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The background of the cover is a complex digital graphic. It features a dark blue and purple gradient with glowing orange and yellow circuit-like lines. Large, semi-transparent numbers (8, 5, 2, 9, 3, 4) are scattered across the scene. Binary code (0s and 1s) is arranged in curved paths, and there are several horizontal bars of varying lengths and colors (white, yellow, orange) that look like data or signal indicators.

JANET pushes the boundaries with **100Gbit/s network** for UK research and education

www.ja.net

Contents

NEWS

- Supporting eduroam deployment **3**
- JANET pushes the boundaries with 100Gbit/s network for UK research and education **4**
- Cost savings & enhanced security as the JANET Certificate Service develops its services **6**
- JANET(UK) welcomes review **8**
- Clouds on the horizon **10**

COMMUNITY

- Outstanding for students **12**
- Customer Engagement profile:** **14**
Robert Prabucki, Customer Engagement Manager for Eastern & East Midlands

FEATURES

- JANET resilience across the north-south divide **16**
- Changes to Interception Law **18**
- Profile:** Paul Harness, Director of IT Services, University of Manchester **20**

TECHNICAL

- DNSSEC – a .uk first for JANET and cam.ac.uk **23**
- Advanced Persistent Threats **24**
- RADSEC & IF-MAP: double the solution **26**

SERVICES

- JANET(UK) recognised for Training Excellence **27**
- eduroam on the phone **28**
- JANET and Skype **29**
- A week in the life of eduroam **29**
- Instant collaboration for JANET users **30**

EVENTS

- Forthcoming events **31**
- Networkshop present and future **32**

TRAINING

- Forthcoming JANET Training courses **34**

EXTERNAL NEWS **36 & 39**

TELL US WHAT YOU THINK

- Questionnaire **37 & 38**

PUBLICATIONS

- Recent publications **40**

Editorial

Harnessing JANET for business



JANET's proud boast is to serve the research and education community in the United Kingdom. Instinctively one might not think of JANET as serving businesses – but that is exactly what it does.

Any organisation in our community today must run itself as a business; therefore, to serve your organisation, that is how JANET must regard you.

At the same time, of course, you are not simply a business: you are probably an organisation with sector-specific requirements that commercial suppliers can't match, simply because they are commercial and you are not.

Some examples of how JANET can help. Starting in this issue, *JANET News* will feature a series of interviews that share the expertise and experience of key figures in our industry: people who are all too accustomed to treating their academic departments as businesses. This issue also gives the latest news from JANET Brokerage, a service set up to serve the community by aggregating JANET's expertise and buying power to help businesses make the most of the cloud. A fast and secure internet connection is the least JANET could bring you. Its value lies in what else it delivers to your organisation. Commercial suppliers alone cannot effectively serve a community as diverse as ours. It is when they work with JANET that together we can serve a small community college and a research organisation sharing terabytes of data, at the same time and with no knock-on effect for its other users. To harness the power of JANET, simply join us, look around, and be amazed.

Supporting **eduroam** deployment

Over the summer the consultancy service that supports eduroam deployment has been in great demand. This is a reliable service for on-site problem solving, post-deployment auditing and quality assurance work, eduroam installation and setup or on-site training. This is very useful in situations where an organisation's IT Support staff do not have the time or expert knowledge to effectively and efficiently carry out the work.

Engaging with the service is simple: the scope of the work and number of days required are agreed and a simple purchase order mechanism is used to purchase the service.

Mutually convenient days for the work are agreed, usually preceded by remote analysis of existing configuration and a written report of findings, recommendations and work carried out is usually requested to conclude the job.

One project undertaken in July was for the University of Oxford. The University already had a working eduroam service that had been extensively deployed throughout the University departments, local hospitals and local authority locations in and around Oxford. However the Oxford University Computing Service wanted assurance that the deployment met all

requirements of the eduroam Technical Specification and conformed to best current practice, particularly with regard to the efficiency and effectiveness of their RADIUS server configuration.

The full story is available on the OUCS Network Team blog: <http://blogs.oucs.ox.ac.uk/networks/2011/09/01/maintenance-work-on-eduroam/>

More information on consultancy services supporting eduroam is available at: http://www.ja.net/services/authentication-and-authorisation/janet-roaming/enquiries.html#eduroam_consultancy

Christ Church College,
Oxford University



JANET pushes the boundaries with **100Gbit/s** network for UK research and education

4

UK research and education benefit from a network running at an outstanding 100Gbit/s – that is, over 16,000 times the size of the average home broadband. With its ultra fast 100Gbit/s network capability, JANET continues to lead the way for research and education networks worldwide.

As UK education and research is being asked to do more with less, it

is vital that the technical infrastructure enables rather than restricts new and innovative ways of responding to the challenges ahead. The international reputation of British education and research is fundamental to the future economic recovery and prosperity of the country and, in a global marketplace, it can only achieve this with the right tools. The JANET network is designed to handle vast quantities of data from the world's

greatest scientific endeavours and this latest advance ensures that the UK can collaborate and compete with the best there is. However, it is not just high-end research that benefits. The JANET user base is vast: every user ranging from a primary school student learning about the Victorians, through to a postgrad researching their dissertation benefits from a single unifying network.

The JANET network is designed to handle vast quantities of data from the world's greatest scientific endeavours and this latest advance ensures that the UK can collaborate and compete with the best there is.



Bandwidth demand doubles every 18 months, and the upgrade is the latest stage of the consistent evolution of the network in line with the growth plan drawn up in 2006. It is also the best strategic and economic response to ever-increasing user need, as more and more organisations move towards cloud services and outsourcing of suppliers and as research projects generate ever-larger amounts of data.

“A resilient and robust data network is vital to research-led universities like Cardiff,” says Martyn Harrow, Director of Cardiff University’s Information Services Directorate. “The data network enables the university to respond to the increasingly ambitious (and data-heavy) requirements of researchers, to provide world-competitive

education, and to embrace modern technologies in delivering a distinctive student experience. I welcome the development of JANET’s higher capability network to support and enable the ever-increasing expectations of students and researchers throughout UK education.”

Jeremy Sharp, Head, Strategic Technologies at JANET(UK) commented: “This technical advance is the latest example of JANET(UK)’s commitment to ensuring that UK research and education is underpinned by a ‘world-class’ infrastructure. At a time when research and education is being asked to do more with less it is vital that we identify and implement appropriate technologies that deliver real benefits to our customers.”

The upgrade has been performed with a 100Gbit/s router-to-router connection, in contrast to the more usual 100G optical deployment with a 10x10Gbit/s presentation at the router. The use of 100Gbit/s router-to-router technology uses advanced encoding techniques that makes more efficient use of the underlying fibre to provide better capacity scaling capability.

JANET(UK) will continue to work with its established industry partners: Verizon and Ciena on the transmission technology involved in the upgrade; and Juniper Networks, which is providing high-performance, scalable core routing capability at the heart of the JANET infrastructure with the Juniper Networks® T Series Core Router.

Cost savings & enhanced security as the JANET Certificate Service develops its services

6

The benefits of the JANET Certificate Service now extend to customers in local and unitary authorities. The new offering enables these authorities to request certificates on behalf of schools under their authority. One of the participants in a successful pilot of the new offering, Staffordshire County Council estimates it will make savings of almost £50,000 by obtaining server certificates on behalf of schools under their authority over the next three years. The savings come from the fact that the costs

of providing JANET certificates and processing the orders are absorbed by JANET at no cost to the organisation.

JANET(UK) has also acted quickly to help customers implement additional security procedures, following a recent security alert relating to certificates. The most significant impact of the new security measures is that all applications for certificates are now subject to additional checks. However, a certificate only takes a matter of hours to be issued.

The JANET Certificate Service remains hugely successful, having issued over 14,000 certificates – an increase of over 5,000 since the start of the year – to over 500 organisations. Very positive feedback from users suggests that this rate of take-up is expected to continue as more organisations begin to use this free service.

As well as cost savings, security is improved and good user practice is encouraged, as there is no bypassing browser security

messages; relationships between the local authority, RBC and schools are improved and the authority has a better knowledge of the certificates currently being used within its area of control. Dave Ernest, Business Strategy Manager of Staffordshire Learning Technologies backs the service: “We started using the JANET Certificate Service last year and I would recommend it to any local authority. The online portal makes for easy management with the advantage that they are completely free of charge.”

To use the service, a local authority must first register at www.ja.net/jcs. Registering is a manual but swift process, after which the procedure for requesting a certificate through the portal is automated.

The difference for schools

While local authorities often manage web servers on behalf of schools, they cannot directly acquire server certificates for domains owned by the school. The enhanced system now allows a local authority to request certificates on behalf of schools under their authority. Simply by sending an email through the system to a member of the school management – who signs up to the Terms and Conditions, permission can be granted for the local authority to obtain the certificate on their behalf. At this point, the certificate signing request is validated and forwarded to the Certificate Authority for processing.

A server certificate is used to enhance the confidentiality of sensitive data such as passwords being entered into a web browser.

It also provides the user with some assurance of the authenticity of the web site they are visiting. The service has been available to universities and colleges since late 2009.

By acting as a certificate Registration Authority, JANET(UK) is able to take advantage of economies of scale, passing significant savings on to JANET customers.

Eligibility

As well as educational organisations, any Local or Unitary Authorities connected to the National Education Network in England (either directly or via a Regional Broadband Consortium); or to the Scottish Schools Digital Network in Scotland; or to the Lifelong Learning Network in Wales; or to Classroom 2000 in Northern Ireland are eligible to join the service.

Certificate types

SSL certificate	The basic certificate offered by the JANET Certificate Service: safeguards confidential data but cannot be used for financial transactions at present.
Multi-domain SSL certificate	Consolidates the SSL management process and maintains SSL encryption for all of your domains.
Wildcard certificate	Supports the deployment of EZProxy servers, a type of server commonly used to give users access from outside their computer network to restricted-access websites that authenticate users by IP address. A saving of over £1,500 per certificate.
Unified Communications (UC) certificate	Designed for securing multiple unique domains, for use with Microsoft Exchange 2007 and 2010, or Office Communications Server, where both external and internal domains are required.
Extended Validation (EV) SSL certificate	This certificate can be used for all financial transactions. They are available at a cost of \$150, a significant saving over the normal price.

