JANET NEWS

Issue 20 | February 2013
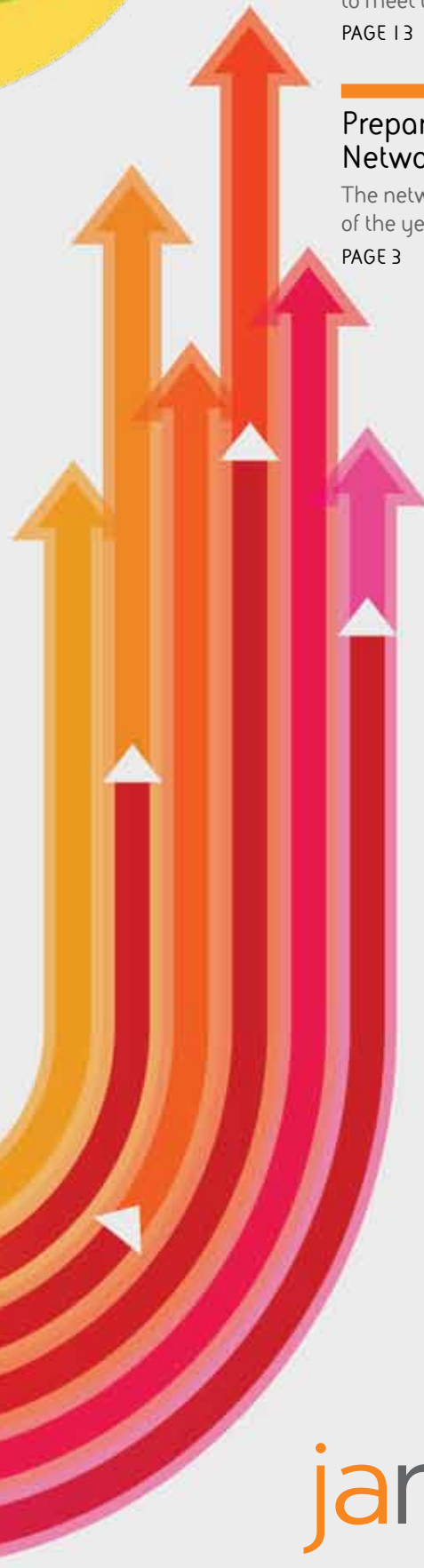
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CEO WELCOME

Happy New Year to you all. I hope that you have all returned from your Christmas break refreshed and ready for the exciting challenges that 2013 will bring.

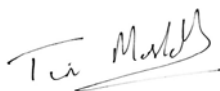2012 was a very busy year for everyone at Janet. Notable highlights included the successful planning, coordination and procurement of Janet6, the Super Hi-Vision broadcast of the Olympics with BBC and NHK, continued progress with the regional network re-organisation and the implementation of the new collaboration site, community.ja.net. The year culminated in the creation of the new Jisc organisation, including the creation of Jisc Collections and Janet Limited, as the next stage of our development.

As we start 2013, you can be assured that it's business as usual, as we continue to work collaboratively to deliver the highly valued services to you. At the heart of this is the rollout of the new Janet backbone – Janet6 will be one of the most advanced networks in the world. In a world where high-volume data transfers and international collaboration is becoming a part of everyday life for you, Janet6 will offer you a scalable network that builds on our reputation for resilience and reliability.

At the same time, we also recognise the importance of meeting your day-to-day needs and will continue to provide essential services such as security advice, SSL certificates, eduroam, and Janet videoconferencing - to name just a few. According to the recent SusteIT report issued in November 2012, videoconferencing saves the HE sector alone £66 million a year. Our goal is to continue providing this level of value for money.

2013 looks like it will be another exciting year as we develop our role in a new integrated Jisc that will deliver tremendous benefits of all the UK research and education community.

Tim Marshall,
CEO Janet

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EDITORIAL

Welcome to the new issue of Janet News. With the days getting lighter and spring just around the corner, it is business as usual here at Janet. In this issue we are looking to the future with our annual Networkshop conference in April, and Janet6 now in the rollout phase.

Much of 2012 was spent planning, coordinating procurements and undergoing negotiations for the new Janet backbone – Janet6. Constructing Janet6 (pg4) gives you the latest progress on this significant project. If you're after more detail on the design and technical architecture, Janet6: An Optical Technology primer (pg26) delves into the network infrastructure.

As we start 2013, we look forward to a new Networkshop – Networkshop41 (pg3) gives you a sneak preview of speakers and topics programme for this years event at Keele. We strive to deliver solutions that save you time and offer excellent value for money - and our work with Microsoft Office 365 (pg6) suggests the considerable savings that aggregation through Janet can deliver. We are now also in discussions with Google about their cloud products - we'll keep you posted on the benefits to you, as our negotiations progress.

Well done to all the videoconferencing awards winners: Success at the 2012 Janet Videoconferencing awards (pg 9). We are reminded of the value that technology brings to teaching and learning, and how far we have come since the days of chalk and blackboards.

Finally, we are looking at our future development plans in key technology areas: Strategic thinking (pg13) and hope that you will help us to shape teaching and learning for tomorrow.

Dan Perry,
Director, Product and Marketing

NETWORKSHOP 41
AT KEELE UNIVERSITY
9–11 APRIL 2013

Keele University

NETWORKSHOP 41

Networkshop is the UK's premier research and education networking event. It offers a unique opportunity to present and discuss technical and practical aspects of providing advanced network services and applications to the research and education community in the UK.

This year, Networkshop41 will take place between 9 – 11 April 2013 at Keele University. Experts from within the Janet community and further afield will be presenting on issues that affect you, along with practical hands-on workshops and discussion groups.

The Programme

There will be speakers from industry such as HP Labs, Nominet, GARR, ITSPA and NASTA as well as speakers from the Academic community (Open University, University of Manchester, Keele University, Lancaster University and Liverpool John Moores University).

This year the programme includes plenary sessions on: Janet6 - the next decade of e-infrastructure, chaired by Paul Bevan, Customer Engagement Manager, Janet; LOLA - a live demonstration using the LOLA application, from Claudio Allocchio and Gill Davies of GARR, Napier University; and a talk on The Internet in 10 Years Time from Martin Saddler of Hewlett Packard.

