

JANET Netsight
http://www.ja.net/services/ network-services/netsight

RBCs Increase Provision of Content, Services and Others

The JANET Schools Business Manager, Kevin Sharp, has been undertaking a round of visits to RBCs (Regional Broadband Consortia) throughout the country to understand the regional differences and priorities of the individual consortia. The RBCs were created in 2000 following a government initiative to bring Local Education Authorities together to aggregate broadband provision to state-funded schools. There are 10 RBCs in England.

The visits have highlighted the different ways in which the consortia have undertaken the task of connecting schools in their regions. In addition to offering connectivity, the content and services now being provided to schools by the RBCs have increased markedly over the last few years. Many are also making use of the services offered by JANET, the most popular being videoconferencing. Schools are making much use of this as a teaching aid, promoting collaboration between schools and also with other JANET-connected organisations such as museums and art galleries.

The RBCs are also showing considerable interest in services such as JANET txt and the new JANET Collaborate pilot.

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JANET and Spamhaus

Organisations with a JANET connection now have easy access to two leading resources for reducing the amount of e-mail abuse (including UBE (Unsolicited Bulk E-mail or spam) and messages carrying viruses) that their e-mail servers and their users have to handle: Spamhaus Zen lists and MAPS RBL+.

Spamhaus Zen lists are a recent addition to the JANET DNSBLs (DNS Block Lists). JANET's use of the service is both a pragmatic measure protecting servers and users, and a political alignment with a major force for good in the Internet.

Spamhaus

Spamhaus is the leading source of information on the activities of senders of UBE. As most other kinds of network abuse are also now associated with UBE, the resource is of even wider value than might at first appear. 'Zen' is the collective name for the Spamhaus lists SBL, XBL and PBL, which record respectively IP addresses associated with businesses who are the ultimate sources of e-mail abuse, addresses of computers known to be infected with viruses or other damaging software, and addresses from which e-mail should not be expected directly (perhaps in the networks of consumer service providers).

The Spamhaus DNSBLs

Each provider of a DNS Block List has criteria of its own for listing some IP addresses or address blocks and not others. In general, the IP addresses listed are those from which the list provider thinks you might not want to accept e-mail messages. The lists are published through the DNS and are accessible by simple and standard Internet processes. Some DNSBLs are made publicly available; for others, lookups are restricted, perhaps to paying customers.

When a server in JANET receives a connection from a remote e-mail server that apparently has a message to transfer, it finds whether or not the remote IP address is in any of the Spamhaus DNSBLs. If the address is listed then the receiving server applies its own policy to the connection. Typically it will choose not to go any further with the attempted transfer, but it may instead combine the list result with other information gathered as the transfer proceeds and decide later, perhaps delivering the message after marking it with a warning. For unlisted IP addresses the server may process the message differently and apply policies on the basis of other information, such as the results of virus scans and anti-spam filtering.

Although Spamhaus makes the Zen lists available without charge for anyone to look up IP addresses, it recovers its operating costs from the managers of large e-mail services whose servers may make tens or hundreds of requests a second. Many JANET organisations would be asked to pay and to configure DNS servers of their own to hold a local replica of the Spamhaus data, and most will prefer to use the central JANET replicas without any such restriction.

The Spamhaus Zen lists in JANET:
**http://www.ja.net/services/
network-services/
TheSpamhausZenlistsinJANET.
html**

JANET DNSBLs:
**http://www.ja.net/services/
network-services/
JANETDNSBLs.html**

Spamhaus:
http://www.spamhaus.org/
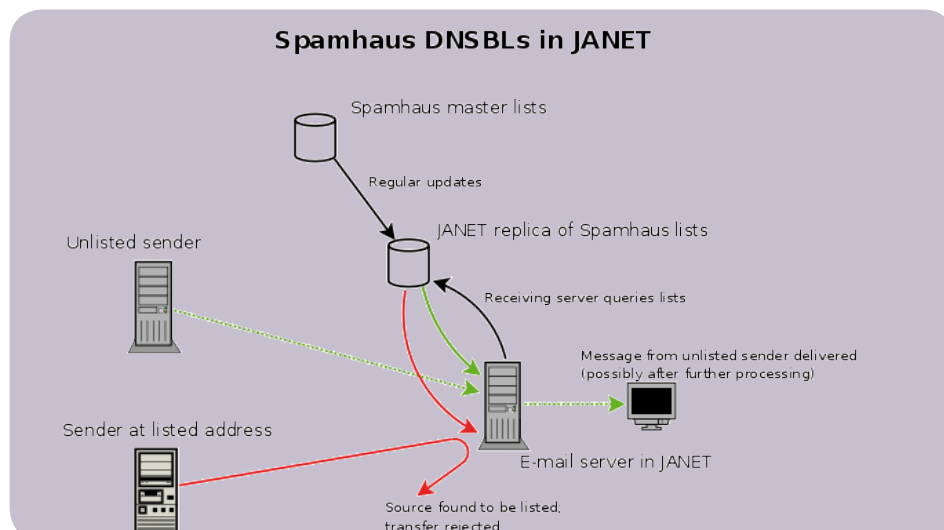
Why You Should Use the Lists