JANET(UK) welcomes review

This new report will give JANET(UK) a fresh opportunity to demonstrate the network's ongoing value to research and education through both its technical expertise and role of trusted partner to the community.

JANET(UK) has welcomed a new review that will ensure JANET continues to meet the current and future network-related needs of its users. This new report will give JANET(UK) a fresh opportunity to demonstrate the network's ongoing value to research and education through both its technical expertise and role of trusted partner to the community.

The new review, which is one of three commissioned by JISC, is an outcome of Sir Alan Wilson's earlier review of JISC on behalf of HEFCE. The review will be conducted by Capita. Sir Alan's report recognised JANET as 'a major source of competitive advantage to the UK,' receiving 'universal praise, both nationally and internationally'. Recommendations from the Wilson report focussed on reshaping JISC to provide a simpler governance model and enhance its focus on sector priorities. As JANET is the largest of the 60 services funded


by JISC, meriting 43.5% of its core funding, it is therefore appropriate that a review is now conducted.

The review will build on earlier work undertaken by PWC in 2009, which evaluated customer perception of JANET's service provision. Customers recognised the significant added value that JANET delivers against commercial providers: the provision of a world-class network dedicated to powering UK research and education; a bespoke sector-focused provision model; cost savings through economies of scale; a trusted partnership; and a community that is underpinned by a not-for-profit company dedicated to meeting their needs.

Despite the potential changes with JISC activities continue to procure the new JANET backbone upgrade, due in 2013. Requirement gathering activities for this have already taken place during 2010 to establish future network needs

across research, higher education, further education and schools/local authorities, as well as stakeholder groups.¹ Wilson's report did indicate that in the future there could be a shift in the balance of network funding from the centre to the institution, however, JANET(UK) maintains that it is important to preserve the concept of universality, ensuring that all institutions are able to access the network, regardless of geographical location.

As organisations increasingly come under pressure to differentiate themselves in a nationally and internationally competitive environment, the need for a reliable robust research and education network is vital; and as institutions face the financial and business pressures of the current economic model, the ability to adopt new network-enabled technologies such as cloud computing is imperative. The JANET network and the new brokerage service will underpin this opportunity in our community.



As organisations increasingly come under pressure to differentiate themselves in a nationally and internationally competitive environment, the need for a reliable robust research and education network is vital.

¹ An outline of and report on the requirements gathering process is provided at www.ja.net/.six.

Clouds

on the horizon

10

The JANET Brokerage is helping to address the big questions associated with the adoption of cloud services. They are currently procuring storage and investigating the sector's uptake of cloud based email systems.

To ease the process of moving to off-campus data centres and cloud services, JANET has a new brokerage team in place, devoted to working with education and research institutions to meet their specific requirements.

The recent survey to assess chief information officers' current appetite for virtualised computing shows that 64% of respondents are considering cloud services, and many are taking the first steps by co-locating data centres.

JANET Brokerage is currently working with a major London university to investigate the ability to store and manage data off site. These initiatives will assist in the creation of supplier frameworks, which can be used within the sector for co-location facility procurement.

The Brokerage team: Ged Powell, Brokerage Manager (lower left), Shan Rahulan, Technical Lead (lower right); Alex Gibson, Project Manager (upper left); Olivia Bucknall, Communications Officer (upper right); and Amy Campbell, Team Administrator (middle).



Recent discussions with potential suppliers are helping the JANET Brokerage identify data centres and providers that could meet the varying needs of the community.

The Brokerage is helping to address the questions and issues associated with the adoption of cloud services. The team are particularly interested in reviewing cloud based corporate email systems. While cloud student email is widely used, corporate email is less so due to issues with data governance, management and functionality. In the next few weeks, the Brokerage will be producing a white paper, which will investigate the issues

surrounding the adoption of this service and provide reference material, which will aid the decision making process for institutions, and inform discussions with suppliers.

Both the requirements and the technology offerings are constantly changing. The Brokerage team welcome any feedback on specific issues you are facing as part of ongoing requirements analysis and ensuring work is focused on actual needs and services.

To find out more about the progress of the cloud and data centre work, follow the Brokerage team on Twitter [@JANET_Cloud](#)

If you would like an informal chat about how the Brokerage could help you move to a co-located data centre or the cloud, please contact the team by emailing brokerage@ja.net or calling **01235 822337**.



The students of Lincoln College celebrating their 'Outstanding' grade

Outstanding for students

IT staff who may feel undervalued within their organisation can take heart from the experience of Lincoln College, a large FE college based in the East Midlands with a Primary connection to JANET through EMMAN. The college was recently awarded a grade 1 – 'Outstanding' from Ofsted, due in large part to the IT resources and processes that are in place.

To put this into context, there are 300+ FE colleges in England and only two general and further education category colleges were awarded a grade 1 for the 2009/10 period. (Source: Ofsted annual report.) Lincoln College is officially the largest 'Outstanding' general and further education college currently in England and one of only five awarded the overall

Grade 1 under the new Ofsted inspection framework.

Targeted investment for learners

A part of the Ofsted inspection process was to look at the IT resources, processes and support provided for learners, which were regarded as better than outstanding and reflect the value placed on IT services by learners, staff and the organisation. The IT department at the college, were able to provide positive evidence of the relationship between investing in IT resources and learners' achievements and retention, and are justifiably proud of the team's achievements.

IT Services works with the school directors to ensure that bids for ILT capital are evaluated based on whether they are essential to the

curriculum and how many learners will benefit from the investment. Capital bids are ranked based on these criteria and the rankings reviewed with the curriculum areas. Budgets are then allocated to the unit.

Allocation of capital across sites is proportionate to the learner numbers at those sites, with a strong emphasis on deployment of IT to ensure that all students receive a consistent experience regardless of location through provision of fast networking and centralised servers. The IT Capital Budget for 2010/11 is £450,000. Requests for IT expenditure are done online and part of that process requires a response to identify how many learners will receive improved services because of the expenditure. Rob Prabucki, JANET's Customer

community

The IT Services' vision is for the unit to maintain and develop the provision of industry-standard computing to students by leveraging current and emerging technologies, whilst always maintaining a student focus.

Engagement Manager for the East Midlands, comments, "I've not come across anything quite so rigorous and learner centred."

Bringing the cloud in-house

The IT Services' vision is for the unit to maintain and develop the provision of industry-standard computing to students by leveraging current and emerging technologies, whilst always maintaining a student focus. The IT department also wants to position the information technology so that IT Services can deliver ongoing

efficiency and value for money by exploiting new models in cloud computing. The college makes use of the Moodle Virtual Learning Environment, which takes advantage of cloud hosting. There are a minimum set of requirements for each course across the college in terms of VLE standards and content, and students currently access VLE course content over 18,000 times a week. The IT department provides Moodle training, delivering over 220 hours of training last academic year.

The college also makes use of many in-house technologies such as the PCShutdown software, which turns computers off at night, saving £40k per year.

Operating on three main sites in Lincoln, Gainsborough and Newark, Lincoln College has over 2,500 computers for learners; 92% of learners use a computer to help them learn; 89% can access a computer when they need to; 79% of classrooms have an interactive whiteboard and 100% have projection facilities; and the ratio of computers to learners is 1:2.7. Students receive a printing quota for over 650 pages of printed output as well as 10GB for e-mails and 25GB of cloud-based file storage which may be accessed remotely or at college.
Lincoln College (www.lincoln.ac.uk)

Historic Lincoln



Customer Engagement profile: Robert Prabucki, Customer Engagement Manager for Eastern & East Midlands

How long have you worked for JANET(UK) and what were you doing before?

I've worked for JANET(UK) for nearly ten years, initially as an FE Account Manager when the company was known as UKERNA. I was one of two Account Managers with responsibility for FE Colleges in England and my role evolved into introducing the Adult Learning Sector to JANET, which led me into working with many of the local authorities.

Before JANET, I worked in the FE sector, progressing from lecturer to Head of IT Department in several colleges in the East Midlands. I managed the IT infrastructure and support teams as well as the IT and business computing curriculum areas. Previously, I worked in manufacturing as works manager for a furniture company, systems development and operations management in the aircraft industry, and also started up a computer reseller and software development company in the late '70s.

How would you describe a typical week?

One of the great aspects of working for JANET is the ever changing variety of work, and hence a typical week could only ever be

a generalised composite picture. The common thread throughout all of my work has several strands – supporting and working with JANET customers; working with the internal JANET teams to make sure that we deliver excellence and engaging with the many educational partners and agencies across HE, FE, Local Authorities and the cultural sectors. I'm home-based in the East Midlands but I typically spend three or more days in the region, meeting with customers and potential customers. Typical activities in a week may be:

- at JANET Lumen House for a number of meetings with the rest of the customer engagement team or service delivery teams
- meeting with senior IT managers from individual HE and FE organisations to discuss their current and future requirements and ensure that they are kept up to date on JANET services and developments
- attending relevant regional events looking at IT and specifically networking
- attending JISC RSC regional

“

One of the great aspects of working for JANET is the ever changing variety of work, and hence a typical week could only ever be a generalised composite picture.

”



community

technical meetings with FE IT Managers

- meeting with IT staff at organisations such as the Imperial War Museum or British Library to ensure they are kept up-to-date and dealing with queries

across to Milton Keynes and then northwards along the M1. Like other regions the variety of customer organisations ranges from large Russell group universities to the small adult community learning organisation. All these organisations are facing significant challenges due to

to spread best practice across the communities and regions, to ensure that everyone is able to take advantage of the technologies and services being deployed on JANET. That means continuing to be aware of how the community is developing and implementing technologies. The new JANET Brokerage is attracting significant interest and I think will continue to present some interesting means of deployment, enabling organisations to better reach out to their learners, wherever they are. One key aspect of customer engagement is to raise awareness of the possibilities for using such technologies and that will continue to be both a challenge and an opportunity to help customers to offer great learning or research to their students.

The Imperial War Museum



- representing JANET(UK) at LSIS Excellence Gateway strategy board meetings
- meeting with the regional Association of Colleges Director
- attending conferences as a delegate or staffing a JANET(UK) stand
- preparing presentations and regular update reports
- responding to customers' queries passed on by the JANET Service Desk
- calculating indicative quotes for planning purposes.