Below is just a selection of the parallel session topics that will be available:

- Integrating unified communications and network management tools – Gary Parker, Loughborough University
- Janet Telephony – Roger Bolam, Janet
- Bring Your Own Device – Mike Richardson, University of Manchester
- Regulation & DNS – Tania Baumann, Nominet
- Security: 10 years of change - Arthur Clune, University of York
- Moonshot – John Chapman, Janet
- e-infrastrucure – David Salmon, Janet
- Dancing with the Net: videoconferencing as a means to creative collaboration in HE across the Atlantic Divide – Pauline Brooks, Liverpool John Moores University

For the first time there is also a session specifically aimed at those new to Networkshop. This session will give an insight into what Networkshop is all about, ensuring you get the most from the event.

Book your place today

To make sure you don't miss out, book your place today for Networkshop41 in 2013. Quote *NWS4118* and you'll be entered into a prize draw for a free place at Networkshop42 in 2014.

"...Networkshop is the kind of conference where you come with your challenges, and leave with solutions – and perhaps a few new challenges you'd like to tackle as well." – Paul Bevan, Customer Engagement Manager, Janet. JN

To find out more and book your place please visit https://networkshop.ja.net

twitter

Follow us on Twitter @uknetworkshop or use the hashtag #nws41

CONSTRUCTING JANET6

After over a year of planning, coordinating procurements, and undergoing contract negotiations, we are pleased to now be three months into the rollout of the new Janet backbone - Janet6. This is the largest and most significant project Janet has undertaken in its 28-year history.

The Janet team is working with a range of delivery partners to build what will be one of the most advanced networks in the world. Janet6 will help the UK's world-class research and education sectors remain competitive globally.

Janet6 is underpinned by fibre-optic cable provided by Scottish and Southern Energy Telecoms (SSET) who are busy splicing 5,700km of fibre across the UK into 80 points of presence (PoPs). Much of the fibre exists and simply needs terminating in the PoPs where the Janet telecommunications equipment is located. However, at some locations, new fibre infrastructure will need to be built – this entails civil construction work, requiring all the necessary planning, permissions and work-force mobilisation that you would expect from this type of work.

Another of our key partners involved in building the infrastructure for Janet6 is Ciena. We have chosen Ciena's 6500 optical transmission platform, and products from this family will be deployed in all PoPs across the network. The equipment will be assembled into racks with power and control equipment at the supplier's staging facility where it will be commissioned before being shipped to the Janet6 PoPs to be installed and brought into service.

Building on our established relationship with Juniper Networks, we are working with them directly and also with Imtech, one of Juniper Networks partner organisations, to deploy their T-4000 and MX960 router platforms into the core of Janet6. Due to the size and functionality of these platforms, particularly the T-4000 carrier class router platform, we have had to consider requirements for space, power and cooling when planning for their placement into the PoPs.

Whilst coordinating delivery of these components, the Janet Network Operations Centre (NOC) has been preparing to take on the responsibility of operating the optical transmission infrastructure. This involves changes to operational processes and procedures; augmentation of the Janet management and monitoring systems; and undertaking training associated with the Ciena hardware and management systems. To complement and strengthen the existing expertise in the NOC, we are pleased to welcome Bhupendra Naik who has joined the senior Janet engineering team as an Optical Networking Specialist.

The regional network entry points for Janet6 are being hosted by a number of Universities. Without exception they have shown tremendous support and professionalism in accommodating the PoP hosting facilities, enabling site surveys and managing wayleave requests for cross campus fibre work.

We are on target and due to complete construction and acceptance of the network infrastructure by the end of April 2013. Following this, between May and July, we will be managing the transition of regional networks from the current SuperJANET5 backbone to Janet6. This process has been carefully planned so there will be no disruption to customers.

You can read more about the design and build of Janet6 on page 26 of this issue of Janet News. JN

Our Community group also provides the latest information on Janet6 https://community.ja.net/groups/janet6

THE CSIRT SURVEY RESULTS ARE IN

In Autumn 2012 we sent out our first CSIRT survey. Our aim was to get an insight into how you used our services and gather information about future developments that CSIRT and Janet might make with regards to our security strategy.

The results highlighted that whilst CSIRT is viewed as a valued resource, there is still a lot of work that we need to do to widen our reach — particularly to the FE members of our community.

We've identified a number of potential new products and services based on your feedback. The next step is to work with our product management team to see how these concepts can be developed into viable offerings for you. We'll be following up with some of you individually to discuss your ideas for further improvement, as well as to understand how our existing services are currently matching your network security requirements.

Your comments about the CSIRT presence on the Community site were very helpful. We are now looking at how to develop the quality and type of information that is published, to better meet your needs.

The next step
As a result of the survey, we are also reviewing the ways in which we shore up incident related data and intelligence, to ensure that it is distributed as quickly and as conveniently as possible. To that end, we organised a short online workshop where some of the ideas and possibilities about how we could better do this in the future were discussed with our security contacts from the community. We will be running more online workshops in 2013. Details will be posted on our Community group.

We hope to make the survey an annual event, and will be incorporating feedback from this year's survey into our 2013 strategy. JN

If you would like to learn more about Janet CSIRT please visit https://www.ja.net

To be kept updated on product development, join our Community group at https://community.ja.net/blogs/csirt

JANET COMPETITION
Where am I?

For a chance to win your own Janet water bottle, please answer the following question: In which city was this photo taken? (If you need a clue, we've added a larger version of this photo to the Janet News community group https://community.ja.net/groups/janet-news)

Send your answer to marketing@ja.net with the subject line 'JN20 competition' by Friday 8 March 2013 (remember to include your address).

Please note: the correct answer will be chosen at random; we will only contact the winner; the answer will be posted by Janet on the Janet News community group on Monday 11 March 2013; Janet staff may not apply.

MOVING TO MICROSOFT OFFICE 365 OR GOOGLE APPS?

GIVING YOU PEACE OF MIND AND SAVINGS OF UP TO £20,000

What is important to you when selecting a provider of cloud email and collaboration tools? At the forefront of your mind are most likely security, resilience, legal and data compliance, and correct functionality. The fact that most have free packages for educational institutions is a bonus.

In the last issue of Janet News we discussed how we will help you achieve this peace of mind with exclusive amendments and due diligence on around 100 pages of contractual documents for Microsoft Office 365. We will also be offering due diligence on Google Apps and are currently finalising these contracts. Both cloud-based solutions allow you to access email and calendars, web applications, instant messaging, file sharing, and document collaboration - anywhere, anytime.

Our work on the Microsoft contracts has already helped five universities move to Office 365. Goldsmiths University of London said that the advice in our document pack could save institutions up to £20,000; another estimates that a move to cloud services will save them around £1 million over five years, compared to a new in-house email option.

