JANET NEWS

SECURITY BRIEFING
BRIDGET KENYON
Head of Information
Security at UCL

FIVE MINUTES WITH
MARTIN DOEL, OBE
CEO of the Association
of Colleges (AoC)

janet

CEO Welcome

It's difficult to believe that we're almost at the end of another academic year – and what a busy time it's been. I'm delighted to say that we are on target to deliver Janet6, a completely new advanced data network dedicated to the needs of the UK's research and education communities.

From 1 May 2013, we entered a new and significant phase in the Jisc journey following the review of JISC by Sir Alan Wilson. I, along with our Finance Director, Mark Wright, have been appointed to the new Jisc leadership team, as Executive Director Technology and Infrastructure, and Chief Financial Officer respectively. Mark and I will continue with our responsibilities at Janet, but also have a wider remit to work with the new team to define and delivering the new Jisc organisation. Our focus will be to bring Jisc together in a unified whole for the benefit of our customers, owners and funders.

Over the past year, I've spent a lot of time consulting with customers and stakeholders as well meeting with our international counterparts. Although in the past I've heard the word 'community' used rather loosely I've recently seen a desire to rediscover the true concept of a collaborative community. It is clear that a significant part of Janet's value is due to that vast group of people beyond the company who work so hard to extract maximum value form the network. 'Janet people' are at the heart of our success, but we cannot do it alone – the true value of Janet lies in you, our partners.

Tim Marshall, CEO, Janet & Executive Director of Technology and Infrastructure, Jisc

Editorial

A warm welcome to the summer issue of Janet News. It's already been a busy 2013 as we gear up to the final few stages of the Janet6 roll out (pg3) and we get to know our new owners better (pg6). We've had another immensely successful Networkshop, this year hosted by Keele University, with particular thanks to the OrangeShirts (our student helpers). With a new look, and a few new additions to the programme, our Head of Marketing, Jennie Stewart, gives her perspective on pg18.

We continue to push the boundaries of what is possible with our technology – the Janet network was recently used to showcase the possibilities of streaming Ultra High Definition video (pg5) between the Universities of Cardiff and Bristol and out to Poland, all in the name of medical research. Our new Community website is fully functional (pg12-14), and we're continuing to develop it in order to enable you to collaborate in this digital workplace. We look forward to meeting you online and working together to build a brighter future.

Dan Perry, Director, Product and Marketing, Janet

Contents:

Janet6:
the last mile

Since embarking on the rollout of the Janet6 network last summer it has been a busy time for the project team — we're now three quarters of the way through the year-long network rollout and the past few months have been the busiest yet.

During February and March this year, Janet formally accepted delivery of 5957km of G.652 fibre from our supplier SSE Telecoms. To manage this considerable delivery of fibre, we took a phased approach to the work assessing the core infrastructure first. We subsequently reviewed the regional infrastructure, which connects the core to the 18 regional networks, and numerous other entities too. Following a rigorous review process, we were pleased to accept a full set of 90 fibre routes that satisfied our strict technical requirements.

Deployment of the optical equipment from our supplier Ciena began in January 2013, and in May the commissioning of equipment at all 79 locations on the network will be complete. In parallel to this we also completed delivery and installation of upgraded Juniper IP routing and Ethernet equipment at all ten core Points of Presence on the network.

Following the delivery of these three main elements of the network, the complex process of commissioning will be undertaken — the result of which will be a fully operational, state-of-the-art network with a minimum core capacity of 100Gbit/s.

As we move from spring to summer the focus will shift from building the network to migrating regional networks from SuperJANET5 to Janet6. Significant effort has gone into developing a transition plan that meets the requirements of each region and of our customers, ensuring continuity of service for all concerned. This phase of the project commenced in May and will continue through until the end of July by which time all regional networks and services will have migrated to Janet6, well ahead of the contractual SuperJANET5 expiration date of October 2013. For those wanting to track progress of this transition phase, take a look at the Janet6 url below.

The flexible and scalable nature of the way in which Janet6 has been constructed promises bandwidth far beyond what is being deployed today, which will be easily and rapidly provisioned to meet your requirements.

For further information about Janet6 and to get the latest updates on the project, join our Community Group at https://community.ja.net/groups/janet6

Winners at NaSTA

www.nasta.tv

April 2013 marked the 40th anniversary of the National Student Television Association (NaSTA), and its three-day annual conference and awards ceremony.

Over the past 40 years, the face of student television has changed dramatically, from a small number of universities producing content with cast-off broadcasting equipment, to dozens of universities now broadcasting live output and developing talents that will shape the future of the industry.

Since 2012, Janet has provided infrastructure and streaming hardware to the Association, allowing all affiliated NaSTA stations to live stream their events, with the capacity to reach up to 3000 viewers in high definition.

The event is hosted on rotation by one of the 40 affiliated stations at its home university. This year, the University of Exeter and its television station, XTV, hosted the conference on 5-7 April, with guests attending from as far afield as Bristol, Glasgow and Kent.

For an organisation with 40 years of history, this year also saw brand new stations recognised, with both newly founded and affiliated stations. JumpTV (Bournemouth) and KTV (Kent) won a number of awards, including Best Sports Programming, and Best Animation, respectively.

The big winners of the night were LSUTV (Loughborough) who won eight awards, including the newly introduced Best Writing. The highly coveted Best Broadcaster award was won by NUTS, from the University of Nottingham.

> " The big winners of the night were LSUTV (Loughborough) who won eight awards, including the newly introduced Best Writing "

Janet's CEO Tim Marshall presented an award given in honour of his patronage of the organisation. The Tim Marshall Award is presented to a station worthy of special recognition for outstanding achievement in the past year, specifically with respect to the station's commitment to overcoming challenging circumstances and achievement through innovation.

This year, the award was given to StaffsTV (University of Staffordshire), owing to its commitment to developing a new station in just 12 months, while at the same time taking the bold step of co-hosting the inaugural NaSTAvision song contest. The runner up was the conference's host XTV; other nominated entries included LA1TV (Lancaster) and GUST (Glasgow).

For further information about NaSTA, please visit http://nasta.tv.

Ultra High Definition Showcase
## demonstrates the power of Janet

On 19 April 2013, researchers at the Universities of Cardiff and Bristol participated in a showcase to demonstrate the ground-breaking capabilities of Ultra High Definition (UHD), streamed over the Janet network, to enhance the fields of telemedicine.

UHD technology has the potential to revolutionise medical training. It not only frees up treatment rooms for patients, but also enables students to grow competences in a virtual world before treating real patients.

Held at Cardiff's Healthcare studios, the showcase aimed to show how uncompressed Ultra High Definition content could be streamed to remote sites in real-time over the network without impacting the quality of the visuals.

This technology provides high fidelity visuals – up to 16 times the resolution of HD – that is critical for modern diagnostics, but requires high-speed networking and infrastructure. Janet and PSBA (The Welsh Government's network serving all of education in Wales) was able to provide a 1Gbit/s lightpath link between partners of the UK UHD consortium – the Universities of Cardiff, Bristol and Glasgow School of Arts – to push the boundaries of this technology.

Dimitra Simeonidou, Professor of High Performance Networks (HPN) at University of Bristol explains "For remote applications to thrive,
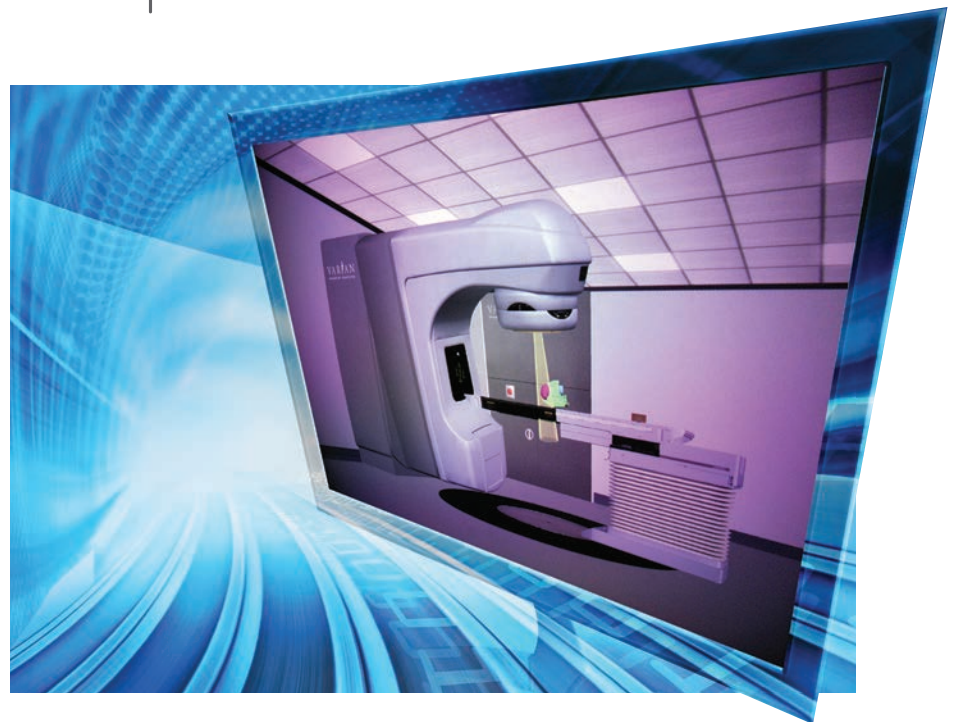
> **" Janet was able to provide a 1Gbit/s lightpath link between partners of the UK UHD consortium "**

such as real time medical training, the network infrastructure must become dynamic and readily consumable. The HPN group at Bristol develops ground-breaking technology which automates any network infrastructure, transforming it into a reflexive environment that instantaneously establishes network services at global scales."

Nick Avis, Professor of Interactive Visualization and Virtual Environments at the Cardiff School of Computer Science & Informatics commented "We are fortunate to be able to use Janet's high capacity data network to collaborate with research partners and push the boundaries of this technology, not only in the UK but internationally too."

The demonstration showed radiologists at Cardiff's Healthcare studios undergoing training on a 'virtual patient' using 3D technology to bring to life an area of the body in need of treatment. The streams were then shared with other sites at Bristol and The Polish super-computing and networking centre, and looped back to Cardiff to demonstrate how quality had been retained. A second demonstration showed computational modelling on arterial cells – the results of collaboration with Wolfson Heart Centre, in Cardiff.

For further information about this and subsequent events, as well as the technology, please visit https://www.ja.net/uhd

For you by you:

Customer intelligence central to future Jisc and Janet offering

At the heart of every successful business sits a happy customer; this ethos is at the very centre of Jisc's business model.

Key to achieving this is the ability to harness greater customer intelligence so that products and services deliver against the demands and desires of Jisc's diverse users, while at the same

> " To be able to share information effectively is an increasingly important part of any successful organisation "

time meeting the needs of the organisation's new owners – the Association of Colleges, the Guild of Higher Education and Universities UK – in ensuring their input guides our activities to meet the needs of their own membership groups.

Martin Doel, Chief Executive of the Association of Colleges says, "To be able to share information effectively is an increasingly important part of any successful organisation, and colleges are no different. Jisc is an essential part of making that happen and by supporting each other we can ensure that we respond at a strategic level with what colleges need."

The need to work more closely is echoed by Nicola Dandridge, Chief Executive, Universities UK, "I think we will increasingly be working closely with Jisc in all manner of areas but in particular in online learning and digital information. It makes real sense for there to be a centre of expertise and what Jisc can offer is beyond anything that an individual university might be able to do."