What are the particular challenges or opportunities of your region?

The Eastern and East Midlands area is bounded by a line that stretches from just south of Manchester to the Humber, down to the Thames estuary

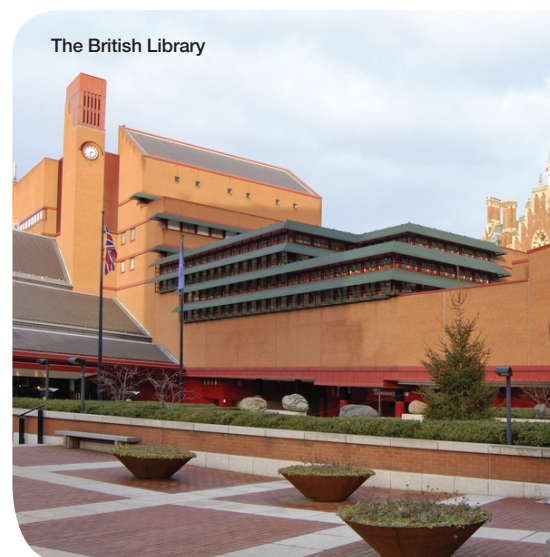
the current financial situation. It is important that JANET(UK) is aware of the regional requirements specific to networking so that it is able to deliver new services to the customers when they are required.

How would you like to see your region develop? Where do you see it being in five years time?

I've been surprised by the regional variances in approach and the differences in each of the communities that connect to JANET. I can envisage a much greater blurring of the boundaries between the different communities on JANET, brought about by a number of factors in the education environment, not least the current and no doubt future pressures on institutional funding. It will be ever more important to be able

I'd expect a much richer and more comprehensive set of online learning, support and self-managed services to become available. Online, on-demand briefings will become more common, given the pressure on travel, time

The British Library



and costs. Going forward, I'm hoping to get involved and to see increased customer input to both development and self support.

JANET resilience across the north-south divide

The JANET core has Points of Presence all around the country, two of which are in London. What would be the effect on network traffic if, say, a power brownout hit all of the capital?

From a purely JANET point of view the answer is: very little. The network is already designed with a great deal of redundancy and traffic would reroute around the affected area. However, JANET users don't just stick to JANET: global connections let users roam to the rest of the world through the Internet. In the event of a London brownout, what would happen to that connectivity?

A few years ago the answer would indeed have been that JANET users would be cut off from the rest of the Internet. Thankfully, and without downplaying the gravity of such a hypothetical situation, with recent developments that is no longer the case.

For many years, JANET's global transit was only available through

two PoPs in London, Telehouse and Teleticity. London was the only option for global connectivity: fibres entered the country from the south or the west but still did not split

spreading the load on the network. Meanwhile, JANET is in the process of connecting with another PoP at IX Leeds. As Rob Evans, Senior Technical Specialist at JANET(UK),

The work is being balanced by an increased number of domestic peerings, both public through the LINX and private: when we see traffic into a particular network rise above a threshold, we consider additional connectivity.

until they reached a London PoP. JANET's global transit is bought from global providers, with JANET paying for capacity by the megabit/month to have its packets on their network, and costings for global transit via alternative locations (such as Leeds or Manchester) were expensive because the fibres still had to go all the way to London and back.

This is no longer the case. Last year JANET obtained some space in the Teleticity PoP in Manchester with fibres going directly to that location, avoiding London and

explains, "Increasing the diversity of JANET's connections outside London has two benefits for our customers. Firstly it increases our reliability for all, but secondly, not having to move all traffic through London enables more local and responsive delivery of content for JANET's users further north in the country."

Comparing the network schematics over the last two years (Fig 1 and 2) shows how much work has been done to increase resilience and capacity all round.



feature

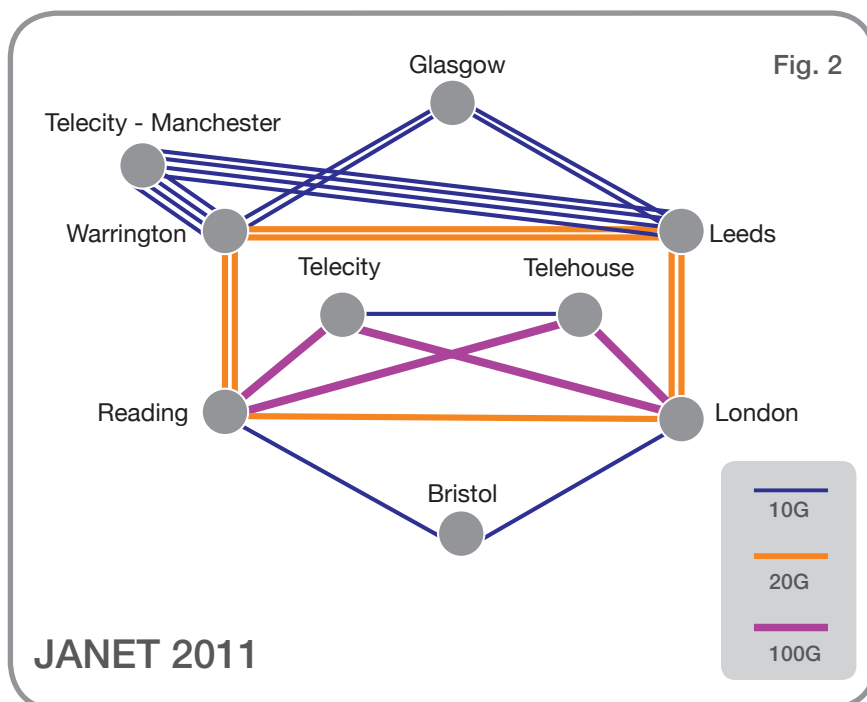
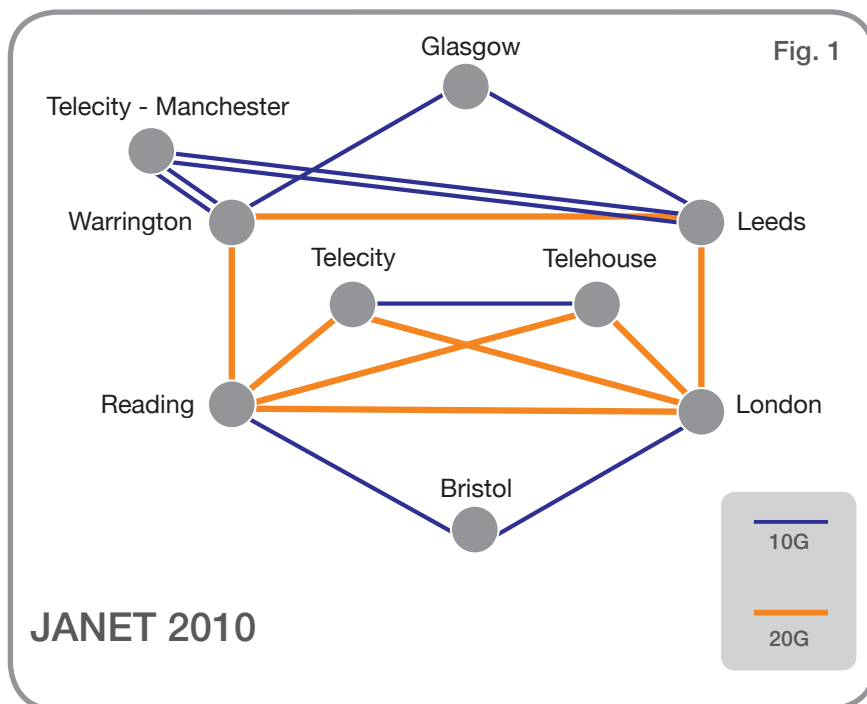
The 40G connections between Telehouse, Teleticity, Reading and London have been increased to 100G (see separate story). The 40G cards freed up by this have been used to brace this up by increasing the 40G connections between Reading, Warrington, Leeds and

London to 80G. The 10G links that link Glasgow with Warrington and Leeds have been increased to 20G and the 20G links connecting Manchester with Leeds and Warrington to 40G.

The work is being balanced

by an increased number of domestic peerings, both public through the LINX and private: when JANET's monitoring process picks up an increase in above a threshold, they consider additional connectivity. Last year there was a total of 163G to peerings; this is now 193G and we expect it to be 261G next year. Most significant here are a 10G link to NTL and 20G to Akamai in Manchester. A 20G connection to Google in Manchester has been arranged as capacity in the Manchester PoP is built up. Other upgrades are being planned subject to confirmation, though bandwidth to GEANT will certainly rise from 10G to 20G.

It is not just fear of a London brownout that prompted this work. The enforced London-centricity of recent years has always been at odds with the network's vision and policy. JANET is a national resource and growing more connectivity from a north of the UK perspective reduces pressure on the north-south parts of central core, meaning that traffic is no longer sucked down to London. The JANET network already covers the entire country and is mission critical to millions of users. Spreading the base of its external connectivity and undertaking work to meet the need that we know will arise, from simple historical trends, simply underscores what we have always done. When the need is there, JANET will have been first to meet it.





Changes to Interception Law

You think one of your users may be misusing the network, but what exactly can you do about it? Are you allowed to check their emails without their knowledge? Could you end up being sued or prosecuted for trying to sort out a problem? What are your rights and obligations as a network manager if you have cause to believe something is amiss and need to gather evidence?

Interception law covers any activity

that results in the content of a communication on a network being made available to someone other than the sender or intended recipient. Interception can clearly be a serious invasion of privacy; however it is also sometimes essential to keep networks and services running.

UK law on interception is contained in the *Regulation of Investigatory Powers Act 2000* (RIPA), which starts by saying that interception is unlawful, except in a number of

specified circumstances. Those most likely to be relevant to JANET and its customers are: that interception by, or on behalf of, a person entitled to control a network may be lawful if either: (a) it is done for a purpose connected with the operation of that network; or (b) it is done to detect or investigate use of the network that is unauthorised or otherwise against policy. Thus the law does allow, for example, mis-directed e-mails to be read and re-directed by an authorised postmaster and the content of

feature

network traffic to be scanned for viruses or inappropriate content. In each case, however, the process for doing so must be designed so as to minimise the invasion of privacy.