These exclusive amendments to Microsoft's contracts help to ensure your data is stored in the EU long-term. It also, importantly, gives you the right to access the independent audit of Microsoft's data centres so you can check security and resilience. In addition, there's guidance on what order to read the contractual documents so that you have a better understanding of your obligations from a legal and operational point of view.

As laws and directives are changed, and Microsoft and Google amend their terms and conditions, we will review our due diligence - ensuring you get the latest advice whether you're adopting the service for the first time, or renewing contracts.

This level of rigour on so many contractual documents carries large legal fees. Our mission is to ensure that we are able to take on this activity for you — saving you time and money. We are able to offer the Cloud Services for Education Agreements for a nominal annual fee of £500, available to purchase at any time. There are discounts of 10 percent and 20 percent available for three and five year subscriptions respectively. **JN**

You can find out more by contacting us on 0300 300 2212 or email service@ja.net

5 steps to your Office 365 upgrade

Microsoft will be in touch to help you plan your move to Office 365. Microsoft would like to help you complete your move by October 2013. Here are the five steps to help you achieve a seamless transfer:

1. **Read up**
   There is lots of information on our community website and through Microsoft's wiki (aka.ms/liveateduupgrade).

2. **Make a plan**
   What do you have in place at the moment and what might you want to move? What might you want to test?

3. **Be prepared**
   Check that your infrastructure and desktops will be compatible. Then build your test environment. Contact Janet to request the Cloud Services for Education Agreement by emailing service@ja.net

4. **Tell everyone**
   Speak to your communications department about how to ensure internal buy-in.

5. **Push the button**
   When you're ready to go, log into the Service Management Portal (eduadmin.live.com) and begin your upgrade.

SPEED DATING IS A RECIPE FOR SUCCESS

At our inaugural cloud event, Janet Brokerage brought senior university decision makers together with Janet framework suppliers to discuss how to make the most of the move to cloud.

Many attendees said this type of event would be good to replicate for their own procurements, as suppliers were put to the test in an efficient and effective manner. Time and money can be saved by getting the right people in the right place at the right time.

Andrew McCreath, Robert Gordon University said: "It was an extremely valuable day, with a good set of presentations, an understanding of our situation, a contrasting mix of approaches, and was well received by senior technical staff present. The suppliers had all presented a mature attitude in their approaches to the Cloud, emphasising that this journey was not just a simple move of services 'as is' but a question of how organisations use the migration to create an opportunity for business change."

It was a good opportunity for institutions to provide feedback to leading cloud infrastructure providers. Suppliers also found it gave them valuable insight into the sector, one noting it was "...a highly innovative event that created the environment for a very focussed set of cloud conversations".

The most successful procurements of cloud services involve a dialogue between supplier and customer to understand the desired goal. Several of the attendees have progressed with their journey to the cloud following the event. We are helping institutions produce comprehensive business cases, while others are having further discussions with suppliers. JN

If you'd like to know more about how we could help you move to the cloud, join the Janet Brokerage community group https://community.ja.net/groups/janet-brokerage

Find out more and join our online speed dating event on 26 February 2013 by visiting https://www.ja.net/events

twitter

Follow us on Twitter @Janet_Cloud

STOP PRESS / STOP PRESS / STOP PRESS / STOP PRESS

JANET ANNOUNCES IMPROVED COLOCATION SERVICE FOR CUSTOMERS

Following procurement through the Janet Cloud and Data Centre Framework, Eduserv has been selected from one of the eight world-class suppliers available.

Due to the increased capacity now available, we will be able to provide you with varying amounts of rack space in this fully managed, secure data centre. Unlike other commercial offerings, we'll be able to cater to smaller requirements, whilst still giving

you complete control of your servers, without the overhead costs. We aim to provide excellent value for money based on your individual needs. Indicative pricing for rack space starts at £3,200 per 8U for FE and HE organisations. However our prices can be tailored to your requirements.

Colocation enables you to supplement your own data centre facilities and provide resilience, without the need to run your own procurement. The

service also supports operations that require high availability and network connectivity, which would otherwise place a significant burden on your bandwidth, thereby impacting performance. JN

For further information about the service, including details of features as well as for pricing information, visit https://www.ja.net/colo or email Paula Smith, Colocation Service Manager at paula.smith@ja.net

SUPPORTING GOOD CAUSES

by Louise Cleaver

Over the last few years I've been taking part in cycling events with my dad to raise money for charity. After taking part in a 50-mile cycle ride last year, we decided that we would take part in 'The Wiltshire 100' event organised by Bike Event. I decided to raise money for the British Heart foundation, as it is a worthy cause, which has affected people close to me.

In preparation, we did an 80 mile training ride, so I knew that 80 was possible with just a little 20 miles to do – easy! Or so I thought. On the day, after 60 miles I was ready to give up! I had almost fallen off my bike after forgetting that my feet were held in place on my racer, which is important to remember! My knee gave out shortly after passing the 65 mile mark, but I was determined to complete the ride and wasn't going to give up.

The last 10 miles were cold and windy, but with tears in my eyes I crossed the finish line nine and half hours after we set off, relieved and exhausted. I raised over £513 thanks to the generosity of my fellow colleagues at Janet and my family.

We have now entered a ballot to take part in the Alzheimer's Society's 'Ride London 100' which will follow the route of the Olympic road race. We will know early next year if we are lucky enough to take part. JN

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by Lee Harrigan

If you had told me that a year and half after I joined Janet I'd be doing a half marathon, I would have laughed. But that's exactly what I did on the 14 October 2012 and in the process raised £1,600 for MacMillan Cancer Support.

MacMillan do amazing work to support people with cancer and in 2009, after being diagnosed with a tumour in my eye, I experienced their support first-hand.

There aren't enough words to explain how supportive they were to me, my family and my friends during this period in my life and I wanted to acknowledge how vital they are. Running 13.1 miles seemed like a good way to say thanks and help raise money to support the work they do.

I have now joined forces with some of my colleagues to take on a new challenge which is to complete six half marathons in 2013. Wish us luck! JN

SUCCESS AT THE 2012 JANET VIDEOCONFERENCING AWARDS

On 27 November 2012 we held our fifth annual Videoconferencing User Group event, at the National Space Centre in Leicester.

The event was attended by over fifty delegates in person, and a further fifty attending via an online video stream. The whole education sector was represented right through from Universities to Primary schools,

demonstrating the value and flexibility of this service to a wide and interested audience. The day featured talks from various Janet registered content providers including the Met Office, the Jorvik Viking Centre and Wardown Park Museum, as well as the Royal Shakespeare Company who talked about their video streaming project.