Andrew Westwood, Chief Executive, GuildHE believes that in a rapidly changing technological environment Jisc can offer assistance far beyond that which his member organisations are considering at this time. He said, "Working in a sector where we face organisational changes, increasing economic pressures and rapidly advancing technology working closely with an organisation like Jisc – that spans all three of these areas – has to beneficial for all parties.

"The truth is that Jisc will support members in ways that members haven't dreamed of, not just this year but next year and decades into the future. The relationship Jisc has with GuildHE, or other universities and colleges, will allow them to do things that, on their own, the member organisations may not otherwise have thought of."

To find out more and see the interviews in full http://www.jisc.ac.uk/news/stories/2012/12/jisc-trustees.aspx

Saving you money – Amazon and Janet peering

We're helping you to reduce networking costs and improve the performance of your Amazon Web Services thanks to a new peering of the Amazon and Janet networks.

This initiative comes as part of Janet's strategy to improve your experience of cloud services and drive down unnecessary costs – we already peer directly with many leading suppliers to improve the services you receive.

Peering Janet with Amazon's global network will let your staff and students benefit from dedicated connectivity between the two networks. Janet will monitor the connection to ensure your bandwidth grows in line with usage.

Amazon was keen to work with Janet to make sure their customers get the best possible user experience.

John Milner, Advisor to Janet and former MIS Director at the University of Cambridge said:

> "With data requirements exploding, we are going to be seeing more and more of these peerings over the coming years. Institutions need excellent end-to-end connectivity to ensure first-rate services for staff and students."

To find out more about Janet's cloud computing news, including peering with cloud providers, please join the Janet Cloud Services Community Group by visiting https://community.ja.net/groups/janet-cloud-services.

Introducing the new JCS Web App

We've made a number of improvements to our Janet Certificate Service (JCS) over the past 12 months, the most recent of which has been the launch of a new JCS Web App.

From 3 June 2013, you will be able to access the app from the App Centre on our Community website; we've created a tool that will simplify the management of your certificates. Once you're a verified user of the Community site, you can maintain your contact information, ensuring it is up to date, and manage your authorised users – removing the need to complete, sign and return Authorised Users Forms.

As an additional service enhancement, you can now also request the highest assurance certificates, Extended Validation, directly through the app. Over time, apps will be created for most of our services, offering you a single place from which to manage all of your Janet services. Your Community account will not only give you access to the App Centre, but also a wealth of digital resources.

If you have any questions regarding any of the service changes please visit the JCS Community Group at https://community.ja.net/groups/janet-certificate-service, or email the Janet Service Desk on tag@ja.net.

Colocate
with Janet

Following a recent procurement through the Janet Cloud and Data Centre Framework, we're pleased to announce that our newly improved Janet Colocation service is now available to you. Eduserv's new state-of-the-art N+1 facility at Swindon, which we're using as our own data centre, has a direct, resilient connection to the Janet backbone.

Colocation enables you to reduce your infrastructure costs by locating your IT equipment in a professionally managed, safe environment. Not only can you avoid the overheads of running your own datacentre, but you can introduce a further level of resilience by hosting your data off-site. With the secure housing of your infrastructure taken care of, your skilled IT staff are free to focus on more important front-end business applications.

As Janet has already carried out a full OJEU procurement, you can use the service without having to conduct your own costly and resource-intensive procurement. Any member of our community, including suppliers offering services to the research and education community, is eligible to use the service.

The Eduserv site has the space and power to accommodate up to 600 racks; if you need to expand your storage, you can rest assured that the data centre has the capacity to meet your most demanding requirements.

The service has been designed to accommodate a range of requirements; we offer a minimum capacity of 8U, right through to multiple racks. Racks are housed in cold aisle containment systems that help give the site its excellent green credentials of Power Usage Effectiveness (PUE) 1.6.

We've included a range of features in the cost of the service to ease your move to our colocation site:

- 100Mbit/s Janet connection (with the option to upgrade to 1Gbit/s)
- Sentry Commander devices for remote power and out of band management
- A Janet Netsight account that allows you to monitor the network activity of your service
- 2kW of power per rack
- 24/7 pre-arranged access

Eduserv also offers an optional Remote and Smart Hands service which can carry out a variety of tasks ranging from a server reboot to full server build and racking.

Indicative pricing starts at £3,200 per 8U per year, for HE and FE organisations.

CASE STUDY:

BUFVC turns to Janet for colocation

British Universities Film & Video Council
moving image and sound, knowledge and access

The British Universities Film & Video Council is a charity, part-funded by HEFCE and Jisc whose members are primarily universities and colleges. It aims to improve education through enabling better use of moving image and sound in research and education.

BUFVC's many online discovery resources include television and radio listings, newsreels stories, commercial video sources, and Shakespeare productions, totalling more than 16 million records with identified sources.

One of BUFVC's major services is Box of Broadcasts (BoB) National, which allows users to schedule and view radio and television recordings online through copyright exceptions and the ERA licences. At the beginning of 2013, BoB National had over 115,000 programmes.

Earlier in the spring, we spoke to Luis Carrasqueiro, CEO at BUFVC about why they've opted for a colo service. "In June 2012, we were streaming around 320 programmes per hour to 45 FE and HE institutions. It's absolutely crucial that the network can guarantee a high quality of service for our streaming. In our experience, Janet's network is unrivalled in its ability to carry video especially when considering the costs involved in alternatives that would come anywhere near the level of service Janet can offer."

More than 90% of HE students and many thousands of FE students have access to BUFVC services and its databases deal with more than 5,000 searches across tens of millions of records in just one working day.

"Our user-facing web services are extremely important and carry the bulk of our contact with HE/FE members. When it became clear we needed to have high availability, physical security and resilience, colocation was the obvious solution."

"Our offices are in central London and in the past year we experienced three major power outages – a significant problem of our central London location. The cost of travel to a colocation site to resolve issues is more than made up by the full service provision – connection redundancy, and provision of cooling and power backups – offered by Janet. We also use the data centre location to manage many of our backup processes; it's part of national risk management – if you hold key data in London then a copy should also be held outside the M25.

"Our relationship with Janet's staff is excellent and this factor alone weighs as much in our view as cost, reliability and network performance. It all adds up to provide value that wouldn't be easily replicated with commercial providers. BUFVC has used Janet for decades and not once were we tempted to look elsewhere, quite frankly it is a no-brainer!"

> "Our relationship with Janet's staff is excellent and this factor alone weighs as much in our view as cost, reliability and network performance."

For more details on the service, and for further information about pricing, please email Paula Smith, Colocation Service Manager at paula.smith@ja.net or visit https://www.ja.net/colo

Strategic
planning

In late 2012, Janet published a set of technology strategy papers laying out the trends and community needs that we identified. These living documents are available through the strategy group on the Community website, where we hope to foster an on-going conversation to refine their content and thus ensure the continuing relevance of our technology roadmap on your behalf.

As we go to press, we are also part way through a series of online briefings, where the owners of the individual strategies are talking through and answering questions on their respective specialist areas. For example, the network technologies briefing by Martin Dunmore, Network Infrastructure Development Team Manager at Janet, (http://webmedia.company.ja.net/content/presentations/shared/networkstrategyob/) sparked a lively discussion around user's requirements from the network capacity planning tool currently under development.

Janet's presentation delivered jointly by Roger Bolam, Strategic Programmes, and Tim Boundy, Applications Development Team Manager, on our Voice and Video strategies (available online at http://webmedia.company.ja.net/content/presentations/shared/voiceandvideoob/show.html) was very well attended, and although many questions focused on the details of the current programme of activities, it served as a platform to discuss financial aspects

" a significant number of institutions expressed an interest in Microsoft Lync interoperability "

of videoconferencing and the possibility of Janet introducing a new funding model to the service. We were also able to gauge the demand for interoperability with other video clients. In the latter context, a significant number of institutions expressed an interest in Microsoft Lync interoperability, and this priority will be reflected in future activities. The forthcoming dynamic procurement system for voice services was also of particular interest, and this reaction was repeated when this area was presented at Networkshop41, with roughly 80% of the audience indicating they would include this option in their future purchasing decisions.

These conversations – happening through the community site, the briefings, at Networkshop and directly with the strategy owners – are vital to keeping Janet's technology roadmap focused on your needs. Together with the inputs we gather from conferences, meetings and via our colleagues in Customer Engagement, they provide the intelligence and insight that is shaping our programme, and therefore supporting your business needs. Please continue to participate in the conversation: we are listening.

For further details about the strategy papers, and to get involved, please visit https://community.ja.net/groups/strategy.

Making the most
of your Janet connection

Business and community engagement (BCE) focuses on building partnerships with other organisations within public, private and third sectors in order to:

- exchange knowledge between the organisation and its partners with a view to improving the UK's economic and social prospects

- develop the UK's workforce in today's competitive markets.

Work has been undertaken to ensure Janet is positioned to support the community in this changing environment, specifically through a significant liberalisation of policies regulating who can use the network and for what purpose. The Janet Connection Policy was replaced with a new Janet Eligibility Policy, and The Janet Acceptable Use Policy was updated to align to this new Eligibility policy.

This work was completed in 2011, and the changes were designed to put the responsibility for BCE in the hands of the community to allow the greatest autonomy of decision making for BCE arrangements. However, community feedback suggests that there is still uncertainty about interpreting the guidelines in relation to how your organisation applies them to specific scenarios or opportunities.

Part of the issue is the nature of this activity as the type and number of opportunities are many and diverse. It is also sometimes difficult to assess state aid considerations, particularly in regard to quasi/commercial undertakings. A misperception continues that raising revenue or having an income stream for these activities is an obstacle or "against the rules". This is not the case and as long as the risk of challenge has been assessed and mitigated (for example making an appropriate charge) then this is wholly acceptable.

BCE in action

This is a recent query submitted from an FE College: "The request that we are trying to deal with at the moment is a booking by a local healthcare trust (public sector) that wants to run a training course (education) by and for their staff. Our only relationship with them in this case is a commercial room letting.

Should we:

- refuse their request because we will effectively be reselling a Janet resource?

- agree but explicitly charge for bandwidth use at a rate comparable with other organisations letting rooms?

- agree and implicitly charge for Internet access bundled in the cost of the room?"

Janet's advice was that all three solutions could be implemented, as each is acceptable. Ultimately, the key consideration is the relationship between the college, any potential BCE partner, and your attitude to risk.

Due to the breadth and diversity we are seeing across the community, it is difficult to offer some common scenarios, but we are seeing a number of trends emerging in terms of BCE implementation:

- The provision of conferencing facilities

- Utilisation of existing estate for commercial activity i.e rental of office space or other facilities

- The development of incubation units/science parks/business zones

- Commercial partnerships and joint ventures

- Support for local social enterprise

- Support for UTCs and Academies.

Some practical advice has been produced to support organisations making decisions in this space, and is available from https://www.ja.net/bce.

Janet will look to offer support and guidance to help explain and navigate these issues, through making direct contact to discuss any aspect of any opportunity available to you. The majority of community initiatives can be supported through BCE, and Janet is positioned to help you achieve your goals.