Two recent changes in this area mean that it is worth reviewing any activities likely to involve interception to check that they are authorised and conducted in accordance with the law.

The first change is a clarification of when the law applies. Section 2(2) of RIPA says that interception of a communication takes place “while [it is] being transmitted”. Before and after ‘transmission’, other laws (notably Article 8 of the *European Convention on Human Rights*, which demands a respect for privacy of communications) take over. The question of when ‘transmission’ stops arose during debate of the original Bill and was answered for the Government by Lord Bassam: that transmission of

e-mail that had been read was not. However it has now been pointed out by the Director of Public Prosecutions and others, in the context of voicemail boxes, that section 2(7) of RIPA clarifies that ‘transmission’ lasts as long as the communication is held on the communications equipment in a way “that enables the intended recipient to ... have access to it”. Thus it seems that the distinction between read and unread mail may not be relevant and that all messages still in the inbox should be regarded as ‘in transmission’ for interception purposes.

This definition should actually be simpler to apply, particularly where modern mail systems allow users to mark messages as ‘read’ or ‘unread’ irrespective of whether they have actually seen the contents. This does raise the question of the status of received messages held in other folders on a central mail store: irrespective of the technical implementation, the user may perceive them all as being stored

according to the *Human Rights Act 1998* – in particular not interfering with the privacy of any communication unless it is necessary and proportionate to do so – access to all mail folders should already be carefully controlled. However this new interpretation may mean that the grounds for accessing all mail folders should also be checked against RIPA’s reasons that legitimise interception.

The second change is that while RIPA requires that an interception be intentional for it to be unlawful, the new *Regulation of Investigatory Powers (Monetary Penalty Notices and Consents for Interceptions) Regulations* will also make unintentional interceptions unlawful. The power to impose monetary penalties for unintentional interceptions applies only to public networks (therefore not to JANET and most of its customers’ networks) and the interpretation of what would constitute an unintentional interception remains unclear. However the change suggests that JANET customer organisations should ensure that their procedures for authorising and performing interceptions include any actions that *might* reveal the content of communications as well as those that are intended to do so.

Interception law covers any activity that results in the content of a communication on a network being made available to someone other than the sender or intended recipient.

a letter ends when it lands on the doormat. It is not completely obvious how this translates to e-mails, but it has generally been considered that an unread e-mail in someone’s inbox was still in transmission (and therefore that examining it did constitute interception) whereas an

remotely on the transmission equipment – and therefore still ‘in transmission’. Perhaps only those folders that are stored locally on the user’s own computer have actually ceased being in transmission. Since public education organisations are generally required to behave

Further updates on developments in interception law, as well as information about JANET(UK)’s other activities in the regulatory area, will appear on the Regulatory Developments blog at webmedia.company.ja.net/edlabblogs/regulatory-developments/.

Paul Harness is currently Director of IT Services at one of the UK's leading research universities, which has four faculties, 22 academic schools and hundreds of specialist research groups pioneering multidisciplinary teaching and research.

His post was formed when two of Britain's top universities – the Victoria University of Manchester and UMIST – merged in 2004 into Britain's largest single-site university. What prepared him for a position like this?

I did a PhD at UMIST in Electrical Engineering, then some post-doc in Physics at Glasgow: finite element calculations on a computer. I gradually became the research group's IT guy; a job came up at UMIST in IT applications support and I never looked back! My academic colleagues thought I was crazy.

The Victoria University of Manchester and UMIST were then separate universities but academic IT was a shared service between them. Ironically, my first managerial job as Head of Systems and Networking was to set up UMIST infrastructure following an agreement to end the shared service. Meanwhile the then Director was leading a big systems replacement programme. When he left I became Acting Director of IT on a steep learning curve of how to run business systems. Hence, over a relatively short career I gained very broad experience of IT that is very difficult to gain nowadays.

I was Director of Information Systems at UMIST, when UMIST and Manchester merged. The Director of IT Services post was created for the

JANET News 16 | October 2011

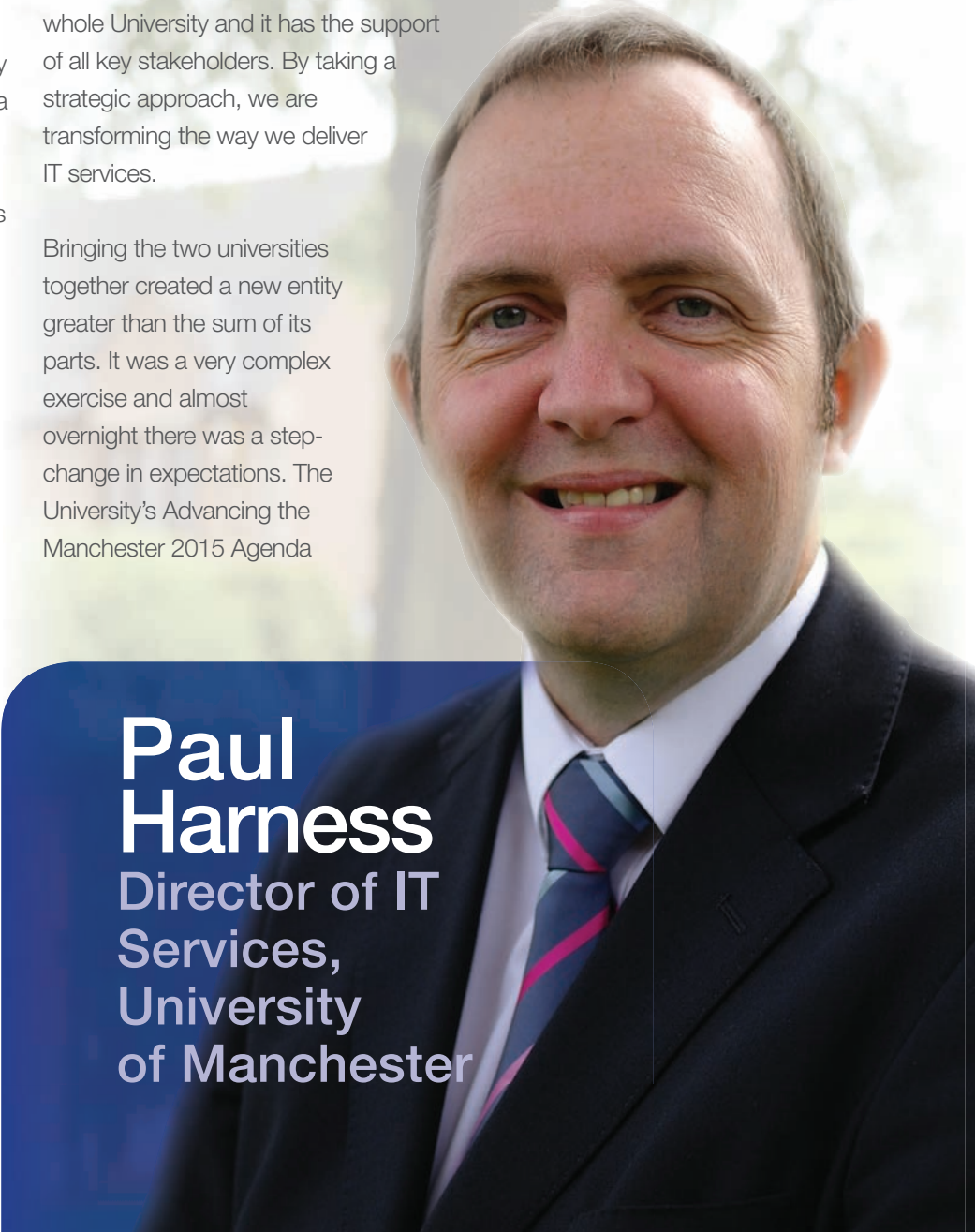
IT Department at The University of Manchester and we began putting all the systems back together again.

You've been forced to react a lot to events around you. Have you been able to develop a vision for the future at all?

The University, which is one of the largest in the UK, operates in a devolved, federated way. I've been striving to get a more joined-up approach for IT within that federated structure. We've set out an IT Strategic Plan which supports the University's strategic plan, "Towards Manchester 2015". It's an overarching plan for the whole University and it has the support of all key stakeholders. By taking a strategic approach, we are transforming the way we deliver IT services.

Bringing the two universities together created a new entity greater than the sum of its parts. It was a very complex exercise and almost overnight there was a step-change in expectations. The University's Advancing the Manchester 2015 Agenda

sets out a very ambitious vision – to be in the top 25 in the world by 2015. IT plays an enabling role in delivering this vision. The results of the agenda can be seen with Manchester moving steadily up the Shanghai Jiao Tong league table of research universities: 78th in 2004, 44th in 2010. The 2015 plan has some specific objectives, one of which was around gaining five Nobel Laureates or their equivalent. 21 We are now ninth in Europe and fifth in the UK, trying to break the golden triangle of Oxford-Cambridge-London.

A portrait of Paul Harness, a middle-aged man with short grey hair, wearing a dark suit, white shirt, and a blue and pink striped tie. He is smiling slightly and looking towards the camera. The background is a blurred outdoor setting with green foliage.

**Paul
Harness**
Director of IT
Services,
University
of Manchester

feature

Our big coup this year was winning two Nobel prizes in Physics for the discovery of Graphene.

Is there a balance to be struck in the move towards shared services and collaboration on the one hand, with the need to keep research confidential, on the other?

In some areas, yes. Some areas of research are traditionally very open in sharing data, for example physicists using data from the LHC. At the other extreme there is much more concern about data confidentiality: for example, clinical trials with restrictions on how we manage the data, or commercial concerns. There is definitely worry among some senior researchers here about putting their research data into the cloud because of legislation like the US Patriot Act.

Our approach to the cloud has been risk based. We put undergraduate and taught-postgraduate email in the cloud on Microsoft Live, while for staff and research-postgraduates it's kept in-house. There is a huge amount of hype about the cloud but while there are outstanding security concerns, take-up will not be as extensive as it could and should be.