The awards ceremony, a notable highlight of the event, recognises and celebrates the contributions and advances made using videoconferencing within the community over the last 12 months. This year Anu Ojha, Director at the National Space Centre was on hand to

give out awards in three categories: Best Collaboration, Best Demonstration of Cost Savings and Best Example of Enhancing Learning. We would like to thank Polycom for sponsoring this year's awards.

The event offered delegates an excellent forum to discuss videoconferencing and the role that this technology continues to play in education, and how that role will evolve and change in years to come.

We have now added the presentations and recordings to our community group https://community.ja.net/groups/vc-user-group-event-2012

**For the category of
Best Collaboration**

SHREWSBURY SIXTH FORM COLLEGE AND VIRTUALLY UNIVERSITY

Anu Ojha, Director at National Space Centre, Sian Squires, Shrewsbury Sixth Form College, Nick Daman, Polycom and Rob Cullis, Virtually University

This award recognises their achievement in co-ordinating the provision of University lectures for a variety of different subjects via videoconferencing. The videoconferences gave pupils in secondary schools the chance to meet staff at Shrewsbury Sixth form before they progressed on to study there, and in turn, on to Sheffield University. Their videoconferences also enabled pupils to learn more about studying modern foreign languages at a university level, and also enhanced their AS level curriculum.

Sian Squires said "Thanks to Janet for this award. Virtually University provides a valuable service linking our sixth formers to universities. It's been fantastic to help Rob develop these links and to call on his expertise. I'm sure we have many more years of collaboration ahead of us!"

Rob Cullis said "Sian, and her colleagues ... have offered videoconferences to other schools via Virtually University. This is testament to the culture of the college and it has been a pleasure working with Sian. We hope that our collaboration with Sian will continue to evolve and are very grateful for this recognition from Janet."

**For the category of
Best Demonstration of Cost Saving**

SCARGILL INFANT SCHOOL

Anu Ojha, Director at National Space Centre, Nick Daman, Polycom, and Mina Patel on behalf of Scargill Infants School

Scargill Infant School were recognised for their varied videoconferencing programme, which demonstrated significant cost savings, alongside the exceptional effort that went into putting together a video entry.

Mrs Kath Keeper, Head Teacher said "At Scargill Infant School we can link hands with children across the world to improve our understanding of others and their lives. We can share our learning with other children which supports our ability to work together in the future. Through videoconferencing this can be achieved at no cost."

**For the category of
Best Example of Enhancing Learning**

OAKS PARK HIGH SCHOOL

Anu Ojha, Director at National Space Centre, Nick Daman, Polycom, Jeff Hawthorne and Linda Hayes, Oaks Park High School

Oaks Park created videoconferences that dealt with current issues including renewable energy and the London riots, for a variety of age ranges. Their programme demonstrated continual development over the six years that they have been actively involved in videoconferencing. Additionally, they have pioneered the use of videoconferencing outside of the classroom, developing knowledge sharing networks in their community.

Jeff Hawthorne, Assistant Headteacher said "Oaks Park are very pleased to receive this award. Videoconferencing has played a very important part in our effort to broaden the understanding and experience of our very diverse and multi-cultural community. We have worked hard to use this excellent resource to expand the horizons of those who do not always have the opportunity to travel and meet people from worlds very different from their own and we are honoured to be given recognition." JN

JANET AND WALES

INNOVATION, COLLABORATION AND TRANSFORMATION

By Paul Bevan,
Customer
Engagement
Manager, Wales

Janet and Wales share a long history, beginning with initial connections in Cardiff and Swansea to national delivery via the North and South Wales Metropolitan Area Networks (MANs) in the mid-nineties. Wales is also the birthplace of UK Public Service Networks (PSNs) where Janet played an instrumental role in founding the Public Sector Broadband Aggregation (PSBA) PSN.

For the first time, education, health and local government organisations, as well as the wider public sector were linked together on a single Wales-wide network. Even before this, Wales was the vanguard for change — with the two MANs giving way to the cross-sector Lifelong Learning Network Wales, which formed the blueprint for the PSBA.

As well as being at the forefront of Janet's regional networking developments, Wales has always been a leading user of Janet services, and the Janet Videoconferencing Service in particular. With the wide prevalence of good connectivity came increasing opportunities for sites to reach out to form partnerships which geography has traditionally made difficult. As the world of communications moves on, so too is the education community in Wales where the community is looking to Janet's groundwork with Microsoft and Google's cloud offerings to further this flexible approach to online communications.

A time of transition

Education in Wales is a devolved issue, with the Welsh Government taking a strong role in the development of both research and education at all levels. Nowhere has this been more obvious, or controversial, than in the reconfiguration of Further and Higher Education in Wales. As both FE and HE look to reduce considerably in number through consolidations and mergers, new group-based and multi-sector organisations are forming.

The Welsh Government has also put a strong emphasis on building Welsh research capability through focusing resources via the creation of National Research Networks, supported by multiple funding streams including the Sêr Cymru programme for bringing 'star' researchers to Wales. A specific output of this work is to ensure that Welsh education is well positioned to engage with partners in other sectors to extend and expand the impact of academic research. It is here that Janet's Business and Community Engagement policy is able to help Janet customers. This changing landscape is increasing the emphasis on fast, flexible and reliable connectivity options.

Organisations that have traditionally served a discrete campus of users, are now multi-site regional learning providers for whom networked resources and services are at the centre of a wide range of business critical services. Here, Janet's relationship with the PSBA has produced tangible benefits as organisations are able to avoid or reduce the number of expensive point-to-point connections used in creating their Wide Area Networks whilst using multiple Janet connections to ensure resilience.

By actively playing a central role in the development and management of the PSBA, Janet has worked with the community to ensure that the sector is firmly at the heart of network developments in Wales. With many of the Points of Presence (PoP) sites for the PSBA being located at key Higher Education institutions across the country, sites have also benefited from enhanced opportunities for new 'All Wales' services.

Building the future

As the first incarnation of the PSBA comes to an end, Janet is continuing to lead developments in Wales by collating and crystalising sector requirements over the next five to seven years. These are being taken forward through Janet's representation on the programme board responsible for the next generation of the network in Wales. This work has closely echoed the development and planning for Janet6, and Welsh sites are highly conscious of the need for fast global connectivity that the new backbone will provide.