For further information, contact Paul Wakefield, Customer Engagement Manager, on 01235 822239 or email paul.wakefield@ja.net.
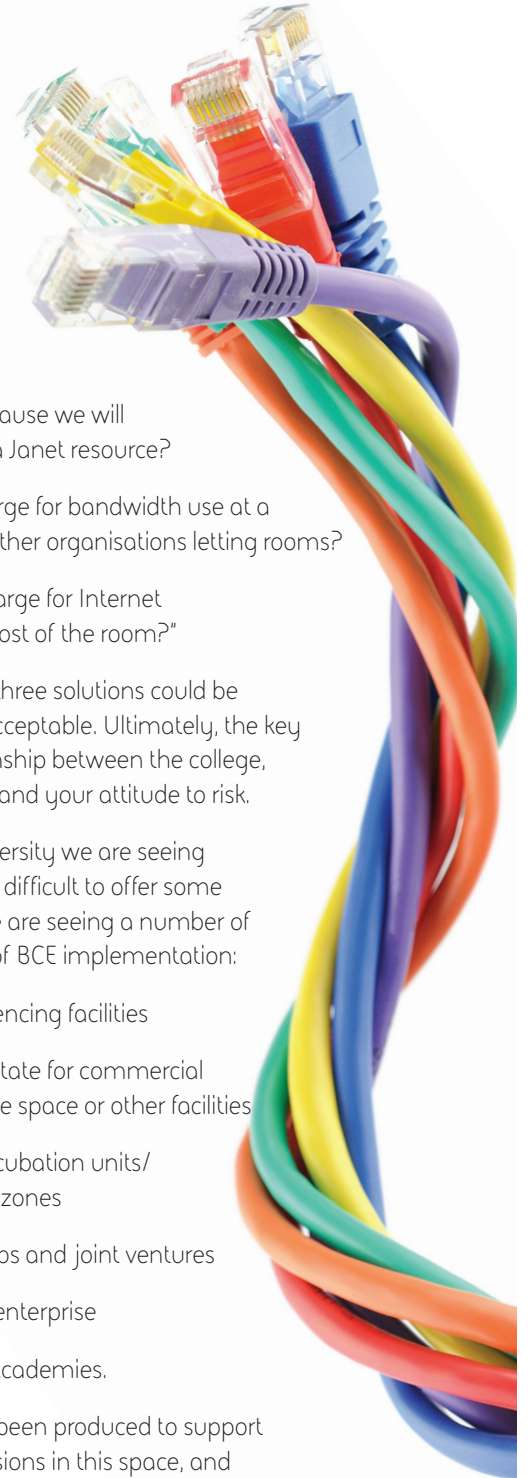
Get to know

your new online Community
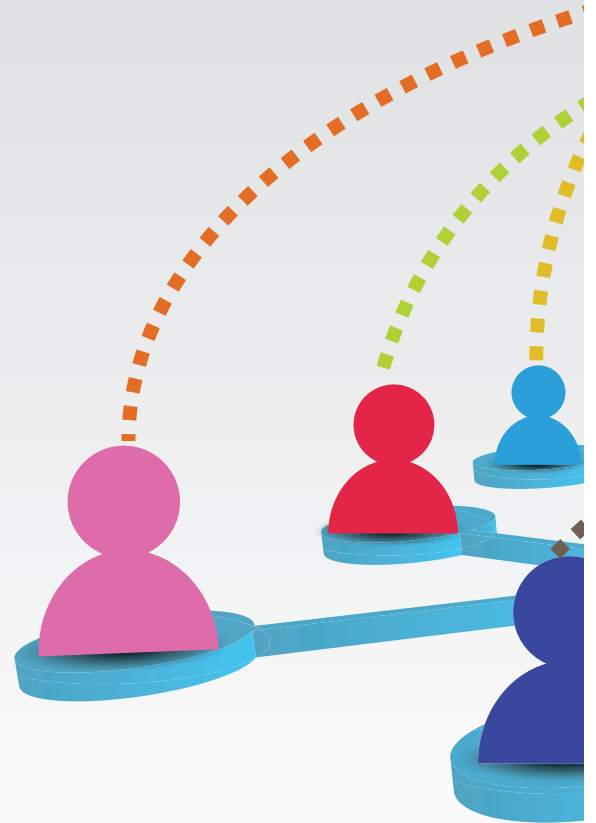
In September 2012 Janet launched community.ja.net, a new social business platform to connect professionals in the research and education sectors in the UK and across the globe.

The site enables you to create a profile and connect with other users — following their site activity and exchanging messages. Community also provides tools for sharing ideas, asking questions or providing answers, posting videos, and writing blogs. Fundamentally, Community opens doors to a number of groups that you can join, including technical, regional and special interest groups.

Navigating community.ja.net

Joining the community

You can view content without needing to login, but if you want to engage with other users or contribute, you'll need an account. There are two account types available to you — UK federated or non-UK federated; our registration guide will help you find out if your organisation supports UK federation. The process is simple and you'll soon have access to a digital world of possibilities.

Your Identity

We recognise that your identity is personal to you, but we also need to be sure that you are who you say you are online, not only for security but also to ensure we can deliver the best experience to you. With this in mind we've developed a system to verify your online identity, providing Janet with key information that opens up our services to you. If you leave or move organisation you can manage this on the site to ensure you maintain access to the services you use.

Users are also awarded badges — for example, members of Janet have orange badges. If you've been

"We recognise that your identity is personal to you, but we also need to be sure that you are who you say you are online."

identified as a community expert in your field, you will be awarded the blue trusted advisor (TA) badge. We award the green Verified (V) badges for users who have confirmed their online identity with Janet.

User connections

Create a contact network through your direct connections, and their connections, as well as joining groups to widen your reach. All connections are made through a request to 'connect' that needs to be accepted to be formed, thus building trust amongst all site users.

13

6

The average number of connections each user has

3685

Community users as of May 2013

Content

We've created specific categories for content that you can add to the site. For adding, voting or liking content, you'll receive reputation points. These points show how active you are as a user and indicate to others how likely you are to respond to posts.

Communities

All content on the site is grouped into communities; for example you will find information on Shibboleth and UK federation in the Access and Identity Management Community. Each Community comprises a landing page – where you'll see recent activity and comments – as well as groups, blogs, ideas, videos and more. You can navigate between Communities at any time, and create and view content that spans multiple Communities.

Groups

This category allows you to create digital meeting spaces for sharing knowledge and working together. Content within groups can be marked either as private, so only group members can view it, or as public, providing a mix of content visibility within the same group.

Groups can be created by anyone and as group owner, you decide who joins your group.

Ideas

Another great way for you to contribute to the site is through the Ideas section where you can post ideas for product enhancements, new ways of using technology or how we can all improve our working practices. Vote on ideas, answer questions and support your co-workers, connections and colleagues throughout the sector.

App Centre

The App Centre is one of the latest additions to the site – here you'll find apps that can help you manage your Janet products and services. The first Janet service app will be added at the beginning of June - the new Janet Certificate Service Web App will enable you to manage your certificates from this single place, purchasing and renewing certificates at your convenience. We'll be migrating all our services into the App Centre over the next few years.

Search

If you are looking for something very specific, the search box at the top of the page can help. From the results page, you'll be able to use the powerful faceted search to filter results by content type, for example, group, library or question, by the post date or by content author.
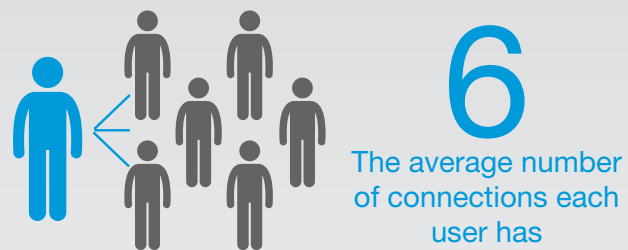
What's coming?

Janet has been focused on developing services and looking at new ways for you to connect and support each other. Some of the things you can expect to see in the future are described below.

Services such as Janet Videoconferencing will be integrated into the App Centre. This will enable users of both ja.net and the service to book future sessions or initiate instant video calling to connections and users they're linked to through community groups, blogs etc.

Later this year we will release a community API to our App Centre so you can create your own apps for other community members to use. Through this API, we will look to integrate popular web applications such as Google Drive, Dropbox, Slideshare and other popular collaboration tools. Some of these tools will be made available inside Community groups, making it easier for you to share content that you may already have on other platforms.

Other developments include chat services and a listserv system so you can stay connected to groups, allowing you to receive group content and reply via email.

Community-exclusive products and services will be offered through a digital marketplace, extending the reach and accessibility of our frameworks and joint procurement services. We hope that through these channels we will achieve large, cross-sector economies of scale, whilst providing a platform that encourages a dynamic and responsive supplier marketplace, where we can support emerging suppliers within our sector.

We want to make your digital professional life as simple and streamlined as possible – so join your Community and become part of a global conversation.

Visit https://community.ja.net to view our new Community video, and get involved today.

Increased capacity at reduced cost:

a successful reprocurement in the East Midlands

We've had a busy and successful few months in the East Midlands, planning the transfer of operations from the East Midlands Metropolitan Area Network (EMMAN) to Janet. The programme of work, overseen by a panel selected from Janet customers in the region, plus EMMAN and Janet staff, will be completed by 1 January 2014. By this time a new regional infrastructure will be in place, procured by Janet and supplied by Virgin Media.

Following a thorough requirements gathering process, the panel agreed that the key to meeting the needs of the research, HE and FE communities was to procure a high capacity and resilient dark fibre core and this we achieved.

The dark fibre core is augmented by four 10Gbps managed circuits (in place of three 1Gbit/s circuits). In addition, over a third of the circuits connecting customers to the core network will be upgraded.

Our procurement team was also tasked with maximising value for money and they delivered. We've made annual recurrent savings of around £250,000.

EMMAN has been providing a quality service and we're committed to maintaining these high standards. Regular engagement with our regional customers is already helping to inform how we can continue to meet their requirements.

On 25 April we held a briefing day at the University of Leicester with members of our community from the region. Customers were briefed in detail about the new network and the timetable for their transition; we came away having engaged in a useful dialogue and plans put in place for the next phase of the project.

> "Janet's buying power was reflected in the favourable costs provided by Virgin Media – and has set the East Midlands region up well for the next 10 years and beyond."

Phil Richards, Chair of the EMMAN board, member of the Programme Panel and Director of IT services at the University of Loughborough.

> "As an end user of the service representing the FE community of the East Midlands, it was refreshing to be involved with the procurement and to see how thorough the process was, and to see the professionalism of all involved."

Richard Garbutt, ICT Services Manager at Northampton College.

> "Having been party to the entire process, sitting on the evaluation panel and seeing the probable disposition to FE colleges, I am impressed with the way you have all handled the process and also the result which does look very good."

Jim Reed, Director of Procurement, University of Nottingham.

Examining
the cost of IT services

Have you ever been asked how much you spend on IT services? It's a question that's coming up more frequently since the introduction of cloud computing.