We host our learning system online with Blackboard in Amsterdam, for reasons of agility. We wanted to rapidly accelerate our e-learning activities: by running it in the cloud we could get things running and off the ground very quickly, and keep things up to date and patched very quickly and easily. That way we could focus on adding value around teaching and learning. This strategy has definitely paid off for us. Obviously student personal

The University of Manchester IT Strategic Plan

Strategic principles

- **Customer-focused:** to focus on the customer's needs rather than on the system
- **One IT Services:** to embrace an integrated, shared service approach, providing end users with seamless provision of IT services across the whole University.
- **Green:** to adopt principles of environmental sustainability throughout all our IT activities.
- **Simplify:** to reduce complexity and duplication throughout all our activities.
- **Cost effective:** to consider the total cost of ownership when making strategic decisions.

Goals

1. **Continually modernised IT facilities:** to provide up-to-date general purpose IT facilities, which meet the aspirations of our University.
2. **Consolidated infrastructure:** to provide efficient, effective and environmentally sustainable IT infrastructure, including an overall reduction of the University's IT carbon footprint by 11% (December 2013).
3. **Highly effective information systems:** to provide highly effective integrated information systems which meet the needs of our students, academics and support staff.
4. **A professional IT organisation:** to deliver IT services in a professional and customer-focused manner.

Manchester's five Strategies for Research, Advancing the Manchester 2015 Agenda

1. To value research virtuosity for its own sake, placing the very highest value on outstanding research performance and outstanding researchers irrespective of the discipline in which they are located or the scale of the University's engagement in the particular field of research in which they work.
2. To invest strategically in building an internationally recognised

research profile around a number of world-leading concentrations of research excellence.

3. To broaden the range of research funding sources, especially by placing greater emphasis on European funding and funding from industry sources.
4. To ensure that translational research is given parity of esteem with basic research of the highest international standing.
5. To provide world-class postgraduate research and training as a vital, integral part of the overall research activity of the University.



information is kept secure but the risk with teaching content is not the same as that for commercially sensitive information or very sensitive research studies information.

With your reservations about the cloud, what is your impression of JANET's Brokerage?

I can see it being very valuable: doing due diligence on behalf of other organisations and creating the standards. I know from being involved in the detail of negotiating with Microsoft for Outlook Live that vendors' marketing literature can gloss over legal technicalities. The JANET brand in networking is extremely strong, though whether that automatically endorses all its service offerings is another matter. The legal issues around the cloud are very complicated, and different organisations take different views about the level of risk.

What has been your overall experience of JANET?

We tend to work through Net North West: the NNW team are part of my department and I believe they are regarded by JANET as a very competent regional team. From a networking point of view, it's beyond doubt that what JANET has delivered for research over the years has been world-class.

From a research point of view, the network is not an issue. We want special connectivity for our physicists from the LHC and the NNW team; working with our campus-network team can facilitate that. We're involved with organisations and projects like the Jodrell Bank Observatory and the Square Kilometre Array project: a number of teams across the University are using the high-end services that JANET offers and it just works. Manchester's interest in some of the

smaller services that JANET offers is not as great – we use what we need.

Will that change when NNW is brought in-house?

JANET's challenge is to be sufficiently customer-focused and aware of what its customers think. That's the role that the regional networks have historically done very well. The NNW team have close relations with different universities within the region and an excellent understanding of local needs. I have concerns that this level of customer focus is difficult in a fully centralised way. JANET must ensure that local needs are understood – otherwise the risk is that JANET becomes a commodity internet service provider. University IT Directors need to understand what the new services will look like at the end of the day: what is the overarching strategy for JANET, what are the services that JANET delivers, how are they delivered and how much will they cost? Personally, I'm not that concerned about exactly how services are delivered but if we're changing them then we need to make sure we get the same level of service or better.

The response of JANET's board to the recent JISC review states that whatever the funding mechanisms of the future are, they should ensure that the network is preserved without driving organisations to seek their own provision. Would you agree?

It comes down to what service we're procuring and whether it's value for money. A research-intensive institution like Manchester has specialist high-end requirements; if I was running IT in another type of university I suspect I might think differently about my priorities. The JANET challenge is: can the two work together? The value Manchester gets from JANET is (a)

reliability, (b) resilience and (c) specialist provisions, such as JANET Lightpath. For us, these are JANET's USPs. The JANET 3G pilot looks interesting, but can it compete in a commodity market? We have the same discussions internally. We have a University mobile phone contract and a handset can appear cheaper on the high street, but you're not necessarily comparing like for like. JANET has to ensure services are value for money and sustain the special things that it does for the sector.

Is there more we could be doing?

JANET could play a valuable role in terms of brokering. The marketing approach of some big vendors is almost to divide and conquer. If JANET can play that role in facilitating brokering services then it could be very helpful.

"The student as consumer": now students are paying more personally, are they expecting more?

The University is making significant investment in students. The flagship is the new Alan Gilbert Learning Commons building, opening September 2012 – it's being built around social learning spaces with a huge amount of IT in it. We're working very closely with the library to make it very technology rich. The University has created a Directorate for the Student Experience, which helps to ensure that we focus on student priorities and works closely with the Students' Union.

Students are increasingly acting like consumers, and I am sure that will continue. What's important is making sure that students here get the premier experience they are expecting.

DNSSec – a .uk first for JANET and cam.ac.uk

Security for the .ac.uk domain, which is managed by JANET(UK), has been significantly enhanced with the availability of DNSSec, a protocol that helps ensure users are connecting to precisely the website they want. The .ac.uk domain was the first second-level domain under .uk to implement DNSSec. Cambridge University's cam.ac.uk domain has since become the first delegation under any of the .uk second-level domains to make use of the protocol,

the website of a particular bank, for example they can be sure the browser gets the addresses of the right web servers.

This alone does not guarantee the security of a web transaction, but by ensuring that the transaction starts in the right place, it is an important technology to use in combination with others like server certificates. Used in tandem, they can protect every step of the transaction between the server at one end and the user's computer at the other. It

DNSSec is implemented by the publication of public keys for a particular domain, which are stored as a DS record by the domain's authority.

closely followed by *ic.ac.uk* and *imperial.ac.uk* from Imperial College, London.

Developed by the IETF, DNSSec provides a way of using public key cryptography to prove that the data received as a result of a DNS query came from an authoritative source and has not been modified in transit. Thus resolvers are protected from forged DNS data, such as that created by man-in-the-middle attacks and DNS cache poisoning. As a result, when a user's web browser tries to reach

also provides a platform for other security improvements that are yet to be developed.

DNSSec is implemented by the publication of public keys for a particular domain, which are stored as a DS record by the domain's authority. Thus DNSSec became available for .ac.uk when that domain's public keys were accepted by Nominet, the registrar for the .uk top-level domain, in March. The keys for Cambridge and Imperial College were then published by JANET(UK).



Any sites who would like to publish DS records for their domains within .ac.uk can send an email containing the relevant DS record(s) to naming@ja.net, with "DS record registration for organisation.ac.uk" as the subject line. JANET(UK) will then check the DS records against the corresponding DNSKEY or DS records published in the authoritative nameservers for the domain, before adding to the .ac.uk zone. Any queries regarding DNSSec can be sent to naming@ja.net.

JANET community support for DNSSec can be found through the JISCMail DNSSec-DISCUSS mailing list: <https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=DNSSec-DISCUSS>.

Meanwhile, work is underway to provide a more user-friendly method of managing all aspects of DNS delegation, including DS keys.



Advanced Persistent Threats

Every so often, after a ground-breaking discovery or an event that has a substantial impact on the security community, a new phrase/term/acronym enters the lexicon of the security researcher.

Over the last few years, several high profile compromises have hit the news headlines. Attacks on an unprecedented scale targeted a slew of companies in the technology, financial and defence sectors, and 'Advanced Persistent Threats' became a common topic for discussion.

Dawn of a new threat

In 2010 Google reported on its official blog that it had suffered a sustained

attack from a source appearing to originate in China. Google said that some of its intellectual property had been stolen and that the attacks were highly sophisticated, utilising complex vectors and multiple levels of encryption to avoid detection and gain control of target systems. Essentially the compromise involved several layers of well hidden encrypted traffic that penetrated deeper and deeper into their network over a period of time. Google also suggested that the attack may have been carried out by the Chinese state to gain access to the email accounts of Chinese dissidents.

However, the attack was not solely targeting Google. Other companies

targeted in what became known as 'Operation Aurora' included Yahoo, Adobe Systems, Juniper Networks and Rackspace Hosting.

In March this year, RSA admitted it had been the target of a highly sophisticated attack that successfully penetrated its infrastructure. The compromised data was specifically related to RSA's SecurID two-factor authentication products. In an open letter to its customers, RSA's Executive Chairman states: 'While at this time we are confident that the information extracted does not enable a successful direct attack on any of our RSA SecurID customers, this information could potentially be used to reduce the effectiveness of

technical



a current two-factor authentication implementation as part of a broader attack'. In other words, the two-part authentication mechanism generally utilised by many as the de facto standard for authentication had been compromised, undermining the integrity of the RSA SecurID system. At this stage there is no confirmation as to who was behind this attack.

It was only a matter of time before a possible motive behind the RSA compromise revealed itself. Soon after, defence contractors Lockheed Martin and L-3 were attacked by an unknown quantity. As America's

and zero day exploits – software that uses a security hole to carry out an attack – to gain access to secure systems. Many would argue that this is what constitutes the definition of an advanced persistent threat: seemingly endless resources including teams of highly skilled security experts, programmers and a large budget, possibly backed up by operatives on the ground. Are these kinds of resources only available to a government? Or can we expect to see this level of sophistication emerging from high level industrial espionage? One thing is for certain: information is valuable, and a

resources should be allocated to protecting that data or IP. The answer is not to increase the security budget for software that claims to protect you from 'all known threats or your money back', because we have seen time and time again that software alone is not enough.

We suggest that you make sure that staff are specially trained in securing and hardening systems and networks, access control is enforced, and IDS systems configured correctly. There is no magic software that does all of this out of the box that will meet your organisation's requirements.

JANET CSIRT handles incidents that involve compromises on a daily basis. Whilst many of these compromises are relatively minor, occasionally they are potentially very damaging for the organisation and need to be dealt with in a swift and appropriate manner.

largest defence contractor, Lockheed Martin is responsible for some of America's most advanced military technology, including the F-22 fighter aircraft and the Trident submarine-launched missile. Initial reports suggest that these security breaches were in part facilitated by compromised RSA SecurID token seeds. It is entirely possible that the RSA seeds will be used again before RSA are able to replace the 40 million RSA keys that are used by their customers.