In tandem, as the Next Generation Broadband Wales (fibre to the cabinet) programme rolls out, the underlying fibre landscape of Wales is beginning to change and this will bring new opportunities for connectivity across smaller sites in more rural areas. At the same time, the vision of change for 3-19 year-olds outlined in the 'Learning in a Digital Wales' report will drive increased expectations from students about online resources and remote learning opportunities.

This changing policy and technology landscape makes for an exciting time for research and education in Wales.

However, as the country moves forward towards the vision of becoming a 'Digital First' nation, the message from Wales is clear – reliable and flexible connectivity has been critical to the sector and will continue to be in the future. JN

Find out more or stay in touch via the Janet Wales community group https://community.ja.net/groups/janet-wales

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The last five years have changed the landscape of networking in Wales. The PSBA, through Logicalis, has delivered an extremely reliable networking infrastructure to underpin the public sector network and Janet services to HE and FE. Janet and PSBA are working seamlessly together ... Janet staff based in Wales and the Janet UK management team have really made a big difference through their involvement at every level in driving the PSBA project forward. There is a great appreciation of this in Wales across all the sectors and the Welsh Government.

The future is building services on the PSBA infrastructure and continually expanding the capacity for these services. For HE and FE this means Janet6 delivery, a highly resilient network topology with the bandwidth to satisfy the growing demand for cloud based services and research.

TONY OLLIER
Chair of the HEWIT (Higher Education Wales IT) group of IT Directors, Deputy Director of Information Services and Systems, Swansea University, HE Representative on the PSBA Management Board

STRATEGIC THINKING

Have your say: influence our strategic approach to developing the products, services and technologies that will meet your needs – now and into the future

The status to date

Subject experts within Janet's Strategic Technologies team have identified a series of key technology areas against which we currently operate a development programme. For each technology area, we are publishing a short statement setting out:

- our understanding of key market trends and customer needs,
- how we will respond to these factors,
- current and near-future projects and activities we are undertaking to realise our strategic positioning.

The strategy papers are now published on our Community website, as follows:

AREA	STRATEGY OWNER	URL
Technology approach	Mark O'Leary	
Access & identity	John Chapman	
Voice & video	Tim Boundy	
End-to-end performance	Rob Evans	https://community.ja.net/groups/strategy
Mobility	David Richardson	
Network technologies	Martin Dunmore	
Research Support	David Salmon	
Security	Coming soon	
Cloud services	Coming soon	
Collaboration tools	Coming soon	

These papers give insight into our plans, priorities and timescales, showing you where Janet will support you in realising savings and efficiencies through innovation.

Now we need your help

These strategy papers will be living documents, evolving to match the ever-changing technology landscape, and in response to you, our customers. We invite you to help us improve these plans by engaging with us and sharing your insights as to the future. Have we overlooked emerging trends or pressing requirements? Are there technology areas you would like to see included? Are these strategies well-conceived and valuable in your planning? Only you can tell us.

The better we understand your needs, the more closely our programme can be tailored to give you a competitive advantage. We will be actively seeking your input between now and Networkshop41, when we will get together with you informally, to review how these documents have evolved. JN

Join in

Join the conversation on the community website at https://community.ja.net/groups/strategy

We look forward to talking with you.

Cardiff University

SPOTLIGHT ON EILEEN BRANDRETH

We talk to Eileen Brandreth, Director of IT at Cardiff University about her ambitious plans for the future and how technology underpins future growth plans.

Cardiff University is a Sunday Times Top 20 University, with a breadth of expertise in research and learning and teaching of international distinction and impact. Based in the Welsh capital city, this prestigious Russell Group University has world-leading aspirations and the University's IT service provides the technology foundation on which these will be realised.

How is your IT department structured?

I'm responsible for 200 full-time staff. They're divided into three major teams: the Engagement team works with the University to understand needs and identify innovative ways to meet the requirements we have today, and those we anticipate hearing about in the future; our Service and Operations staff run the day-to-day IT service and our Technical Solutions team designs and implements the new solutions we require. I also work closely with Cardiff's Advanced Research Computing Centre (ARCCA) and my Chief Technology Officer to deliver High-Performance Computing (HPC) capabilities both internally to the University and across Wales.

What's a typical day for your Janet connection? Do you see differences between the usage and support needs of your research and teaching staff?

We transmit around 1.2 TB of data and receive around 7.8 TB every day but the patterns of usage are very different for research and teaching. Research demand is more sporadic and generally more intense in usage terms. It can create high peaks of demand or require continuity over extended periods of time. Learning and Teaching, and indeed the general administrative demands within the University, tend to be more predictable from a demand perspective. Traffic in the daytime is most commonly generated on campus but that transfers in the evening to student demand from the halls of residence. Inevitably there is cross-over, as some of our staff work collaboratively across time-zones and researchers never seem to sleep, but those are the general trends.

Bandwidth and resilience are both critical therefore to the University: I'm always thinking about how we can get more effective utilisation from our network and keeping an eye on areas where new educational and research models will change the demand on our technology. A good example of this is our forthcoming work with Futurelearn Ltd, a company majority-owned by the Open University. We'll be working in partnership with the Universities of Birmingham, Bristol, Cardiff, East Anglia, Exeter, King's College London, Lancaster, Leeds, Southampton, St Andrews, Warwick and others around the world to offer free online courses.

That sounds interesting ...

Yes, it's the UK incarnation of a trend that started in the US to widen access to, and meet the global demand for, higher education through Massive Open Online Courses (MOOCS) - a rapidly-growing initiative that's gaining traction in emerging economies like Brazil, India and China.

At least 17% of our student population in Cardiff is from overseas and our Vice-Chancellor is keen for us to expand our footprint outside of the UK. These are just the sorts of initiatives that will deliver that growth. We also already have significant international research ties with (amongst others) the Joint Oncology Research Unit in Beijing and a collaborative research and training facility, the Danau Girang Field Centre in Sabah, Malaysia. These all help to expand the reach of our research and our potential customer base but leave us heavily reliant on our WAN.

I understand that you are re-procuring your network. What developments are driving this re-procurement exercise? What technological developments are you building into the new network?

We are massively dependent on our network, and I can see plenty of potential for it to support our plans for future growth. The profile of our IT consumption has changed dramatically since we first connected to Janet in 2003; our internal network has grown organically by at least 7% year-on-year since then. We are seeing an explosion of demand for WiFi; with more than 15,000 tablets and smartphones registered for use on the campus (11,000 student devices and the rest owned by staff) and I don't anticipate those numbers dropping in future years. We see that network connectivity has reached a point of maturity that our staff and students just expect that it will work first time, every time just like electricity. There isn't the same level of forgiveness that there might have been a few years ago if things go wrong.