Cloud isn't new, but it is changing the way you buy IT. Instead of purchasing software, hardware and hiring skilled IT staff to build systems, cloud provides ready-made packages that can be paid for on a monthly basis. Knowing the total costs of existing IT services is a prerequisite to develop and test the business case for moving to cloud - to help you with this, we've developed the Financial X-ray.
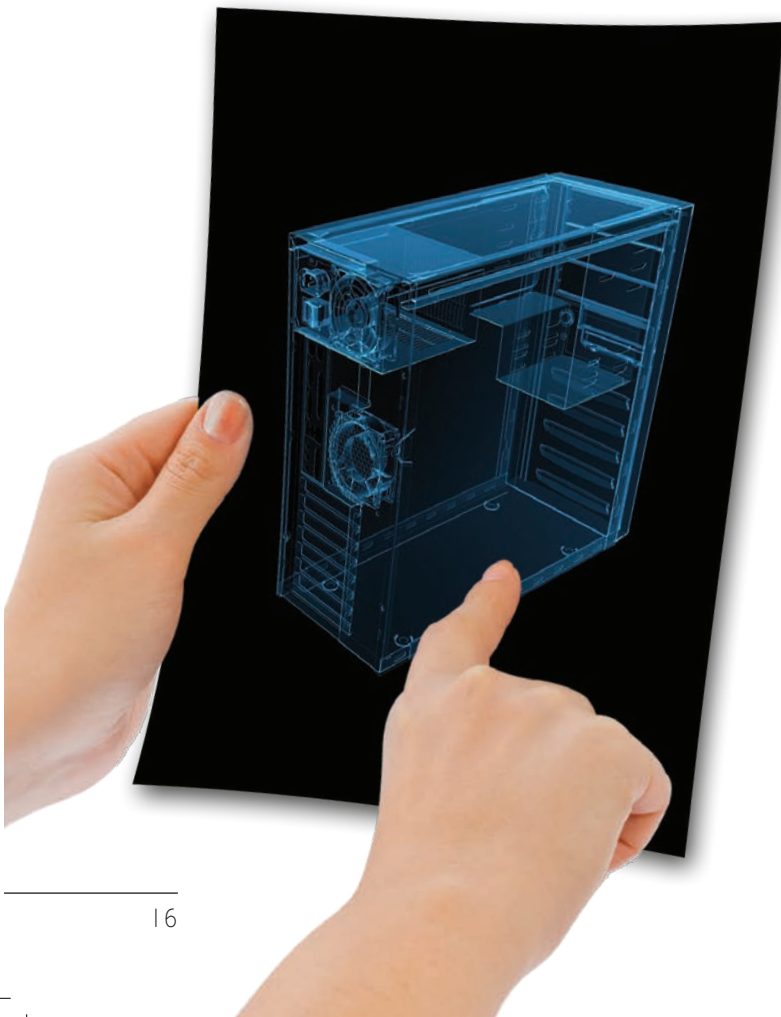
Developing the Financial X-ray

With advice from the British University Finance Directors Group (BUFDG), Universities UK (UUK), and the Universities and Colleges Information Systems Association (UCISA), Janet has designed a straightforward IT service costing model – called the 'Financial X-ray', for use within the FE and HE sectors.

BUFDG connected Janet with several universities interested in gaining a better understanding of their IT costs. Some universities have been offered 'return on investment calculators' by their IT suppliers but these tools fail to reflect the unique position of research and education organisations.

We then worked with several organisations including the Universities of Huddersfield, Newcastle and Portsmouth to develop and pilot the Financial X-ray. We spent time at each university, receiving data from colleagues in the finance and IT teams. This spurred several enquiries from organisations keen to use our Financial X-ray service.
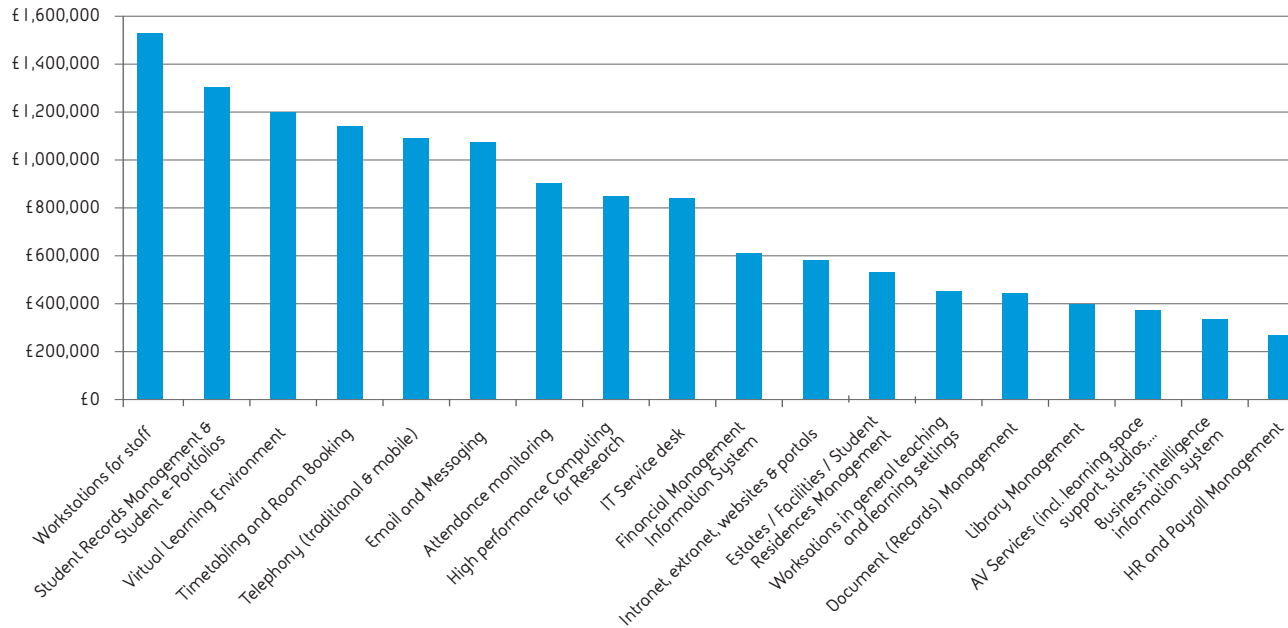
What does Janet's Financial X-ray reveal?

The bedrock of the Financial X-ray is a standardised catalogue containing around 40 categories: a mix of IT platforms (such as the data centre and networks) and user-facing IT services (such as Virtual Learning Environments). By using a basic form of activity-based costing plus a detailed analysis of high-value, non-pay spend, the total absorption costs (pay costs, non-pay and overheads) of each IT platform and thereafter each IT service can be built up.

The model also provides more detailed statistics, including:

- Total IT costs of £16.2m per annum represent 6.8% of annual turnover.

- Of this, £9.9m relates to student-facing IT services, equalling £540 per student per annum.

- Bring-your-own-device support costs £7 per device per annum.

- The data centre costs £2.4m per annum to run.

A snapshot of the costing model's outputs:

Bar chart with y-axis values from £0 to £1,600,000 in £200,000 increments. Categories (left to right): Workstations for staff; Student Records Management & Student e-Portfolios; Virtual Learning Environment; Timetabling and Room Booking; Telephony (traditional & mobile); Email and Messaging; Attendance monitoring; High performance Computing for Research; IT Service desk; Financial Management Information System; Intranet, extranet, websites & portals; Estates / Facilities / Student Residences Management; Worksations in general teaching and learning settings; Document (Records) Management; Library Management; AV Services (incl. learning space support, studios,...; Business intelligence information system; HR and Payroll Management

The Financial X-ray in practice

Andrew McConnell, Chair of BUFDG, from the University of Huddersfield, was involved with producing the tool and commented:

"Times of austerity are an opportunity to change the way we look at current costs and processes and to work with other departments for the benefit of the whole organisation.

"From our perspective, it's easier to see where investment is needed if we have the full picture in front of us. A tool that captures everything from the cost of lighting your data centre through to software and security really helps us to understand our financial requirements.

"From our perspective, it's easier to see where investment is needed if we have the full picture in front of us"

"What is so good about the tool created by Janet is that it also makes it easy to benchmark spend across the sector, which was a key recommendation of the Diamond Review on Efficiency and Effectiveness in Higher Education."

Smarter IT spend

Andrew Minter, CIO, University of Portsmouth, who also tested the Financial X-ray service said:

"This isn't just about cutting costs. Knowing where you are not spending enough money is also important. If

This tool has been a great starting point in our refinement of service spend

student experience is your top priority this may help to build the case for services to help you reach your aims.

"Benchmarking can be useful but there is a huge variety between institutions and each has differing priorities. This tool has been a great starting point in our refinement of service spend."

How to examine your IT spend

We can work with your finance and IT departments, managing the entire process so you can x-ray your spend with limited demands on the time of your own staff. Please visit https://www.ja.net/xray or call 0300 300 2212 if you would like more information.

A view from Networkshop41

Jennie Stewart,
Head of Marketing, Janet
Email: jennie.stewart@ja.net

This year I attended my second Networkshop. Last year, I was a newcomer to Janet and and my goal was to learn as much as possible about the community.

This time, knowing a little more, I attended as part of the organising team. Seeing the volume of work involved at close hand was eye opening and made me realise just what we ask of our host organisation – it's a testament to Keele that they managed to make it look easy.

For Networkshop41, we decided to make a couple of changes to the schedule – adding a welcome session for newcomers, and streaming the plenary sessions into the exhibition halls. The Newcomers session proved very popular and given the positive feedback we'll look at keeping a similar session in the programme for next year.

One of the highlights of the conference was our opening session, a live demonstration of LOLA – Low Latency Audio Visual Streaming System, from Claudio Allocchio of GARR, the Italian NREN and Gill Davies of Edinburgh Napier University.

The LOLA system has a very low audio/video embedded latency (a few milliseconds), allowing real time human interaction across advanced networks such as Janet. LOLA provides a very high quality multichannel audio service, and no video compression.

At Networkshop, this translated to LOLA being used for a real time musical performance between musicians in Edinburgh and Keele. This proved more nerve-wracking than we even realised, as we discovered afterward that there had been a brief local network outage during the actual performance.

However, for delegates, the performance went without a hitch, demonstrating both the beauty of the LOLA system, and also the benefit of having a resilient back-up Janet connection.

"This event is important to us because it's a way that we convey what we've done in technology and development and user application to the ones which are supposed to take it to the end users – the real users. It's a place where you can talk about what is available, what can be done, what more you can invent and get their feedback"

Claudio Allocchio, Senior Technical Director, Advanced Applications, GARR

Now that Networkshop41 is complete, we're reviewing all the feedback forms and already planning Networkshop42 in Leeds. If you have any additional feedback or suggestions for the programme then we're always interested to hear from you. Networkshop is a core part of our annual events programme; we want to make sure it continues to be a core part of your calendar too.

Follow us on Twitter @uknetworkshop
Email: networkshop@ja.net

Teaching
without walls

The Welsh language has been around since 800 AD and now a cutting-edge technology is ensuring it remains well used, and giving local children a better future through access to exciting new learning opportunities.

Grŵp Llandrillo Menai

Grŵp Llandrillo Menai, the umbrella organisation overseeing three Further Education colleges in North Wales – namely Coleg Llandrillo, Coleg Menai and Coleg Meirion-Dwyfor – has embraced videoconferencing in a way that few other colleges have. The recently created establishment is Wales' largest Further Education Institution and one of the largest FE colleges in the UK. It accounts for 65% of the Janet Videoconferencing Service's total usage across the UK.

Videoconferencing (VC) has facilitated the merger of the three colleges. Its VC suites work hard, serving 2,000 staff and around 34,000 students in campuses from Denbigh to Dolgellau, as well as business and research facilities. It works on many levels, from broadcasting lectures to colleges within the network, to enabling staff interviews and open evenings.

While many colleges and schools see VC as adding a new and exciting dimension to lesson plans, for Coleg Meirion-Dwyfor the relationship is more fundamental. Glenda Davies, Project Co-ordinator, Video Teaching, regards it as an essential element

binding the different strands of the college together. Indeed, some lessons simply wouldn't happen without it.

She explains: "When we started as a college in 1993, we used videoconferencing to liaise between the three sites. A seminar in 2005 really opened our eyes to its potential and our usage has really grown since." Glenda has since initiated a new programme of learning – teaching into schools via VC. This is a fundamental technology, both for delivering lessons and keeping the college functioning.

Supporting local schools

"Our standard charge covers lecturers' fees and expenses, and includes one school and up to five pupils. The cost increases for each additional seat and we organise 'multi-link' sessions (more than one school at a time) if required." This simple commercial model helps schools plan their budgets and improve the range of subjects they offer their students.

"We're definitely meeting a need", explains Glenda. "Schools are strapped for cash and VC enables them to offer a broader range of subjects."