Level of threat

In these high profile incidents, the attackers used advanced techniques

determined organisation will (with enough resources) eventually find a way into secure systems.

What to do?

These examples of advanced persistent threats illustrate scenarios that any organisation could face. If globally respected security companies can be compromised, is there any hope for the rest of us? With a little analysis, this can easily be put into perspective. If your organisation's data or intellectual property is valuable to another organisation, there is a greater risk that your competitors will attempt to compromise it. Therefore more

JANET supporting you

JANET CSIRT handles incidents that involve compromises on a daily basis. Whilst many of these compromises are relatively minor, occasionally they are potentially very damaging for the organisation and need to be dealt with in a swift and appropriate manner.

If you suspect that your organisation is the target of an attack or would like information about how we can assist you in the event of a suspected compromise, please get in touch.

James McLoughlin

JANET CSIRT

Email: irt@csirt.ja.net

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Fax: 0870 850 2341

from outside UK: +44 1235 822 398

RADSEC & IF-MAP: double the solution

A two-part trial has paved the way for organisations that want to make running and administering their eduroam connections easier and more secure at the same time, without losing valuable roaming data.

A problem needing a solution

eduroam is based on a network of RADIUS servers that talk to each other when a user from one site (A) visits another (B) and attempts to log on there. Traffic over this network confirms that the visitor is a member of an eduroam organisation and is therefore allowed access to connectivity provided by the visited site. Authentication traffic is sent between A and B via a national proxy. The required trust relationship between A and B can be established because each has a pre-existing trusted link with this national proxy. This was established when they joined eduroam by the exchange of shared secrets, strings of characters that uniquely identify each site linking to the national infrastructure. To exchange authentication traffic, the communicating parties first have to prove they hold the corresponding shared secret. Thus each end of the tunnel knows that the other party is the one they want to talk to.

However, RADIUS was originally designed to work with modems and some of its features are less well suited to the modern environment. For example, shared secrets can be

labour intensive to set up, and RADIUS is based on UDP which does not guarantee delivery of data.

A solution that creates a problem

A communications option that is more secure and easier to administer is RADSEC – secure RADIUS. It is based on TCP, which does guarantee delivery, and traffic is sent down an encrypted tunnel to a single well known TCP port, omitting the need to set up a link with a shared secret to every eduroam entity. However, one advantage of the original method was that traffic could be traced: it came to the national proxy via a unique trusted link from a given server. This enabled the operators of the national proxy to generate records that indicate both the origin and destination of every roaming event (without revealing the username involved), which can be used for eduroam monitoring and reporting purposes. From RADSEC's point of view, however, all traffic simply turns up, encrypted, at a single TCP port on the central proxy service, with no indication of where it came from. While this has security benefits, it means that JANET(UK) can no longer track the geographical spread of eduroam usage.

If every organisation used RADSEC, the national proxy in the middle could be dispensed with, and instead a visited server would talk directly to the TCP port on the home server. The national infrastructure paid for

by JANET would be replaced with a free, 'self organising' dynamic mesh. However, for this to happen there must be a time (as now) where some organisations use RADSEC, others continue to use the shared secrets method, and thus the national proxy must still be supported. It is not yet clear whether this technology will be taken up across the eduroam federation to the extent that national proxies can be dispensed with.

The trial was therefore conducted, between Loughborough University and JANET(UK), to test the options: what are the issues in and solutions for supporting RADSEC on the national proxy, and how can JANET(UK) replace the monitoring data that IT used to get automatically?

Fine-tuning the solution

The solution to re-establishing the monitoring data, chosen out of several options, was to deploy IF-MAP. This standard defines a very simple database and its associated transport protocols. A MAP database stores arbitrary data types, and information can be input and searched or linked to other information with metadata. Thus an organisation can put a MAP database at a site that is generating roaming events and modify the local RADIUS server so that whenever it



JANET(UK) recognised for Training Excellence



Recognising the high standards of our range of training courses and commitment towards continually developing material to meet customer needs, the prestigious IITT (Institute of IT Training) has awarded JANET(UK) Learning and Development Provider Accreditation for IT describes

authenticates a user on eduroam, it writes an event into the database. This database is federated with another based at the national proxy, so that when data is put into the edge database, it is automatically copied to the core one. The result is an aggregate database available to JANET(UK) that reflects all the roaming events at all the eduroam sites and therefore restores the monitoring capabilities of the service.

As part of the trial, Loughborough explored and tested every step needed in deploying RADSEC and IF-MAP with the national proxy, including all the necessary configuration work and the methods for entering, visualising and federating the data, and feeding it into the monitoring and reporting processes. This has all now been accomplished and the results will soon be available via the JANET website. RADSEC has been shown to be enterprise-ready, and IF-MAP has been shown to meet the requirement for an out-of-band reporting system for eduroam and to be flexible enough to handle any other data reporting or aggregation task. The results of this trial could potentially be taken and applied by any organisation.

JANET(UK) as 'entirely worthy' of the accreditation.

The accreditation endorses JANET(UK) as a trusted partner, assuring customers that it uses best practice. The next step is to work towards learner accreditation for individual JANET training courses. This will give learners recognised qualifications for their skills and will help present a stronger business case to line managers for course attendance, as it could form part of their Continued Professional Development (CPD).

Responding to the community

JANET(UK) approached the IITT after a skills review conducted earlier this year mapped the skills requirements of networking staff across the JANET community, and many respondents expressed the wish for accredited courses. "We know that our courses are of high quality," says Katharine Iles, Training Manager at JANET(UK), "but we wanted to endorse this through a structured process of external verification. As the industry recognised body, the IITT were the obvious partner to provide this accreditation. Their endorsement now enables us to demonstrate our continued commitment to our customers and to benchmark JANET(UK)'s provision of courses against other providers."

Commitment to quality

The IITT says: "Where learning is concerned, trust and confidence are essential. Consumers must trust that an organisation is able to deliver a service

or product to the highest possible standard. Consumers must have confidence in knowing that they are protected by an externally recognised Code of Practice and Complaints Procedure."

To achieve Learning and Development Provider status, JANET(UK) had to undergo a rigorous consultation process. Michelle Parish from the IITT states that "Throughout the accreditation meeting JANET Training demonstrated a commitment to quality and the desire to continuously improve in a commercially viable manner. It is evident that the team work within an environment of quality processes and procedures which, for an initial accreditation, has resulted in some very good scores against various measures in this report. Of particular note was the exceptionally high standard in terms of content, design and production of the course materials and the thorough nature in which new courses are tested and reviewed."

The IITT is the leading authority on Learning and Development for IT professionals and holds an impressive portfolio of clients, from Learning Tree to Rolls Royce and Motorola Solutions Training.

The IITT is now known as the Learning and Performance Institute. See: <http://www.learningandperformanceinstitute.com/>

For further information on JANET(UK)'s Training courses, please visit: www.ja.net/training

eduroam on the iPhone

A new iPhone and iPad app for eduroam users is the result of a project by a third year Southampton Masters student on behalf of JANET(UK), and a direct result of JANET's work engaging with its community of users. The app, developed by student Ashley Browning working under supervisor Dr Tim Chown, not only helps users locate the nearest eduroam availability, but also gives them the information they need to use it, and helps users contribute to a crowd-sourced map of eduroam coverage.

The app shows the user's location via iOS Maps, then draws on information from the centrally maintained eduroam database to show all eduroam-enabled sites nearby (listed by range, starting with the nearest) and any particular information at each site – for example site name, address, type of encryption supported – that the user will need

to connect to the service there. A “get directions” button will then use the standard iPhone / iPad mapping tool to give directions to a chosen destination. Because the eduroam database covers all of Europe, the app's coverage is also pan-European as well as UK-wide.

Mark O'Leary, JANET(UK)'s Identity & Access Management Development Manager, commented: “This initiative illustrates the value of JANET's engagement with its community. We get code of production quality and the student gets valuable experience of working with a professional IT customer. There was a lot of interest expressed by delegates at May's TERENA conference where the app was unveiled for the first time.”

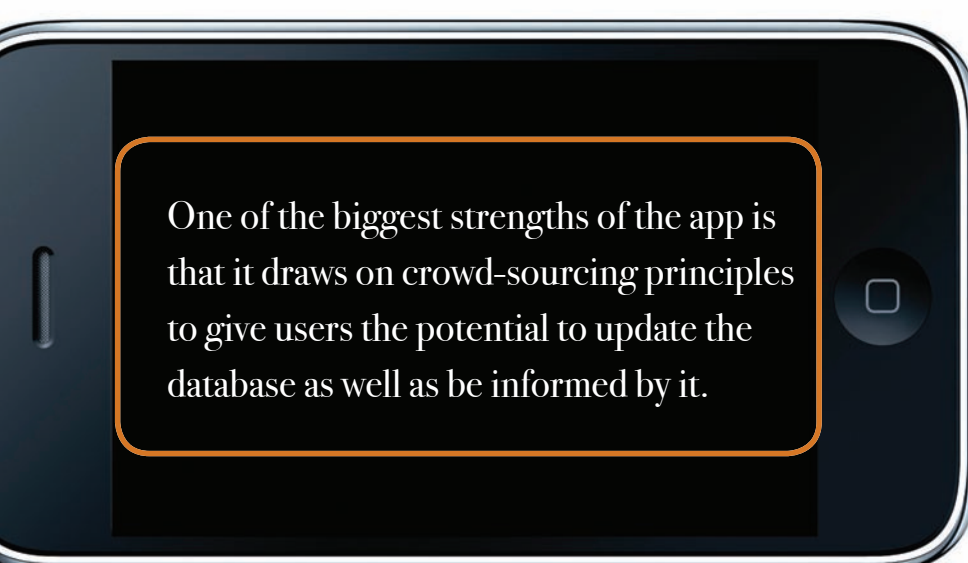
One of the biggest strengths of the app is that it draws on crowd-sourcing principles to give users the

potential to update the database as well as be informed by it.