Clearly, we're going to have to upgrade to reflect both increasing usage and the way our students consume IT. All these changes mean we are looking to future-proof our cabling for higher bandwidths, planning for increased Power over Ethernet (POE) use for several services, and providing a significantly larger and more capable WiFi service.

How is the requirement for IT changing amongst the teaching staff?

There is an ongoing emphasis on providing more open access to course material, and using online and blended learning capabilities to enhance traditional campus-based methods.

One example is the new Masters in Educational Practice course being introduced by Cardiff's School of Social Sciences. This is a distance-learning course for brand new teachers in Wales to enable them to extend and enhance their professional knowledge, skills and practice. Because the students are full-time teachers, their teaching will be conducted online, making use of blogs, wikis, discussion boards etc, video and online lectures. This means that

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> *Technology forms the foundation of the University's wider business strategy and network accessibility is a fundamental requirement of everything we do here now and want to do in the future.*

24-hour reliability of our web-based services becomes even more crucial.

I am also seeing a growing use of collaborative tools to solve problems. Staff and students alike use chatrooms, shared communities and other Web 2.0 tools to look for advice, extend their own problem solving to wider contribution and resolve issues for themselves. It all comes down to access: the technology now exists to give them access to others, to a pool of existing knowledge and the ability to engage interactively to problem solve in a totally new way.

Are you seeing more requests for things to be moved into the cloud?

Yes and we ourselves are often driving this: our approach to cloud is relatively simple; we look for the most value adding service solution for University needs and, if that service happens to be cloud-based, then we will consider how we can use it safely and effectively.

Our new e-recruitment solution is provided as software-as-a-service (SAAS) and we are in the process of migrating to Office 365 for e-mail and calendar and implementing a cloud based HR and payroll capability.

Research generates huge quantities of data and we're not going to be cutting back on research, so we need to work out how to provide for this data explosion whilst managing it appropriately and protecting our intellectual property. Part of my remit is to provide simple risk management in respect of this information.

Going forward, the challenge with cloud services is for us to integrate these services in order to deliver coherent solutions and also to develop our staff in order to ensure that the University, and they as individuals, are well-placed to take advantage of the new opportunities. Finally, our obligation to provide services in the Welsh language can sometimes limit some of the cloud services that we are able to select, particularly in the Software-as-a-Service arena.

How does your network support your goals today – and how will it support them for the next five years?

Put simply, the network underpins the delivery of all IT Service across the University and is therefore vitally important to us. Technology forms the foundation of the University's wider business strategy and network accessibility is a fundamental requirement of everything we do here now and want to do in the future.

We seek technology-based solutions to resolve our practical and strategic issues and facilitating that transformation is a key role for me. Everything we do must be available wherever and whenever people wish to work and increasingly, on whatever device they happen to be using. Internet service provision will be vital and we anticipate growth from our existing two x 1 GB access points to three times that in the short to medium term, with further demand beyond that.

How do you see Janet supporting you to make your life easier?

Janet's capabilities will be behind much of our future collaborative work. The network is both our link to an increasingly widespread student population and the platform that will facilitate our involvement in some of the exciting schemes I've already outlined. And of course, on a day-to-day level we're reliant on Janet's reliable and flexible bandwidth.

What difference will Janet6 mean for Cardiff University?

Janet6 will give us the agility to react to the huge demands we already face and can anticipate, and those we have yet to meet. The University is looking to Janet6 to continue delivering a reliable and resilient network service which remains capable of reacting to high bandwidth research demands that can result from collaborative research activity such as the Ultra High Definition Video project.

We will need it to support our strategies for issues like the adoption of cloud-based solutions and to give us the flexibility to adapt to the as-yet-unknown game changers. For example no-one anticipated the level of smartphone adoption when we drew up our last strategy. Janet6 will also enable us to take advantage of the new initiatives and partnerships that will help us raise our profile and deliver a better service to our students. JN

WORKING IN PARTNERSHIP — 'JANET CONNECTED'

Janet Connected is an initiative that allows commercial organisations to connect to Janet for the effective and efficient delivery of network services to you, our community.

Commercial partners form a critical element of the service delivery chain. Our aim is to support you through the delivery of value-for-money and cost-effective services; services provided by working in partnership with the private sector, and utilising the high quality and high capacity communications infrastructure that Janet provides.

We currently have five Janet Connected Partners in place, with expressions of interest from over fifty other companies. However, a key criterion for involvement, remains the benefit to research and education in the UK, with the needs of the Janet community as paramount to these relationships.

Benefits

The Janet Connected programme builds on our ethos of enabling aggregated delivery of services, competition of provision and focusing on the needs of research and education. Our goal is to ensure you benefit from having a pool of suppliers,

in a range of technology areas that have a direct, physical connection to the core of the Janet network. This direct connection ensures you can have the confidence of network capacity, availability and reliability in the supply of any services offered through this programme.

Alan Hillier, Head of Telecoms, IT Services at the University of Oxford said; "Janet Connected is a very good brand ... it inspires confidence knowing that the supplier is only Janet Connected because they have been vetted and tested by Janet".

Commercial partners can expect that a direct, physical connection to the core of the Janet network will give them a preferred position to their commercial offering for the Janet community, and delivers the critical mass to help make delivery cost-effective. This will also be aligned to the "Janet Connected" branding, ensuring that community organisations understand the position such suppliers hold as partners.

This arrangement also offers commercial partners the ability to create opportunities and shape product development based on a clear understanding of customer requirements specific to the Janet community.

Early feedback has suggested specific cost savings can be generated. Telephony services and use of SIP has seen significant interest with two universities who have recently deployed solutions, identifying cumulative savings of around £100K per annum through utilising Janet Connected partners. JN

If you feel your organisation would benefit from this type of relationship, or you would like to know more, please contact Paul Wakefield, Customer Engagement Manager on 01235 822239 or email paul.wakefield@ja.net

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> The world comes to our door via Janet.

Picture courtesy of Genome Research Ltd

TALKING GLOBAL GENOME RESEARCH SHARING, WITH EBI'S EWAN BIRNEY

As Joint Associate Director at the European Molecular Biology Laboratory–European Bioinformatics Institute (EMBL–EBI), Ewan Birney knows all too well the challenges already faced, and those that inevitably will lie ahead, for the future of genome data analysis. And, importantly, the need to be able to share vital research findings with the rest of the world.

Speaking first-hand about the unprecedented developments in molecular biology over the last five years, Ewan shares his experience and foresight with us, and explains why he feels having a Janet connection is fundamental to these advances in research.