"We have 21 contracts with schools across North Wales and videoconferencing is written into the lesson plans. Ours is a bilingual college and this technology is definitely helping to keep the language alive – we're something of a hub for Welsh-speaking courses. Our use of VC also helps to ensure that students can study

> " **Schools are strapped for cash and VC enables them to offer a broader range of subjects** "

less mainstream subjects, such as Psychology, Law and Sociology. We're pleased to say that our results compare well with national comparators."

Equipped for the job

Gareth Catherwood, ICT Services for Grwp Llandrillo-Menai, maintains the three dedicated VC suites at Coleg Meirion-Dwyfor. Gareth joined the college in 2004 in a more conventional IT role and developed his VC skills 'on the job' as the technology matured. VC is now a fundamental part of the college infrastructure. Students and staff alike are immersed in it. Gareth works with IT technicians in every school and the staff induction programme includes a thorough ICT session. Lecturers quickly understand how to use the specialist VC equipment and organise lessons via Janet's booking system.

He and Glenda work as a team, with Glenda sourcing the contacts – and converting them into contracts – while Gareth ensures their infrastructure is up to the job. He will often make site visits as part of the contract. "We offer an initial induction session in how to use the kit – the interactive whiteboards and so on. Part of it involves establishing a link-up between two adjacent classrooms in the same college – one will be the transmitter, the other the receiver. It's a mock-up of the real experience."

His challenges include the receiving technology not being as finely tuned as the transmitting equipment. "If the technology isn't up to scratch, then neither will the learning experience. People having an adverse experience will pass that on to other potential users and we'll lose a potential client. Generally, problems are pretty straightforward to fix – most of the issues I deal with involve teachers inadvertently switching the kit off, or leaving it too late to boot it up before a session. In many ways, videoconferencing represents a learning process for students and teachers alike."

Virtual learning in a real world

Gareth is very enthusiastic about 'his' technology. And there's plenty of it. Gareth's talks enthusiastically about virtual learning environments (VLEs) such as Moodle and Google Apps. "Of course face-to-face learning will always have a role," he says. "Teaching by VC accounts for 90% of our bookings. It's been fundamental to our success.

Map highlighting school locations where VC lessons have been taught.
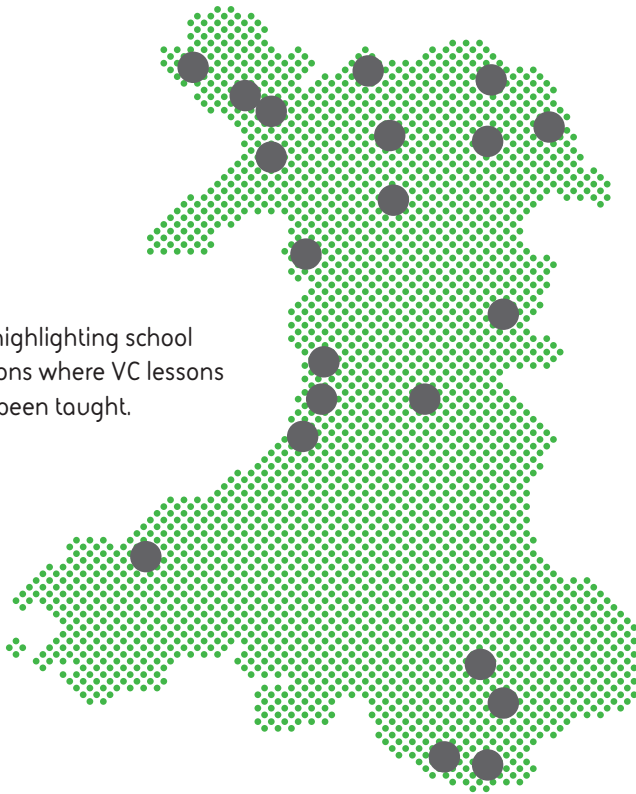
Students use it to study, staff use it to work. We combine distance learning and distance working."

Glenda is also an advocate of the digitising and electronic transfer of schoolwork — another aspect of college life enabled by the support of the robust Janet network which, among other functions, links the college to the Welsh Government's burgeoning 'hwb' Learning Platform, an innovative and interactive bilingual environment for learners 3-19 years old.

Gareth is a champion of their own VLE, 'Moodle'. "We give students login details and away they go. They can

email their lecturers, swap notes and hand in their assignments in a virtual environment — important when everyone is spread around a wide area." And when staff are snowed in — the internet goes further than the gritting lorries — the show goes on.

Glenda also likes the interactivity that videoconferencing delivers and sees little merit in recording and transmitting lectures — "I don't want this to become The Open University" — I would like to take things further by using Janet desktop link-ups which would, in turn, enable Coleg Meirion-Dwyfor and the wider Grŵp Llandrillo Menai, to offer more subjects. It's probably only a

matter of time — "the word's out there, and spreading wider," says Glenda.

While Gareth is clearly an expert in his field — he can quickly diagnose most network issues — he appreciates the value of a robust network infrastructure, and the help of Janet. "Their service is brilliant. We can book a year's worth of sessions with a quick sequence of clicks. And their website has so much information." And Glenda concurs: "Some of our videoconferences are held out of hours so it's great that the Janet helpdesk team work so late — and so efficiently".

Dr Ian Rees, Principal of Coleg Meirion-Dwyfor is also an advocate for the VC technology: "Initially teaching via VC allowed our college to combine two of our strengths — high-quality Welsh medium teaching, and the use of VC equipment. The technology has now moved on and our dedicated team of staff can now effectively utilise a wide range of teaching and learning techniques and equipment.

This is a methodology that we wish to continually develop, ensuring that we can provide more high-quality courses through the Welsh language to a growing number of learners."

Janet plays a key role in supporting and enabling the use of innovative teaching methods to deliver new subjects in a vibrant and modern way, in a language with a 1200 year history — and is helping to create a brighter future for so many people.

" Essentially I wanted a role that demanded commitment from me and the people I would work with "

Five minutes with
Martin Doel, OBE

As CEO of the Association of Colleges (AoC), Martin Doel champions colleges and supports its members. Not bad for someone who walked out of his Maths A Level and missed another exam after being hospitalised by a cricket ball to the head.

AoC
Association of Colleges

From an admittedly unpromising start, Martin successfully re-engaged with education to attain a Masters Degree from King's College, London and a First Class Honours Degree in Education from King Alfred's College, Winchester.

He studied PE with Education at Winchester and – perhaps unsurprisingly, given his cricket ball/head experience – decided against a career in sports education. Frustrated by the rigidity of the lesson structure, he joined the RAF instead. His ability to keep his eye on the ball must have improved significantly as he swiftly rose through the ranks and had many hands-on roles in theatre, including supporting operations in the Balkans conflict. He was awarded an OBE in 1998.

Having successfully merged three RAF bases in Cambridge and Bedfordshire, commanded 6000 people and learned to fly a plane, Martin's final role within the armed forces was as Director of Training and Education for all three Armed Services, working in the Ministry of Defence.

Clues to his future career appeared in some of his previous posts in the RAF, specifically his work within the Joint Services Command and Staff College, where he provided post-graduate level education to officers from across the world.

Plane speaking

Having spent 20 years in the armed forces, Martin found himself speeding towards compulsory retirement – and an extended period of reflection – aged just 55. Refreshingly free of pretence, perhaps a reflection of his time spent working in roles away from the institutional pillars of the armed forces and education, Martin laughs about the Damascene moment that steered him towards the role he took up in 2008.

"I spoke to a life coach. She asked me to list the boxes that my new job would need to tick. Essentially I wanted a role that demanded commitment from me and the people I would work with. I also needed to 'own' the outcome of my efforts – so that clearly ruled out sales."

Life in the services is clearly good preparation for the role's rigours – Martin's days are demanding. "I was up

> " I'm here to ensure that students, colleges and businesses – who ultimately need the apprentices and underpin the local economy – have the funds and freedoms they need "

at 7am today to deal with emails before I met with the AoC Chairman. Then I appeared before the All-Party Parliamentary Group on Local Growth before another meeting with the National Association of Specialist Colleges".

Less red tape, more white chalk

Not a fan of administration for its own sake, Martin reflects how the armed forces simply dispense with bureaucracy when in operations mode. He also applauds decisions that he perceives to be brave, referencing specifically the government's decision to give AoC members their own budgets.

"The problem is that too many colleges confuse 'having money' with 'being accountable'. But colleges, rather than universities, operate almost as small business units, as co-operative enterprises. They certainly deliver real value for that money."

A firm supporter of apprentices – the MoD is the largest employer of apprentices in the UK – it's a recurring theme in his narrative, as is the importance of colleges to their local communities. "Ultimately, communities are a succession of layers that provide local people with everything they need, and I'm thinking of access to education and apprenticeships. Colleges are the wrapper that keeps everything together."

Funding for the future

"I'm here to ensure that students, colleges and businesses – who ultimately need the apprentices and underpin the local economy – have the funds and freedoms they need. I want them to have freedom to innovate, the autonomy to act and the funding to get things done."

Established in 1996 by colleges themselves, the AoC speaks for the further and higher education delivered in Colleges at national and regional level. Martin works with the directors of the nine regional offices to implement his strategic direction at a local level.

The AoC now owns Janet through Jisc. "Becoming an owner of Janet is important. Jisc works particularly effectively in understanding and appreciating local needs and requirements and Janet helps to deliver on that. As I see it, working together through Jisc we can provide the framework that enables colleges to get the funding and freedom they need to provide communities with high-quality educational and technological support".

For further information about the Association of Colleges, please visit www.aoc.co.uk

Moonshot:
meet the technology

This spring saw the pilot launch of a revolutionary, world-leading service based on Moonshot, the next-generation trust and access management technology pioneered by Janet.

Driven by use cases from across the research, education, and e-Infrastructure communities, the pilot service is a response to their growing requirement to apply federated identity across a much wider range of services and applications than can be supported by existing technologies.

Project Moonshot

To facilitate adoption, the Moonshot architecture is predicated on making the best possible use of deployed and proven technologies. The architecture team, consisting of experts from within Janet, the community and wider industry, has developed a novel framework that combines the following technologies:

- RADIUS (the Remote Authentication Dial-In User Service), used by eduroam internationally to authenticate users from many dozens of countries. RADIUS is an IETF (Internet Engineering Task Force) standard that defines a protocol for carrying authentication, authorisation, and accounting information.

- EAP (the Extensible Authentication Protocol), used to securely authenticate users. EAP is another IETF standard; it is extremely flexible, allowing the use of almost any kind of authentication credentials (password, certificate, one time password, etc).

- SAML (the Security Assertion Markup Language), the powerful security dialect used by the UK federation. SAML is an OASIS (Organization for the Advancement of Structured Information Standards) standard; it is particularly useful for exchanging authorisation data between two entities.

- The IETF's GSS-API (Generic Security Services Application Program Interface) and Microsoft's SSPI (Security Support Provider Interface), used to integrate Moonshot with all major operating systems. These interfaces enable any correctly written application to use Moonshot 'out of the box'.

Project Moonshot has taken these technologies and linked them together in an innovative way. It has also added some additional security and other features that have been missing from these technologies until now.

Understanding Moonshot

An application that wishes to make use of Moonshot for authentication and authorisation simply invokes either the GSS-API or SSPI. This triggers a Moonshot authentication transaction between the user's device, the service they are trying to access, and their 'home' organisation.

The simplest way to understand this in more detail is to work through an example.

- The user launches an application that supports the GSS-API or SSPI. Most modern applications support one or both of these and so this could be almost anything;

for example, a Secure Shell client, a web browser, an email client, or even the Windows desktop.

- The application connects to a service that also supports the GSS-API or SSPI; for example, an SSH server, a Web server, or an Exchange server.