“The administrators of eduroam-enabled sites enter the latitude and longitude of their access points (APs) into the eduroam database,” says Mark, “which is how the app can pinpoint their location. However, some sites with lots of APs tend to ‘cut and paste’ their database entries, which results in the same latitude and longitude – say, for the centre of the local town – being entered against every AP. As a result, if you visit a large campus and use this app, it might show you as being a mile or more from the nearest local eduroam site, when in fact you're right next to a building with coverage. So this is my call to the community: please improve the accuracy of your location data! It will make services like this far more useful for your users.”

This is where the crowd-sourcing comes in. Users can tag a coverage location by positioning a pin on the screen to show exactly where they are on a satellite photo of the area. As tags accumulate, a cloud of points on the map will show real-world coverage. The resulting map could be used in the future to check or update the centrally held database.

The possibility of porting the app to the Android operating system has now been done, and the application will shortly be published to the Apple app store under the name ‘eduroam companion’.



One of the biggest strengths of the app is that it draws on crowd-sourcing principles to give users the potential to update the database as well as be informed by it.

JANET and Skype

Over the last five years JANET(UK) has received many questions from the community, concerned about JANET 'banning' the use of Skype and the use of Skype breaking the JANET Acceptable Use Policy. To set the record straight, JANET does not ban Skype and the use of Skype on JANET does not break the AUP. JANET in fact encourages the community to embrace collaboration tools and to make use of the powerful network environment to increase collaboration and reduce the need to travel, and to save money and time.

The misconception is based on a report on the network impacts of Skype, issued over five years ago by JANET(UK) in collaboration with Lancaster University. This

report warned of the effects of supernoding, whereby an enabled but inactive Skype account is used as a route for other Skype calls. Supernoding is at the heart of Skype technology, and the failure of it has recently been cited for a number of well publicised Skype outages.

Skype itself is a very well deployed, easy to use, free and simple collaboration tool. JANET(UK) uses Skype as well as JANET Desktop and numerous other desktop collaboration tools to enable staff to keep in touch with each other and the wider community.

Future developments

JANET(UK) has also been successful in enabling Skype users to connect with JANET Videoconferencing, in keeping

with the service's open nature. We are now working hard to understand how we can make Skype interoperability a scalable and sustainable feature of JANET Videoconferencing.

For more information on Skype and JANET, contact Roger Bolam or use the search field on the JANET website.



A week in the life of eduroam

May's TERENA Networking Conference highlighted once again that eduroam is an excellent tool for supporting delegates at conferences, events and meetings.

There were 525 delegates at TNC and the wireless network for the event saw a maximum of 537 concurrent connected devices. At peak, 304 of those concurrent sessions were authenticated by eduroam. Across the four days

of the conference, there were 10,392 successful eduroam authentications made from the venue, from 880 unique devices – which translates to roughly 1.7 Wi-Fi devices per delegate overall (and probably a higher ratio for eduroam account holders).

As can be seen, eduroam simplifies running the authentication infrastructure of a large conference, and all JANET(UK) delegates to TNC

will testify it made their experience of the conference much smoother. A successful eduroam facility at an event is a huge bonus for the reputation of the hosting organisation.

If you are attending an event in future, do remember to check that all is well with your personal device's eduroam configuration before you go: if it works at your organisation, it should work at any eduroam hotspot.



Instant collaboration for JANET users

An arrangement between JANET(UK) and US company IOCOM brings the latter's video collaboration software to educational and research facilities in the UK. This gives students, faculty, and researchers at UK universities the opportunity to use IOCOM's Visimeet video collaboration software while keeping down costs in a number of ways.

Research and education are not isolated efforts: they often require the collaborative efforts of many people who are not always in the same location at the same time. Visimeet was created with the intention of making collaboration amongst individuals at multiple locations efficient and effective, and provides collaborative tools and high quality, unlimited multi-point video and audio.

The ability to hold instant conversations means that meetings can be held at a moment's notice and others can join in straight away, so that collaborative efforts need not revolve around flight or rail schedules. Alternatively, researchers can arrange meetings around travel and not risk a failure to complete discussions and work before a partner needs to return home. Outside of the classroom, students can collaborate with one another on projects, without having to schedule a time and place to meet, and any who have difficulty attending class

regularly – for example, parents, ill students, disabled students, or working students – can participate virtually without missing a thing.

Today's students are accustomed to using technology to complete most tasks. They can find online classes one dimensional and feel that simply reading the material and completing assignments does not always convey the material to its fullest. Online courses can be recorded and made available to

all students at all times, while live classes can be held for those who wish to participate in real time. Office hours can be held to ensure all questions are answered and the material is fully understood.

Keeping costs low while providing a robust educational experiences is a goal for most institutions. Visimeet helps ensure this by providing affordable services that do not run on proprietary equipment, keeping down price points, maintenance costs and the need for expensive additional outlay on specialised kit. There are a variety of subscription options that can be combined to suit the university, course, and student. For university wide access,

a university can opt to purchase a site licence. A Visimeet site licence is being offered at departmental, campus or institutional-wide levels with tiered pricing based on student enrolment and staff headcount. Alternately, individual subscriptions may be purchased for academics or classrooms while students use the Forever Free subscription, which allows students to have Visimeet accounts without additional costs. With Team and Room subscriptions, the number

“Visimeet is proud to be a JANET - connected service with the chance to improve the way researchers work and educators reach students.”

of transmitted videos is only limited by bandwidth and screen real estate. Visimeet will be provided on a dedicated server located on the JANET core network for optimal performance.

Gary Refka, Vice President of Operations, IOCOM said, “Visimeet is proud to be a JANET-connected service with the chance to improve the way researchers work and educators reach students.”

IOCOM for JANET
janet.iocom.co.uk

Gary Refka

Forthcoming events

JANET CSIRT Conference

<http://www.ja.net/services/events/2011/janet-csirt-conference/index.html>

Registration now open

10th November 2011

One Wimpole Street, London W1G 0AE

JANET IPv6 Deployment Workshop

<http://www.ja.net/services/events/2011/ipv6/index.html>

Registration now open

7th December 2011

Holywell Park Campus, Loughborough University

Networkshop 40 **The University of York** **3rd to 5th April 2012**

Networkshop is the must attend technical conference of the year for staff in education and research.

- In-depth programme addressing key concerns for the sector with experts presenting and running workshops on security, network access, cloud and data services.
- Opportunity to network with over 250 peers in institutions facing the same challenges.
- Over 45 specialist IT suppliers exhibiting throughout the conference.

Find out more at www.ja.net/networkshop





Professor Di Martin, University of Hertfordshire presenting to this year's delegates, *inset Left*: Tim Kidd, Operations Director, JANET(UK) ; *Inset Right*: Jeremy Sharp, Head of Strategic Technologies.

“
Workshop continues to be a very important date in the calendar and an essential forum for finding out about new developments and how other institutions are solving the same problems.
- *Workshop 2011 delegate*
”

Workshop present and future

Aimed at network managers, technical specialists, and all professionals with an interest in research and education networking, JANET(UK) has released the Call for Papers for Workshop 40, to be held between 3-5 April 2012 at The University of York.

Even in an era of budget cuts and slimming down, the annual Workshop remains the key event for the JANET community. The conference brings together experts from all fields of networking and provides a forum for technical updates and discussions on current and developing networking technologies. Despite the economic climate, JANET(UK) was pleased to be able to welcome 270 delegates to Workshop 39 and a most

impressive 98% felt that they had achieved their main objectives for attending the conference. The top listed reasons for attendance were: to network and explore the activities of other organisations; to improve or update the delegate's technical knowledge; and to speak to staff and keep updated with developments at JANET(UK).

The event continues to evolve and identify new developments for discussion and education, and to reflect the networking world in which we operate. For example, in 2011 the details and implications of IPv6, cloud computing and shared data centres all featured on the programme, and for the first time in the history of the event, delegates heard from a student,

getting the expectations of our most important customers first-hand.

Plenary sessions each day enable delegates to take time out to develop appreciation of the bigger picture, and a plethora of smaller sessions held in parallel provide the technical focus: ultra-HD network transmission experiments, digital video streaming for the arts, virtualisation, and a debate on insourcing versus outsourcing, to name but a few from 2011. Informal 'birds of a feather' sessions held later in the day provide opportunities for ideas to be floated, and for open debate and discussion.

Nor are participants confined to research and education. Third party suppliers and specialists in network

events

Delegates enjoying the use of the dedicated lounge at this year's Networkshop

equipment began to attend very early in the event's history. This trend continues today, not just amongst the speakers, but with a dedicated exhibition that is open to delegates throughout the event. There are now in excess of 40 stands at the event and more than 100 commercial staff at the workshop. Many commercial organisations see Networkshop as the event to attend if they want to talk to the academic and research community.

JANET's operation depends on collaboration with the entire community and Networkshop is one

the key enablers of this process. As well as technical staff, delegates include funders, administrators, managers, operators, developers, implementers and researchers.



To keep up-to-date with this and other JANET events, please sign up to the JISCmail mailing list JANET-EVENTS at www.jiscmail.ac.uk. The programme and presentations

from Networkshop 39 are available at www.ja.net/services/events/2011/networkshop-39/networkshop.php. The Networkshop 40 website is at www.ja.net/networkshop.

JANET(UK) is seeking speakers for Networkshop 40 who are willing to share their experiences and ideas: whether from a support, development or strategic perspective. The subjects below are likely to be of particular interest to delegates, however we would also be interested in hearing from you if you have expertise in other relevant areas.

- **Campus network management**
- **Network security**
- **Access management**
 - Improving institution directories
 - Identity management
 - Authentication and authorisation
 - Network access control
 - Server certificates
- **Network access technologies**
 - Wireless
 - Local loop unbundling
- **Network applications**
- **Monitoring and measurement**
- **Virtualisation**

- **Network engineering**
 - Multicast
 - IPv6
 - Quality of service
 - Network resilience
 - Optical networking
 - Layer 2 technology developments
 - Bandwidth-on-demand
- **Provision of student services on the campus**
- **Supporting cloud computing and remote services**
 - Data centres
- **Embracing and supporting social media**
- **Supporting mobile and remote users**
 - Mobile IP
 - Roaming
 - Location awareness
- **Supporting network research**

If you have expertise in a particular area, or you have a networking related project that you think may be of interest to the education and research community, then

JANET(UK) would like to hear from you. This event could be an ideal opportunity for you to share the results of your work with colleagues from the community.