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> Advances we've already seen in data sharing over the last ten years have been incredible – one can only imagine and wait to see what the next decade will bring!

The EBI Data Centre

Ewan, tell us a little about EMBL-EBI and your specific area of research expertise.

The EBI is part of the European Molecular Biology Laboratory (EMBL), which is Europe's flagship laboratory for basic research in molecular biology. Our headquarters are in Germany, and I'm based at our Hinxton campus in Cambridgeshire. We're a non-profit organisation and a centre for research and services in bioinformatics. My specific area of research is algorithmic methods of genome analysis, and the group I work with is in charge of the nucleotide sequence databases at EBI.

In simple terms, we analyse and manage databases of biological information, along with other scientists and research organisations across the world. With technologies such as genome sequencing, fellow researchers and I are now focusing on how the individual components fit together, which creates a need for us to be able to share this information globally.

For example, a particular area my team and I are concentrating on at the moment is cancer. We're looking at how sequences differ between different cancer types – pancreatic, liver, etc. and trying to understand the changes in the sequences of the cancer genome, in relation to the individual person's genome.

What does the future hold for this area of genome research?

Over the next couple of years there will be even more focus on these particular areas of research into cancer.

Data volumes for the next three to five years will be driven by this research and analysis. The genomes we need for our research must be of the highest possible quality, so we need to generate a lot of them. And this is something that's happening worldwide, with scientists everywhere from Australia to Hong Kong sharing information.

Undeniably, the 1000 Genomes Project has embraced remarkable developments in research. Do you see this evolving and, if so, how?

Molecular biology has seen notable growth over the last five years, in DNA sequencing – which I'm heavily involved in – and DNA imaging. The cost of human genome sequencing has halved in this time, which has seen a vast increase in the amount of research being undertaken and the size of such projects. The 1000 Genomes Project is an example of this. Whereas a decade ago one human genome was used in DNA sequencing, this project has seen international researchers able to establish the most detailed catalogue of human genetic variation, thanks to new technologies – and the 1,000 anonymous participants, of course.

> **"**
> Every few months there's new data for the world to share, and for the world to use.

How does the Janet network support your work?

We need to be able to synchronise our data archive every single night, to allow the sharing of information across the world. Basically, without the support of Janet, we wouldn't be able to do this – the world comes to our door via Janet.

We've always had access to an archive of information, but there was a time when we could only access the European 'share' of this archive. Since we became able to share via the Internet it really opened up a whole new world for us. But, it also brought its own share of problems. Five years ago it was great – but now, the massive increase in data that needs to be stored and shared globally makes it harder.

> **"**
> With future developments, I'm delighted Janet is heading towards an update that will be the backbone of EBI.

We need to be able to share our research with the world, which is where Janet is so invaluable. There's an international consortium of scientists – from the University of Oxford to the Massachusetts Institute of Technology – between whom data is shared freely. But this information also needs to be updated and available freely. Every few months new findings become pioneering new data for the world to share and for the world to use.

With the developments you've talked about, surely there can only be an increased need for effective network capabilities?

At the moment we use 10 Gbit/s but this is now starting to get limited. And, as far as I can predict, data growth is not looking to slow down at all over the next decade.

Advances we've already seen in data sharing over the last ten years have been incredible – one can only imagine and wait to see what the next decade will bring! With these advances will only come an increase in the need for a network with the capability to handle these volumes. We need to be able to send and receive data via the Internet, quickly and seamlessly. We must be able to share data with our colleagues, everywhere from Hong Kong to the USA.

It's not just the UK capacity that's necessary – it's across the entire world. And this need is only going to get bigger. JN

JANET CERTIFICATE SERVICE IS CHANGING

In 2006, Janet launched its Server Certificate Service (SCS), partnering with the certificate authority, GlobalSign to provide Organisation Validated (OV) server certificates. Six years ago, every request for a server certificate had to be made via email, with our Service Desk manually completing paperwork before it could be sent for processing. Eventually you would receive the required certificate from GlobalSign.

In late 2009, a new service was procured by TERENA (the Trans-European Research and Education Networking Association), enabling 30 National Research and Education Networks (NRENs), including Janet, to act as resellers for the certificate authority, Comodo CA. To coincide with this new service, we developed an online service, streamlining the process for our community to obtain these server certificates. As registry operator for .ac.uk and .gov.uk domains, we were also able to automate the process for customers requesting certificates containing these domain names.

Continuous improvements

Since introducing the automated process, we've continued to develop the service. We have worked with our community taking on board suggestions on how to further improve functionality. Some of these enhancements have included refined certificate signing requests error checking, support for Local Authorities to obtain .sch.uk domain-based certificates, extensive system user feedback, and integration of a new security step to improve certificate

request verification, in line with industry recommendations. The Janet Certificate Service (JCS) has proved to be a popular service, with over 700 subscribers participating today. Since 2006, we've issued a total of 35,000 Organisation Validated (OV) server certificates to UK research and education organisations. This equates to a saving of over £3.5 million across the sector.

Providing reliable certificates

At Janet, we're mindful that users should remain protected when accessing websites. One way in which we contribute to this goal is to issue server certificates that offer reasonable levels of assurance as to the identity of the website host.

Domain Validated (DV) certificates are issued without checking the legal status of an organisation, so the process is quicker, in part due to automation. These certificates are only issued to organisations where the ownership of the domain has been validated. End users can be assured that the data they are transferring is encrypted.

OV certificates issued through the Janet Certificate Service, require additional checks to be carried out that verify the identity of the organisation requesting the certificate. This provides greater assurance to end users about the site they are visiting and that they are sending their transaction data to the intended recipient.

Extended Validation (EV) certificates provide the highest level of assurance; the address bar of the website is usually highlighted in a different colour.

The Certificate Authority/Browser (CA/B) Forum (in effect the industry regulator) is pushing hard to standardise processes and validation checks in the issuance of all types of server certificates across the globe. Janet fully supports the move to improve end user assurance and online security, as well as best practice across the Internet.