- The operating system on the user's device obtains the user's credential information; this is typically a username, a realm (domain), and a password. This could happen using the Moonshot Identity Selector, or the Windows Credential Store, and can come directly from the user, or from credential information previously saved on their device.

- A secure TLS (Transport Layer Security) tunnel is established between the user's device (e.g. a laptop) and the user's 'home' RADIUS server using Janet's national RADIUS infrastructure. As in eduroam, the user's realm (e.g., 'ja.net') is used to identify this server.

- The user's credentials (typically a username and password) are authenticated through this tunnel using EAP. The credentials are hidden from all parties other than the client device and user's 'home' RADIUS server, thanks to the secure tunnel.

- If the credentials are verified, the user's 'home' RADIUS server sends a success message to the service, along with any other relevant information (such as user attributes encapsulated in SAML, where necessary).

- The service uses this information to decide whether to allow the user to connect to the service, and how.

The connection between the user's application and the service is then allowed, as appropriate.

Moonshot working for you

The unique combination of technologies used in Moonshot, when put together in this unique way, enables:

- Federated authentication to almost any network-connected system, application, or service

- Single sign-on to almost any deployment model (centralised, distributed, cloud)

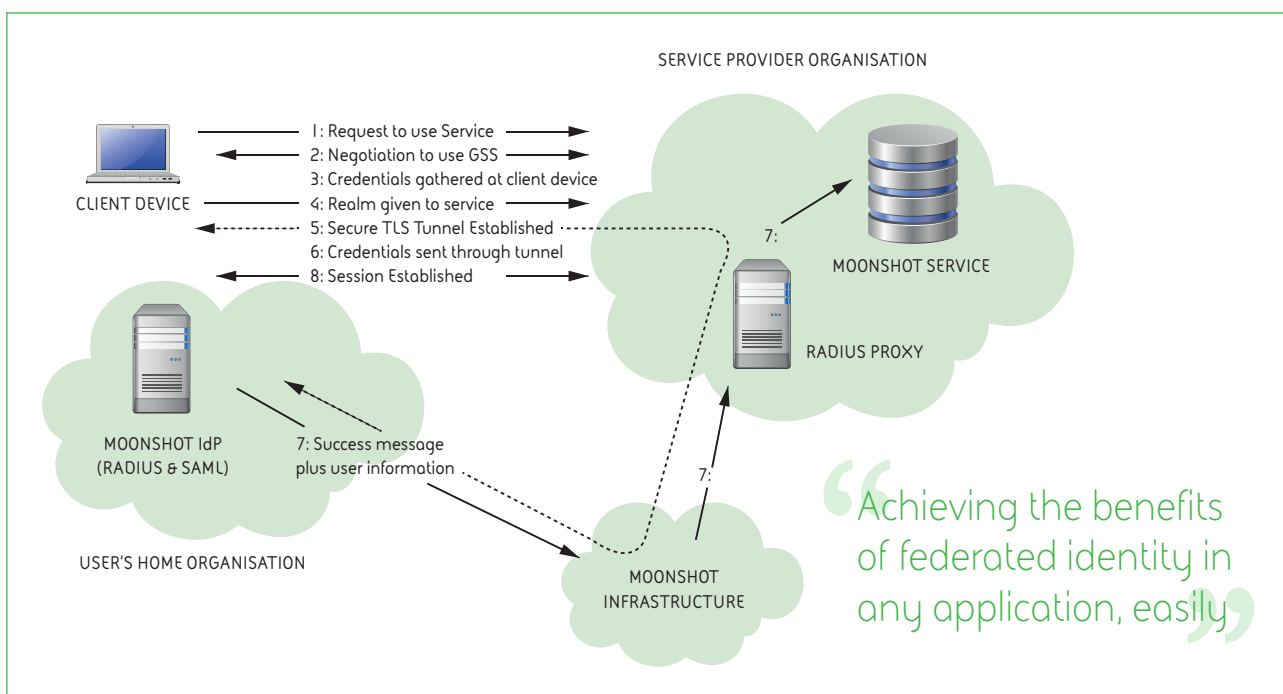- The use of almost any kind of authentication credential.

See the diagram below for an illustration of how the technology works in eight steps.

Trialling Moonshot

In April 2013, Janet launched a pilot Moonshot service as a core part of our role in leading Jisc's access and identity management strategy.

Scheduled to run for 18 months, this pilot will explore the use of Moonshot in a variety of different contexts and we'll keep you updated on any developments on our Community group – to join, visit https://community.ja.net/groups/moonshot.

For further information about Moonshot, please email John Chapman, Project Manager at john.chapman@ja.net.

SERVICE PROVIDER ORGANISATION

CLIENT DEVICE

1: Request to use Service
2: Negotiation to use GSS
3: Credentials gathered at client device
4: Realm given to service
5: Secure TLS Tunnel Established
6: Credentials sent through tunnel
8: Session Established

7:

MOONSHOT SERVICE

RADIUS PROXY

MOONSHOT IdP
(RADIUS & SAML)

7: Success message plus user information

7:

7:

USER'S HOME ORGANISATION

MOONSHOT INFRASTRUCTURE

"Achieving the benefits of federated identity in any application, easily"

e-Infrastructure update

In Autumn 2011, the Department for Business, Innovation & Skills (BIS) announced funding of £158m for an e-Infrastructure programme to power growth and innovation in the UK.

Janet was awarded £26m from this programme to build additional capability into the network, and to extend access in strategic areas where future growth was expected to go beyond the current level of provision.

We have allocated the budget as follows:

- £10m to support Janet6, the core network that provides capacity through the optical fibres and associated transmission systems.

- £12m to address provision of additional network capacity to strategically important locations for major research disciplines.

- £4m to help improve industry access to Janet and facilities hosted by organisations that connect to Janet.

Following discussions with the Research Councils and other stakeholders, we asked several candidate sites to provide a long-term look on network requirements, with a focus on growth in network capacity. We are now planning additional optical fibre connections to the following locations:

- The Norwich Research Park: hosts organisations including The Genome Analysis Centre, The Sainsbury Laboratory, The John Innes Centre and the Institute of Food Research.

- The Wellcome Trust Genome Campus at Hinxton: hosts the European Bioinformatics Institute, part of the European Molecular Biology Laboratory, and the Wellcome Trust Sanger Institute.

- The Met Office and the University of Exeter: an important extension of the Janet fibre infrastructure to support research growth further into the south-west.

- The Francis Crick Institute in London: a major centre for topical research into human health issues that is scheduled for completion in 2015.

The e-Infrastructure programme has motivated a review of industry access to Janet, so these organisations can also benefit from the knowledge and experience of our existing community, and vice versa. Where appropriate, additional network connections may be established to industry partners – an active area of investigation for us at present.

Janet's CTO, Dr Bob Day, represents Janet on the e-Infrastructure Leadership Council, and has recently become one of the two UK delegates to the European e-Infrastructure Reflection Group (e-IRG). Bob has commissioned a policy study to better understand the issues associated with broader access for industry groups to publicly-funded infrastructures such as Janet.

Janet continues to be strongly engaged with the e-Infrastructure programme, and the initiatives outlined above should help to realise the vision embodied within the Tildesley [*] report for an open and accessible Janet, underpinning an e-Infrastructure supporting UK economic growth.

[*] 'A strategic vision for UK e-Infrastructure', Dominic Tildesley,
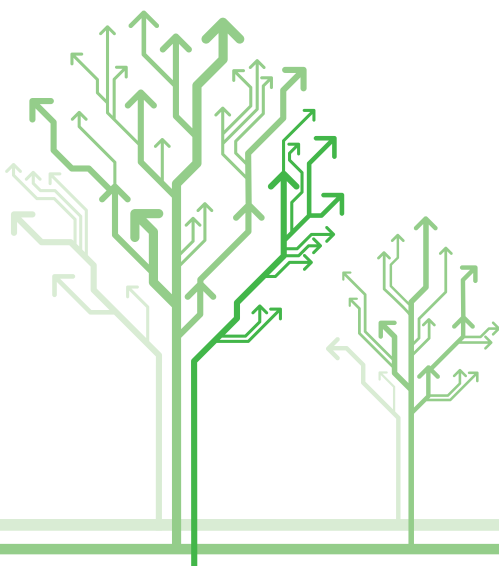
> "Information security is fundamental, not a 'nice to have'"

Security briefing

UCL

Financial Fraud Action UK recently reported[*] that card fraud cost £341m in 2011. Bridget Kenyon, Head of Information Security at UCL, is determined to ensure that universities recognise the threats, understand their responsibilities and implement the standards that will safeguard card data.

[*] Fraud the facts 2012 – the definitive overview of payment industry fraud and measures to prevent it

As the IT managers at many UK universities will attest, network and system security takes many forms and is, in effect, a constantly shifting landscape of fresh challenges. Sometimes those challenges come in the form of unwanted and illegal intrusion, sometimes in the form of statutes implemented to counter those intrusions.

A good example is the Payment Card Industry Data Security Standard (PCI DSS). While not a legal requirement, it is the commercial information security standard for organisations handling and collecting cardholder information.

The Standard was created to improve and increase control of cardholder data and cut the number of compromises. It is there to reinforce our confidence in our merchants to preserve the information that we are increasingly being asked to tap into our computers or pass on to nameless people in the ether in 'card not present' transactions. The Standard includes areas you might not have considered, including data beyond personal information and card data, encompassing everything from visitor passes to CCTV records.

The standard is defined by the Payment Card Industry Security Standards Council, which describes itself as an 'open global forum for the ongoing development, enhancement, storage, dissemination and implementation of security standards for account data protection'. In other words, they're there to help fight card fraud.

High standard

Founded by the big players in the card market, including American Express, MasterCard Worldwide, and Visa, the PCI Security Standards Council uses the PCI Security Standard to foster good practice in cardholder data handling and improve payment account data security.

Depending on their role – and, in some cases, the volume of transactions being handled – organisations' compliance is assessed every year by external Qualified Security Assessors (QSAs) – a role Bridget has held in the past. Where required, assessors create a 'Report on Compliance' (ROC). Most companies handle smaller volumes and are only required to complete a Self-Assessment Questionnaire (SAQ). Validation is managed independently by the each card scheme.

The Council – like Bridget herself – see education and awareness as the best weapons in their armoury. "I'm interested in the security of all types of systems – and the human aspects of system vulnerability. I have a foot in both the technical and strategic camps. I enjoy helping people to find solutions to thorny problems."

Genuinely interested in how security affects institutions, Bridget's career neatly spans education and transactional interfaces – she has worked at Travelex and the Universities of Cambridge, Warwick and Birmingham. Bridget sees many similarities between the commercial sector and the universities she works with every day. Both have similar cultural problems, with neither 'getting it' on occasions.

Card sharp

In broad strokes, card fraud covers card theft and the compromise of associated account data – the card account number, or information needed to ensure a successful payment transaction. While single cards can be quickly reported and accounts swiftly suspended, a database security lapse can result in millions of accounts being accessed. A compromised account can be used many months after the initial breach, making detection and remedial action difficult. Data theft is costly and the consequences of reputational damage hard to counter.

Clearly, HE is increasingly reliant on robust and flexible networks to achieve business growth. In the future, many may work to a cashless, low-administration model to reduce costs, while requiring an increase in online enrolments and encouraging fewer students to physically attend lectures – the 'Massive Online Open Course' is just one high-profile offering. There are additional, growing challenges in maintaining network security, with more people using remote access

"students and staff must know their data is safe. A robust network like Janet can help balance the two concerns "

from increasingly disparate mobile devices. Card data security is, or should be, a major agenda item for all of them.