In addition to experts and users from research and education, JANET staff will present details on a number of JANET(UK)'s current services and future activities, as well as providing several workshops.

Interested authors are invited to submit an abstract of their papers with a short autobiography by **8am Friday 28th October 2011** to Shirley Wood, Head of Customer Engagement, JANET(UK), Lumen House, Library Avenue, Harwell Oxford, Didcot, Oxon OX11 0SG. Email: workshop-programme@ja.net. Successful authors will be contacted by the end of November 2011.



Forthcoming JANET Training Courses

OCTOBER

Managing IT Security

October 11th 2011, Glasgow

Information Security Policies

October 12th 2011, Glasgow

Basic Networking

October 18th 2011, Manchester

Basic Router Configuration

October 19th 2011, Manchester

NOVEMBER

IP Fundamentals

November 2nd 2011, Bristol

Implementing a Shibboleth 2 Identity Provider

November 2nd 2011, Belfast

Implementing a Shibboleth 2 Service Provider

November 3rd 2011, Belfast

Wireless LAN Fundamentals

November 3rd 2011, Bristol

Introduction to DNS

November 3rd 2011, Bristol

Basic Networking for Service Desk and Support Staff

November 8th 2011, Manchester

IP Fundamentals

November 22nd 2011, Belfast

Virtualisation Fundamentals

November 30th 2011, Manchester



training

Forthcoming JANET Training Courses continued

DECEMBER

Computers, Privacy and the Law

December 8th 2011, Cambridge

Hands on Digital Forensics

December 9th 2011, Cambridge

**Basic Networking for Service Desk
and Support Staff**

December 13th 2011, London

**Implementing a Shibboleth 2 Identity
and Service Provider**

December 14th-15th 2011, Birmingham

JANUARY 2012

IPv6 Fundamentals

January 19th 2012, London

For online booking and course overviews
please go to www.ja.net/training



external news

FINANCE AND FUNDING

HEFCE funding of £10 million to cut carbon emissions

www.hefce.ac.uk/news/hefce/2011/rgf2.htm

New £2.25m fund to support imaginative adult and community learning initiatives

www.lsis.org.uk/AboutLSIS/MediaCentre/NewsArticles/Pages/New-fund-to-support-imaginative-adult-and-community-learning-initiatives.aspx

Welsh universities and colleges get go-ahead to charge higher fees

tinyurl.com/3d6pk02

157 Group and partners publish interim report of colleges in their communities

www.157group.co.uk/news/news/157-group-and-partners-publish-interim-report-of-colleges-in-their-communities

£2m venture capital fund planned as Welsh universities follow lead of NYU

www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=416909&c=1

Putting students at the heart of the system

<http://www.bis.gov.uk/news/topstories/2011/Jun/he-white-paper-students-at-the-heart-of-the-system>

Key investments in education will ensure Scotland's future workforce is equipped to achieve greater economic success,, says Education Secretary Michael Russell.

<http://www.scotland.gov.uk/News/Releases/2011/09/21145843>

A look at the government's proposed changes to higher education in England, as it publishes a White Paper setting out ministers' vision for the future of the sector.

<http://www.bbc.co.uk/news/education-13939525>

University fee cuts: Offa asked for details

<http://www.bbc.co.uk/news/education-14836196>

Interim Regulatory Partnership Group formed to oversee HE transition

<http://www.hefce.ac.uk/news/hefce/2011/irpg.htm>

UK universities contribute £3 billion to economic growth; SMEs play vital role

<http://www.hefce.ac.uk/news/hefce/2011/hebci.htm>

New funding call: Public Engagement with Research catalysts

<http://www.rcuk.ac.uk/media/news/2011news/Pages/110912.aspx>

HEFCE funding of £10 million to cut carbon emissions

www.hefce.ac.uk/news/hefce/2011/rgf2.htm

New £2.25m fund to support imaginative adult and community learning initiatives

www.lsis.org.uk/AboutLSIS/MediaCentre/NewsArticles/Pages/New-fund-to-support-imaginative-adult-and-community-learning-initiatives.aspx

HEFCE announces an additional £1.2m to encourage take-up of modern foreign language courses in English HE

www.hefce.ac.uk/news/hefce/2011/lang.htm

£10m investment for the Daresbury Laboratory.

www.stfc.ac.uk/News%20and%20Events/37248.aspx



tell us what you think

JANET News questionnaire

We are currently reviewing the ways in which we communicate with our customers to ensure we continue to meet your needs. We would really value your input and would appreciate it if you could spare a few minutes of your time to complete the following questionnaire.

PERSONAL DETAILS (Please write in BLOCK CAPITALS)

Your name

Job title

Daytime tel Postcode

Email address @

1. What is your opinion of JANET News? (Please circle one of the following)

Never read it Occasionally of interest Helpful & interesting Vital for keeping me up to speed on the sector

2. Please circle your preferred methods of communication for JANET News.

PDF Print Via link to website Ebook All formats Other *please state:*
.....

3. Which element of JANET News is normally of most interest to you? (Please tick)

News and service/product updates from JANET Technology and industry updates
Articles/case studies from the JANET community Events and Training
National/International developments & collaborations Individual profiles

4. Which section of this edition did you find most valuable? Please state your reason why. (Please circle one of the following)

News Features Services
Community Technical Events and Training

Reason:

5. Do you share your copy of JANET News with colleagues? (Please circle)

Yes always Occasionally Rarely

If they would like to receive future editions please provide their contact details below:

.....

tell us what you think

6. Does the level of detail in JANET News fit your requirements? Please circle one of the following.

Too complicated to understand	Doesn't add to my existing market understanding	Provides a good level of insight in some areas	Excellent insight and factual detail
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Please comment:

7. What additional information, or features, would you like to see in JANET News?

.....
.....

8. Would you recommend JANET News to a friend or colleague? YES
(Please tick) NO Please state your reason below:

.....

9. Would you like to receive more information on any of the following? Please circle preferred platform(s).

Events	Social Media	Post	Email
Training	Social Media	Post	Email
News	Social Media	Post	Email

10. From time to time, JANET(UK) runs client focus groups to gather important feedback to help shape our future service. Would you be interested in taking part in a future focus group meeting? (Please circle)

Yes No

11. Would you or your organisation like to be considered in being profiled for any case studies? (Please circle)

Yes No

If so, please outline the subject area of interest.

.....
.....

Thank you for taking the time to complete and return this form. Please return in the FREEPOST envelope supplied or complete the questionnaire online at <http://www.surveymonkey.com/s/janetnews>

The information you submit will only be used for the administration and reporting of responses provided for the questionnaire. Results of the questionnaire will be reported in aggregate form and will not identify any single response to a respondent. Questionnaire results may be published, but only in aggregate form. Personal data collected by us may be transferred to third parties where it is necessary to meet the purpose for which you have submitted the information (e.g. to host our survey systems, prepare reports, etc.) All such third parties employ appropriate procedures to protect the confidentiality and security of the questionnaire responses. Questionnaire responses will only be retained as long as is necessary to meet the needs of JANET(UK). You hereby consent to JANET(UK) collecting, processing, transferring, and storing the data you provide in response to this questionnaire. If you have any questions about this privacy statement or about your personal information, you can contact JANET(UK) by sending an email to marketing@ja.net

JANET(UK), Marketing, Lumen House, Harwell Oxford, Didcot, Oxfordshire, OX11 0SG

external news

POLICY

The Scottish Government has launched Education Scotland, its development and improvement agency for education that brings together functions from a number of other bodies including LTS.

www.scotland.gov.uk/NewsReleases/2011/07/01114648

'Opportunity, choice and excellence in higher education': HEFCE publishes strategy statement

www.hefce.ac.uk/news/hefce/2011/strategy.htm

HEPI publishes a detailed analysis of the HE White Paper

www.hepi.ac.uk/455-1987/Higher-Education--Students-at-the-Heart-of-the-System.-An-Analysis-of-the-Higher-Education-White-Paper-.html

SHARED SERVICES AND COLLABORATION

New research shows universities and small firms are working together to drive innovation and growth

www.universitiesuk.ac.uk/Newsroom/Media-Releases/Pages/

Scottish Funding Council supports the Scottish Colleges Energy Industry Partnership network of colleges with an investment of £300,000 to meet the skills needs of Scotland's rapidly developing energy sector.

www.sfc.ac.uk/web/FILES/PressReleases_SFCPR092011/SFCPR_09_2011.pdf

New Concordat between RCUK and Department for Communities and Local Government

www.rcuk.ac.uk/media/news/2011news/Pages/110308.aspx

New research shows universities and small firms are working together to drive innovation and growth www.universitiesuk.ac.uk/Newsroom/Media-Releases/Pages/

INTERNATIONAL COLLABORATION

Indiana University receives \$9.2 million from National Science Foundation to expand global networks and research

tinyurl.com/3wvc96p

CONSULTATIONS

HEFCE launches consultation on funding for teaching and student number allocation in 2012-13

www.hefce.ac.uk/news/hefce/2011/tfund.htm

Tuition Fees consultation for Northern Ireland

www.delni.gov.uk/index/consultation-zone/tuition-fees.htm

BIS technical consultation to be read alongside the HE White Paper,

discuss.bis.gov.uk/hereform/technical-consultation/

BIS consultation on making detailed proposals to the government in areas ranging from informal adult and community learning to data requirements on colleges.

www.bis.gov.uk/Consultations/fe-and-skills-new-challenges-new-chances?cat=open



recent publications



JANET Services 2011

available at
<http://www.ja.net/documents/publications/general-information/janet-services>

Quarterly Report:

May - July

available at
<http://www.ja.net/documents/publications/reports/quarterly-reports/qr-summer11.pdf>

JANET Cloud and Data Centre Brokerage - Service Overview

available at
<http://www.ja.net/documents/services/brokerage/brokerage0911.pdf>

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JANET(UK) manages the operation and development of JANET, the United Kingdom's research and education network, on behalf of the combined UK Higher and Further Education Funding Councils represented by JISC (Joint Information Systems Committee).

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