It is easy, and economical of network and server resources, for a JANET organisation's e-mail server to check one or more DNSBLs. Very early in the process of transferring a message, the receiving server makes a single DNS request to the list and gets the answer in real time. The server is then able to abort the transfer; there is no message to filter or process for eventual rejection and potential bouncing.

The Spamhaus lists are of good standing within the Internet and the listing criteria are objective and openly published.

Where a rejection interferes with legitimate e-mail ('false positives'), the sender should be advised of the difficulty, but any such notification is the responsibility of the sending server and the receiver does nothing more. This is a considerable benefit to receivers for the 70% or more of transfer attempts that are not in this sense legitimate, as in most of them the originator address is forged and cannot safely be used for notification or for bouncing the message back.

It is sometimes claimed that early rejection interferes with the flow of legitimate e-mail and it is certainly essential to ensure that messages to the 'postmaster' and (where used) 'abuse' addresses in a JANET organisation are never rejected in this way. Such exceptions are easy to arrange but should not be extended to addresses such as 'applications' or 'sales'. In general, rejection will result in the remote sending server returning the failed message to its sender, so legitimate e-mail need not be silently lost.

**Rodney Tillotson
JANET-CSIRT**

Spamhaus DNSBLs in JANET

Spamhaus master lists
Regular updates
JANET replica of Spamhaus lists
Unlisted sender
Receiving server queries lists
Message from unlisted sender delivered (possibly after further processing)
Sender at listed address
E-mail server in JANET
Source found to be listed; transfer rejected

JANET(UK) Helps Deliver Open-Source Security Software

JANET is helping to deliver an open-source supplicant which will assist institutions in managing secure access to their networks. This follows its technology partnership with the OpenSEA Alliance (**http://www. openseaalliance.org**), recently formed by leading networking and security companies including Extreme Networks, Identity Engines, Infoblox, Symantec Corporation, TippingPoint, and Trapeze Networks.

At present, JANET Roaming permits two types of network access technology: the simple to use, yet inherently insecure, web redirect; and IEEE 802.1x, widely acknowledged as the current best practice secure solution but requiring a software supplicant to run on all connected nodes. IEEE 802.1x has recently been mandated by eduroam as the only technology that should be used by members of the eduroam federation.

The Problem, the Answer

It is widely acknowledged in the education sector that the IEEE 802.1x client (or supplicant) supplied by Microsoft with Windows XP has some significant limitations which are impeding adoption of IEEE 802.1x within the community, both in the context of JANET Roaming and network admission applications in general, particularly in a cross-platform environment. The alternative of licensing third-party commercial supplicants is likely to be costly. These factors hinder deployment of best practices in securing and controlling access to networks and services.

To address this issue, a number of experts within the community have considered whether the available third-party IEEE 802.1x supplicants could either supplement or replace the Microsoft supplicant. Having considered a number of options in depth, the JANET project team concluded that porting the existing XSupplicant code, on which the OpenSEA 802.1X supplicant is based, to Windows is the least risk option for solving the supplicant problem.

The OpenSEA Alliance will provide free pre-configured supplicant software,

thereby allowing rapid deployment within organisations. A release of the supplicant under the Open Source license can be found at sourceforge.com (**http://open1x. sourceforge.net/**) and feedback can be conveyed via the Dot1x Mailing list (**dot1x@wwww.jiscmail.ac.uk**).

Sean Convery, CEO of the OpenSEA Alliance, comments: 'We see the role of the OpenSEA supplicant as analogous to that served by Firefox in the browser landscape: excellent performance and usability in an open source project, answering current needs and promoting innovation across the board in future 802.1X support.'