As both the Head of Information Security at UCL and a PCI DSS implementer, Bridget sees the issue from both perspectives. Having previously developed an Information Security Management System and designed and implemented various awareness initiatives, she is well aware of her responsibilities in raising awareness of PCI DSS – and enforcing its requirements.

The education 'business'

Financial data is protected by contractual law, and personal data by human rights legislation. Compromising the first risks losing competitive advantage; infringing the second raises legitimate questions about ethical behavior. Breaches in either could risk large fines.

Bridget's overarching advice to education establishments taking on merchant status is to be aware of their obligations. While not advocating 'overkill', Bridget is always keen to remind people where an inadequate level of protection of card data can lead. "This isn't the responsibility of the IT department. I ask universities "Who would be appearing in court to explain the data breach?" The answer is invariably 'the Dean', or an equivalent business level role. That really helps to focus people's minds".

So – how are the UK's universities adjusting to their increasing responsibilities as data owners? "I'd say that about 90% of them opt for outsourcing the payments process. But it's not a simple matter of delegation. The responsibility for the risk remains with the university – they selected the outsourcing company."

Bridget feels that universities have much to do to meet the regulations and act as 'merchants'. The key is to treat compliance as a people issue, rather than a technology or procedural problem. "While computers are just boxes and procedures can be ignored, we can change how people think and act". Bridget likens some universities' alarming attitude to card data to escorting a small child around a supermarket where desirable items are too easily reached. "My reaction during these discussions is always that of a harassed parent – just put it back!"

Now she is no longer an assessor Bridget is happy to act as a friendly point of reference. She believes that the key is to introduce behaviours designed around the Standard that encourage a wider culture of information security. "Press the alarm button when someone suggests adding a shopping cart to the website. Treat card data with the same respect as you would a radioactive isotope – don't be too scared of it, but recognise what it can do. Short of wrapping it in concrete and dropping it in a lake, there's no such thing as perfect data security."

And Janet?

"Janet has a big part to play in helping universities balance freedom against security. Universities must be free to innovate while students and staff must know their data is safe. A robust network like Janet can help balance the two concerns".

Nothing encourages people to change their behaviour – in this case, to review their security protocols – quite like an incident, but this could come too late to preserve the integrity of the network or data. She quotes a maxim that many will be familiar with: "We change our behavior when the pain of staying the same becomes greater than the pain of changing. Consequences give us the pain that motivates us to change."

Understanding 4G

4G is the fourth generation of mobile data technology to hit the marketplace. Historically there has been competition between two 4G technologies: WiMax and Long Term Evolution (LTE).

That has now resolved in favour of LTE 4G technology preferred by the mobile data providers. It's considerably faster and more efficient in terms of making use of limited spectrum than the familiar 3G, since it uses Orthogonal Frequency-Division Multiplexing (OFDM). OFDM is also used in Wi-Fi, ADSL broadband, digital TV and radio, squeezing more data onto a given amount of radio frequency by sending chunks of data in parallel.

Implementation details aside, it's a technology set to have real impact: Ofcom predicts 4G will provide £20 billion of benefits for UK consumers over the next ten years.

Unfortunately it is likely to attract a cost premium as a result. Some would argue that with the UK currently enjoying some of the cheapest 3G pricing in the world, and telephony providers' networks being swamped with data traffic, some readjustment of their pricing was bound to happen. However, the recent auction for 4G spectrum has only cost the winning providers £2.34bn compared to the £22bn that the 3G auction raised in 2000, so there are fewer up-front costs to recoup.

The benefits of 4G

For the Janet community, it is the increased bandwidth coupled with end-to-end IP connectivity that opens up new opportunities. Applications and interactions with resources can occur at comparable speeds to a wired connection, enabling truly mobile use of services such as videoconferencing, virtual learning environments (VLE) and cloud services in general. Where coverage is available, both teaching practice and organisational administration can become more efficient as more can be achieved 'on the move'.

Is 4G for you?

To help realise these benefits, Janet is engaging with the market to find out more about the technology and to put it into some trial user's hands so that we can get feedback on its impact in the real world. Janet has partnered with EE – at the time of engagement, the only national 4G provider, with a goal of 98% coverage by population by the end of 2014 – to explore a technical strand of discussion and to run a user trial.

More recently, Ofcom's auction for 4G spectrum has completed, and a number of new players are starting to roll out their services, so it is a rapidly evolving market. The new players to watch are Hutchison 3G UK, Niche Spectrum Ventures (a BT subsidiary), Telefonica (O2), and Vodafone.

On the technical side we are specifically interested in the possibility of integrating eduroam-like authentication into a 4G offering; the imminent version 10 release of the 4G standard includes support for the 802.1X security standard that is central to the security model of eduroam services and we will be working with EE's technical team to explore this.

Our objectives for the user trial are to invite direct feedback from users as to the benefits and drawbacks of 4G data provision, get some indication of data volumes and

> " Ofcom predicts 4G will provide £20 billion of benefits for UK consumers over the next ten years "

usage patterns for academic 4G users, to trial against specific applications such as VoIP, videoconferencing and VLEs, and to inform how a mobile 4G service can be provided as an integrated Janet service. Following an open call in November 2012, Janet selected the following organisations to participate in our trial:

Site	Special interest
UCL	General
Cardonald College, Glasgow	App performance
Loughborough University	VoIP/CCTV
Plymouth College of Art	User acceptance
University College Birmingham	Fieldwork/Apps
Ravensbourne College	Video/VC

We will gather information over the six-month trial and monitor how the 4G market takes shape following the spectrum auction, evaluating the case for a future Janet 4G service. Following the outcome of the trial, the auction and following our evaluation work, if we can then identify an opportunity to provide a tailored solution to meet the needs of our community, we will undertake the necessary procurement.

We would welcome additional input from our wider community to answer these questions:

- should Janet offer a 4G service?

- What features would you like from a 4G service?

- Should it include a voice+data product?

Perhaps most importantly, assuming a 'reasonable' cost per account, how many users do you foresee having to support with mobile provision in your organisation now and in the future?

If you have any comments, please email the Development Group Manager, Mark O'Leary at mark.o'leary@ja.net.

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Let's talk about Security

As professionals working in the communications field, it is ironic that we often struggle to communicate the importance of our work to others. Information security is being increasingly accepted as a strategic governance issue, and our best security controls often rely upon users having an understanding of security issues. How we talk to senior management and end users can have a significant impact on their acceptance of security as an integral part of an organisation's operations.

Whose job is it anyway?

Traditionally security has been seen as the work of the technology specialists and the concepts, ideas and terminology that we use to discuss security issues have naturally reflected this. Information security professionals talk about 'zero-day blind SQL injections' and 'CVE references' and understand each other, however this jargon does little to endear us to wider audiences. We lose their attention and interest, and from that point on we're fighting a losing battle.

With the increasing number of threats to the safety of an organisation's information, infrastructure and operations, it is becoming far more widely accepted that security is not just a technical domain, but also one that spans an entire organisation. As with health and safety, information security is to some extent every employee's responsibility. Bringing this to a wider audience and making security part of our culture requires us to rethink how we communicate with others.

What's important to your users?

A key point in communication is tailoring your message to the audience. As well as thinking about technology from your perspective also consider what purpose the technology serves for your users. Unless you work in a technology-focused organisation, it is unlikely that others will necessarily view issues in the same way as you.

IT security professionals often make the mistake of assuming that confidentiality and integrity are the most important security attributes that people should be concerned with, overlooking the fact that most people simply want information to be available to help them get on with their job. Don't underestimate the importance of the availability of information to your organisation, and the steps that employees will take in order to obtain and keep that information.

Pitching information security to different audiences

How you explain the benefits and importance of two-factor authentication for example, should be determined by the audience. Your main objective is to ensure that members of the organisation understand how security controls work in a way that is relevant and meaningful to them.

Senior management will often be primarily concerned with the costs, risk, savings and benefits that a new security project will bring to the organisation. It's your responsibility to understand the requirements of the organisation, analyse the risks it faces and demonstrate how particular security technologies and controls will make life easier. Discussing a product in terms of the cost of the incidents it might prevent, or the potential saving in service desk employee-hours is likely to be more productive than discussions about FIPS 140, AES-256 and blowfish.

> "Information security is to some extent every employee's responsibility"

Users are most likely going to be concerned with how practical and helpful information systems are going to be in allowing them to complete their work. Without context and explanation, security controls tend to be viewed as obstructions that hamper authorised users from accessing information, as opposed to what they actually are – protective measures.

Users need to understand why keeping information secure is also their responsibility, and how threats and vulnerabilities in their area of work can have a serious impact on the organisation.

Often an explanation in terms of their personal risk and liability can be an effective educational tool. If their personal workstation becomes infected with malware not only is the confidentiality of the institution's data at risk but so might personal data including credit cards and emails. Most importantly, you will need to demonstrate to users how security policies can help them efficiently access the information they need to do their job. Demonstrate to your users that instead of being yet another thing to remember, an authentication token is easier to use than remembering a complex password, and can allow them to access information from more convenient locations.

Understanding your users

Whether you are writing a report, preparing a presentation or working on your security awareness campaign, tailoring communications to your audience is critical. A little time spent thinking about their concerns, priorities and needs instead of your role in improving your organisation's IT security will be well spent. Your ability to empathise with your end users will help them to better understand the importance of security and your work. When all levels of your organisation start to understand the importance of information security, your work can only get easier.

Some useful resources:

Hacking senior management https://www.youtube.com/watch?v=7k1nBWWW2D0

Selling Information Security to the Board http://www.amazon.co.uk/dp/1849280533/

For further information about Janet CSIRT or to contact the team, visit https://www.ja.net/csirt

Law and Clouds

The law is obsessed with location: unless you know where something happened you don't know what law applies or who will judge whether the event was lawful. Cloud computing makes location irrelevant: no matter where on the globe a cloud and its users are the service should be the same. So it might seem that complying with the law would be especially challenging for cloud systems. However new guidance from the Information Commissioner suggests this needn't be the case.

Andrew Cormack,
Chief Regulatory Advisor, Janet
Email: andrew.cormack@ja.net

Changing risks

We're familiar with the idea that changing the location of information can change both the risks it is exposed to, and the technical and procedural measures we use to manage those risks.

Moving a server from under my desk to a remote data centre will reduce the physical and environmental risks to it. But it increases the risk that a fault will prevent me accessing it. Rather than bending down to plug in a console, I need to think about remote connectivity. I might consider installing a second network link between me and my server, or contracting the supplier to ensure that the network between us is reliable.

This example highlights two important ideas – that different approaches can provide equivalent protection against risks, and that protection based on physical location can be exchanged for protection based on contracts.

Managing risks

Compliance with the law can be approached in the same way. In the Data Protection Act 1998, principle 7 requires organisations to take "appropriate" measures to protect the security of personal data; principle 8 requires them to ensure "adequate" protection for any data they transfer out of the European Economic Area. Organisations can choose what measures to adopt, so long as they are "appropriate" and "adequate".

So when thinking about moving a service from local servers to the cloud, you can adopt the same approach to managing legal risk as you already use for technical and process risks. And, as for all types of risks, if you rely on someone else to protect you then you need to check (or have an independent party check for you) that they are doing what they promised.

Risks vary between services. Before moving information or a service to the cloud, you need to review the risks to that particular item to determine whether the protective measures available are appropriate and adequate.