JANET Roaming

For users of JANET, this initiative will enhance the JANET Roaming service. JANET Roaming allows users to acquire a connection to JANET at participating organisations, using credentials provided by their home institution. This means that the visited site will no longer be required to manage and issue guest credentials. The new supplicant will reduce the complexity of using JANET Roaming for many users, further increasing the value of the service to the academic community. JANET(UK)

1,000 SCS Certificates

On 25 July 2007 JANET(UK) issued its thousandth SCS (server certificate service) certificate to Manchester Metropolitan University, and we are now well on our way to issuing the two thousandth. To date the JTAG Team have handled 2,363 certificate requests, of which 1,837 have been issued. The vast majority of these requests are valid for three years.

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has opted to provide a test bed to ensure a robust workable supplicant, feeding back information, and ensuring inclusion of protocols and standards that meet the full requirements of the education community.

The test is likely to run until summer 2008, following which case studies will be available from the JANET website.

For further information, please visit: **http://www.ja.net/development/aa/ 802.1x.html**

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Footprints in the Net

This summer, as usual, a few students overdid their celebrations and got into trouble. Probably for the first time, however, evidence of the misbehaviour was found through the Internet. This has prompted comment on the need to take care when publishing personal information but also raises issues about how we use information we find online.

The misdemeanour was so widely discussed on websites and blogs that details will persist more or less indefinitely, available for anyone to find with a simple search. No statute of limitations applies. We all leave footprints on the Internet which can re-surface surprisingly. I was once contacted by a journalist following up something I had said

in a conference three years before. Unlike a social networking profile we have little or no control over these kinds of record.

Internet searches can also mix up our professional and private lives, tempting us to be influenced by things that are none of our business. Society has yet to develop norms for handling the Internet's perfect memory, and until it does we may need to be tolerant of each others' muddy footprints.

For more on social networking safety see, for example: **http://enisa.europa.eu/pages/02_01_ press_2007_10_25_social_netw.html**

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Forthcoming Events

BETT Show

9–12 January 2008

The world's largest educational technology event. Come and see us on stand J49.

Further details available at: **http://www.ja.net/services/events/calendar/2008**

Networkshop 36

8–10 April 2008

Networkshop 36 will take place at The University of Strathclyde from 8-10 April 2008. Further details available at: **http://www.ja.net/networkshop/**

Events Calendar
http://www.ja.net/services/events/calendar

Networking Strategy Workshop

26–27 November 2007

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

Details of the event available at: **http://www.ja.net/services/events/calendar/2007/**

JANET Optical Event

5 December 2007

JANET is organising a JANET Optical Event on 5 December 2007 at the Lakeside Centre, Aston University, Aston Triangle, Birmingham B4 7ET.

The aim is to explore the topics covered by the JANET Optical Development Programme and to provide a glimpse into the future of optical networking technologies.

The event is aimed at network or technical managers responsible for the provision of network services at JANET-connected organisations, who are interested in understanding more about the future possibilities of JANET. For further information and to book your place please see: **http://www.ja.net/services/events/calendar/2007/**

Upcoming Courses

Introductions and Theory

Introduction to JANET: **12 December, Manchester**

Technical

Basic Networking: **15 December, London**

Basic Router Configuration: **16 January, London**

Security

Managing IT Security: **4 December, Glasgow**

Firewalls: Planning and Implementation: **4 December, Glasgow**

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

Recent Publications

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

Reports

Quarterly Report to the Community May-July 2007
http://www.ja.net/services/publications/reports/quarterly/summer-07

Newsletters

JANET News 1
http://www.ja.net/services/publications/janet-news/JANET-news-1.pdf

Service Documentation

Network Access Strategy 2007
009(10/07)
http://www.ja.net/development/network-access/documents/network-access-strategy-081007.pdf

JANET Collaborate flyer
008(10/07)
http://www.ja.net/development/collaboration/pilot/janet-collaborate-web.pdf

JANET Support Manual Update
http://www.ja.net/services/publications/service-documentation/supportmanual/

Introduction to JANET
007(08/07)
http://www.ja.net/services/publications/general-info/janet-booklet.pdf

JANET Customer Services
002(08/07)
http://www.ja.net/services/publications/general-info/customer-services-2007-web.pdf

JANET Network Services
001(08/07)
http://www.ja.net/services/publications/general-info/network-services-2007-web.pdf

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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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