One approach is to consider what measures are used to protect the information and service when it resides in-house. Determine whether moving to a cloud provider introduces
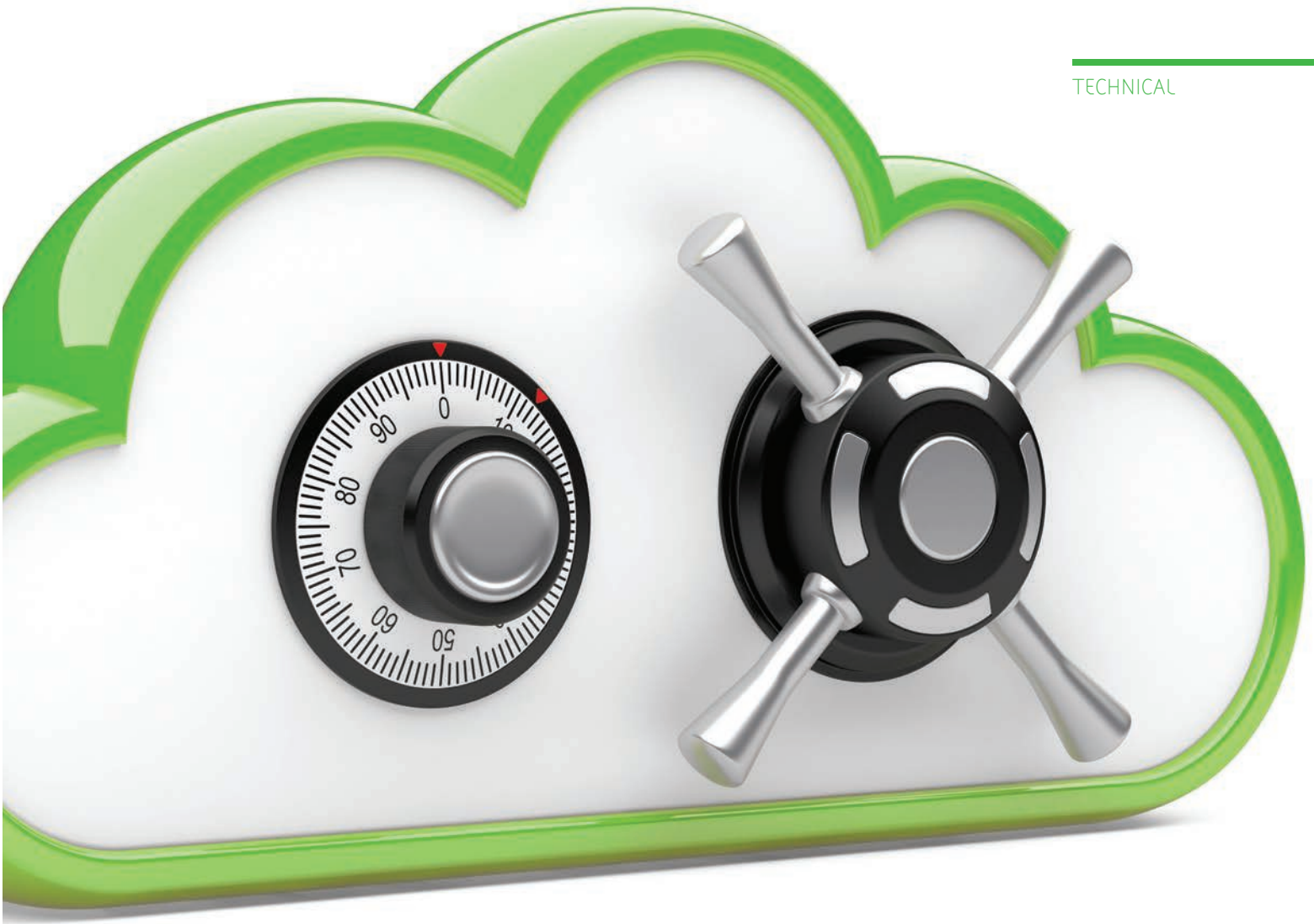
any new risks (for example if the information may be of particular interest to the provider or their government), then look at the options for protecting the service in the cloud. Finally, ask whether those measures are equivalent to, or better than, the in-house measures, and if not, consider a different cloud service or keeping the information in-house.

Assessing risks

Most organisations will already be used to assessing whether alternative measures against technical and process risks provide equivalent protection. Doing this for legal risks may be less familiar, but there is an increasing range of tools to help. In Data Protection, the European Commission maintains a list of countries deemed to provide adequate legal protection; its agreement with the US Safe Harbor adds to the list those American companies that join the scheme.

A promising development for cloud advocates is the recent agreement on Binding Corporate Rules for Data Processors, which will let providers have their internal processes approved in a location-independent way. The Information Commissioner also supports organisations making their own adequacy assessments: this Guide to Cloud Computing* provides suggestions, questions

and examples. Third-party audits, whereby a single organisation checks a cloud provider's compliance with standards rather than every customer having to do it themselves, are also increasingly accepted.

Talk to Janet

Janet's Cloud Services Team works with users and suppliers of cloud and data centres to incorporate clouds, data centres, and other tools into their services. We hope that this will make it easier for you to assess which of your requirements can be provided in these ways, while satisfying your technical, procedural and legal needs.

*http://www.ico.org.uk/for_organisations/data_protection/topic_guides/online/cloud_computing

> For further information about Janet Cloud Services, please visit https://www.ja.net/cloud
>
> To read more from Janet's regulatory blog, visit https://community.ja.net/blogs/regulatory-developments/tags/Cloud-computing

Janet out and about at events

This issue, we thought we'd make a small change to the events section. Rather than give you a schedule of forthcoming Janet events (which is available at https://ja.net/events), we thought we'd give you an insight into a recent event attended by members of Janet.

APRIL 12

On Friday 12 April 2013, Janet joined representatives from CTSNet, CERNET (the Chinese NREN), DANTE, UK-based researchers and academics, as well as members of the media to celebrate the launch of the upgrade of the ORIENTplus Internet link.

3D printer on show at the event.

The event was organised by DANTE, the international research and education network provider, and highlighted the outstanding capabilities of the China-to-Europe, high-capacity e-Infrastructure. The ORIENTplus project has been running since 2010, and is available to all European and Chinese research and education organisations.

So what are we doing at Janet? We're one of the leading members of the consortium of European partners working to improve the direct link between the continents, so our community can benefit from a robust, scalable network, with a high bandwidth.

"The launch of Orient Plus is a key step for UK, European and Global science. All science is now data rich, and research partnerships developed in Europe are increasingly working with global partners. China is expanding its research investment and capability so the ability to exchange data in large volumes and in real time is a key component in enabling active collaboration.

The examples of the use of Orient Plus for Bioinformatics and Radioastronomy demonstrated at the launch, show the importance of this new network for research supported by the RCUK partners."

Peter Fletcher, STFC, UK lead on EU Research Infrastructure Programme Committee, for Research Councils UK

"There are two key projects between the European Centre for Medium-range Weather Forecasts (ECMWF) and China Meteorological Administration (CMA) that are benefiting from the new, high-speed ORIENTplus connection between Europe and China. The TIGGE project is a key component of the WMO World Weather Research Programme to accelerate the improvements in the accuracy of one-day to two-week high-impact weather forecasts for the benefit of humanity.

High speed networks are vital for the meteorological community. The ORIENTplus connection allows for fast database synchronisation of the TIGGE meteorological archive, hosted by ECMWF and CMA. This has become a focal point for a range of research projects, including research on ensemble forecasting, predictability and the development of products to improve the prediction of severe weather."

Tony Bakker, Group Leader WAN Services, ECMWF

If you would like to read more about ORIENTplus, visit http://www.orientplus.eu

Janet Training

Janet runs a portfolio of one-day courses specifically written for the Janet community and delivered by experts working in UK research and education. Our high-quality courses give you a chance to train with colleagues working in a similar environment.

Courses are scheduled at locations across the UK throughout the year, and can be run at your organisation with our in-house service.

A complete and up-to-date list will be available on our website at https://www.ja.net/training but here are some upcoming courses that you can register for now:

Implementing a Shibboleth 2 Identity and Service provider

11-12 June 2013 – London

This course provides hands-on lab experience for delegates, working individually and in a small group, centered on the installation and configuration of a Shibboleth 2 Identity Provider.

The course then focuses on the installation and configuration of a Shibboleth 2 Service Provider. Along with guidance and practical experience of integrating this with a web application's access control mechanism, this installation will then be tested against a reference Shibboleth 2 Identity Provider.

This course includes some discussion of migration from an existing Shibboleth 1.3 installation.

Basic Networking for Service Desk and Support Staff

8 July 2013 – London

This course provides a supporting framework for university, college and research staff that provide first line assistance for their organisation's network infrastructure.

The data network infrastructure now supports more and more business critical services: the network is no longer simply for the Internet, email and shared drives. It now connects the entire organisation including Building Management Systems (BMS), door controllers, streaming video, guest wireless networks, external partner collaboration, VoIP telephones remote access etc. We've tailored this course so the practical focus will be the use of a series of activities focusing on the key areas required to support the network.

From configuration to diagnostics and a look at new technology, the activities should improve the reporting of incidents and identification of problem.

DEVELOPING YOUR TEAM?

Janet Training offers an in-house service to suit your needs. We will deliver the course in your own, familiar surroundings providing you with an expert trainer for the day, workbooks and all the necessary equipment. Running an in-house course means you can focus on the issues relevant to your team as well as being a cost effective training solution.

Contact us today to discuss your requirements.

W: https://www.ja.net/training
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CUSTOMER ENGAGEMENT TEAM PROFILES

Shirley Wood

Head of Customer Engagement and Support

> " The team and I continue to raise the profile of the customer within Janet to ensure that the 'customer voice' is understood at all stages of service development and operation "

In September 1986, I joined what was the Network Executive Team, with a responsibility for user support. Initially, my duties included providing technical support for the PSS Gateways, dealing with user queries, producing documentation and building relationships with the regional user groups, the Particle Physics Network Co-ordination Group and the newly formed Janet User Group for Libraries.

Since that time, I've been responsible for the creation of the Janet Service Desk and the early versions of the Janet online information services. I've also had the opportunity to grow the documentation team, manage Janet CSIRT, develop Janet Training and expand Janet's event schedule, as well as liaise with both existing and potential customers.

During my time at Janet, I've also been involved in a wide variety of Jisc projects and committees and I've also served on the Nominet PAB for a period of two years. In 2002 I was elected to the TERENA Executive Committee as Vice President, Conferences, a position I held for five years. I was able to use my Janet experience in the TERENA role to enhance and widen participation in the annual TERENA conference. Having this European experience has subsequently proved useful in helping our Janet customers look at connectivity for their overseas campuses.

Since 2010, I've focused on developing the Janet Customer Engagement Strategy and creating the Customer Engagement Team. The customer is at the heart of everything that we do and it is important that Janet engages with all members of our community to ensure that you are informed of the services we can offer, and so that you are also able to use them effectively. We pride ourselves on taking on board our customers' current and future requirements to inform our services strategies, and we're keen to work with you to help solve the challenges that you are facing.

The team and I continue to raise the profile of the customer within Janet to ensure that the 'customer voice' is understood at all stages of service development and operation. Our aim is to deliver the products that you, our customers, require within a timely manner.

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For the latest news from your CE Manager, search for your regional Community Group at https://community.ja.net

NETWORKSHOP 42
AT LEEDS UNIVERSITY
1–3 APRIL 2014
SAVE THE DATE
#nws42

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JANET COMPETITION

Where am I?

For a chance to win your own Janet water bottle, please tell us in which city was this photo taken. Send your answer to marketing@ja.net with the subject line 'JN21 competition' by Friday 28 June 2013 (and please include your postal address!)

Please note: the correct answer will be chosen at random; we will only contact the winner; the answer will be posted on the Janet News Community group on Monday 1 July 2013; Janet staff may not apply.