Type of Certificate	Use for type of domains	Checks	Process for obtaining certificate	Level of assurance
DV	To secure Fully Qualified Domain Names	Verifies the certificate requester owns the domain for which the certificate is being requested.	Two-step process: submit an application, and respond to a single email from Comodo with additional information.	Enables encryption of data being passed between the user's web browser and the web server.
OV	To secure a specific IP address, or an Internal Server Name	Verifies the certificate requester is a legally registered organisation; confirms the organisation is the owner of the domain.	As above, plus additional steps: verification via telephone; validation by Comodo before certificate is issued.	Enables encryption of data; populates the 'O' and OU' fields in the certificate with the name of the certificate requester.
EV	To secure a high profile website, providing high levels of assurance: changing the colour of web browser address bar.	Verifies the certificate requester is a legally registered organisation; confirms the organisation is the owner of the domain.	As above but additional paperwork to sign and fax back to Comodo before certificate is issued.	Highest assurance. Enables encryption of data; populates the 'O' and OU' fields in the certificate with the name of the certificate requester.

The future of JCS

We regularly review all our services to ensure that they still work for you. The JCS has been identified as one that is particularly valuable to you, but to guarantee its future availability, we will be introducing a charging model.

Our aim is to move the service to a self-sustaining position whilst continuing to offer our customers a high quality service that represents excellent value for money through ongoing service development.

Whether you're an existing customer, or new to the service, you can use our online system to request free certificates for all your domains

including .ac.uk and .gov.uk, until 30 April 2013. From the beginning of May, we will continue to offer Organisation Validated certificates at competitive prices, ensuring we offer you the best value for money.

If you have any queries about the service, please get in touch — the Janet Service Desk is available on 0300 3002212 or you can email tag@ja.net. **JN**

You can find information about the JCS and the new charges on our Community website at https://community.ja.net/groups/janet-certificate-service

The Janet Certificate Service offers:

- TERENA DV, OV and EV single and multi-domain certificates — you can now obtain these certificates with just a click of a button
- certificates that can be used on systems where financial transactions occur
- automated renewal reminders, easing the management burden
- a simple-to-use, convenient, online portal.

From 1 May 2013, we will also be introducing the following new features:

- purchasing options, which will be available through the online portal
- a range of certificate types available for your organisation, via the online portal.

WE WILL CONTINUE TO KEEP YOU UP TO DATE ABOUT CHANGES TO THE JANET CERTIFICATE SERVICE, BUT IF YOU WOULD LIKE TO HEAR ABOUT THE LATEST NEWS AND DEVELOPMENTS FROM THE WIDER INDUSTRY, PLEASE JOIN OUR COMMUNITY GROUP AT HTTPS://COMMUNITY.JA.NET/GROUPS/JANET-CERTIFICATE-SERVICE DETAILS ABOUT THE FORTHCOMING CHARGES WILL ALSO BE MADE AVAILABLE HERE.
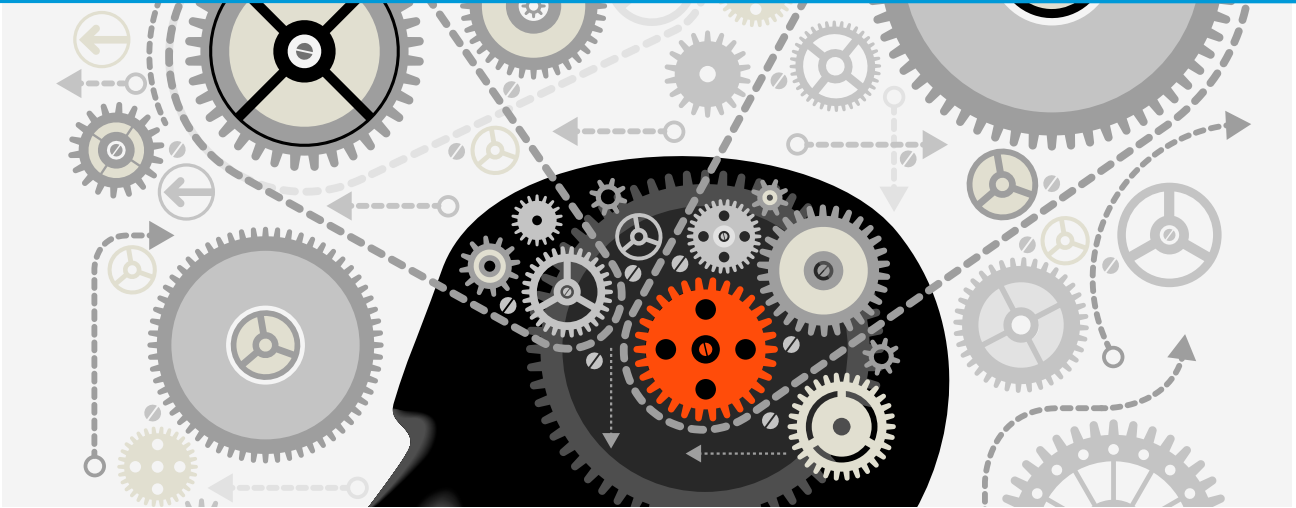
JISC TO CO-DESIGN AND CO-INVENT FOR 2013

Jisc, the holding company for Janet, is evolving. Over the coming 2012/2013 academic year education, research and learning providers will see Jisc and Janet work with them in a different way, including how it plans and carries out its innovation work.

Jisc will be running a pilot co-design programme in partnership with some of its key stakeholder associations, UCISA, SCONUL, RLUK and RUGIT. It will be seeking to define both what Jisc could create and how it should create it.

Sarah Porter, Jisc's Head of Innovation explains, "We will be developing and testing out new processes for innovation - working through a clear lifecycle process to make it clear how an idea moves from concept to product and service.

"Our vision is to co-design and co-invent projects and programmes with, our users and customers, to deliver solutions to meet their day-to-day challenges.

"Our community has told us that they would like tangible and practical products and services for today. They have also said that they would like us to be working on the technological trends for tomorrow. Our new approaches will be targeted to address these different perspectives."

Janet will still be delivering the academic network, products and services but will be working across the Jisc organisation to strengthen its offering. With this new approach in mind 2013 will see Jisc deliver a suite of resources and services to support the UK in the use of digital technology for education and research including:

- A Software Hub - a platform for easy access to open source software for research and education
- A library analytics suite to assist financial planning and strategic decision making for information management professionals, colleges and universities
- A research data registry to ensure research data can be discovered and re-used by others to improve research
- Research Information for Re-use - working with the Gateway to Research to develop interfaces for research information. JN

Find out more about what Jisc can do for you by visiting www.jisc.ac.uk/funding

ON TARGET WITH AIM

Over the last decade, access and identity management (AIM) has moved from a development activity into a critical and integral part of the core business of research and education institutions. AIM plays a key role in areas where access needs to be regulated. These areas include access to wireless networks, library catalogues, electronic publications, through to research systems or other electronic resources.
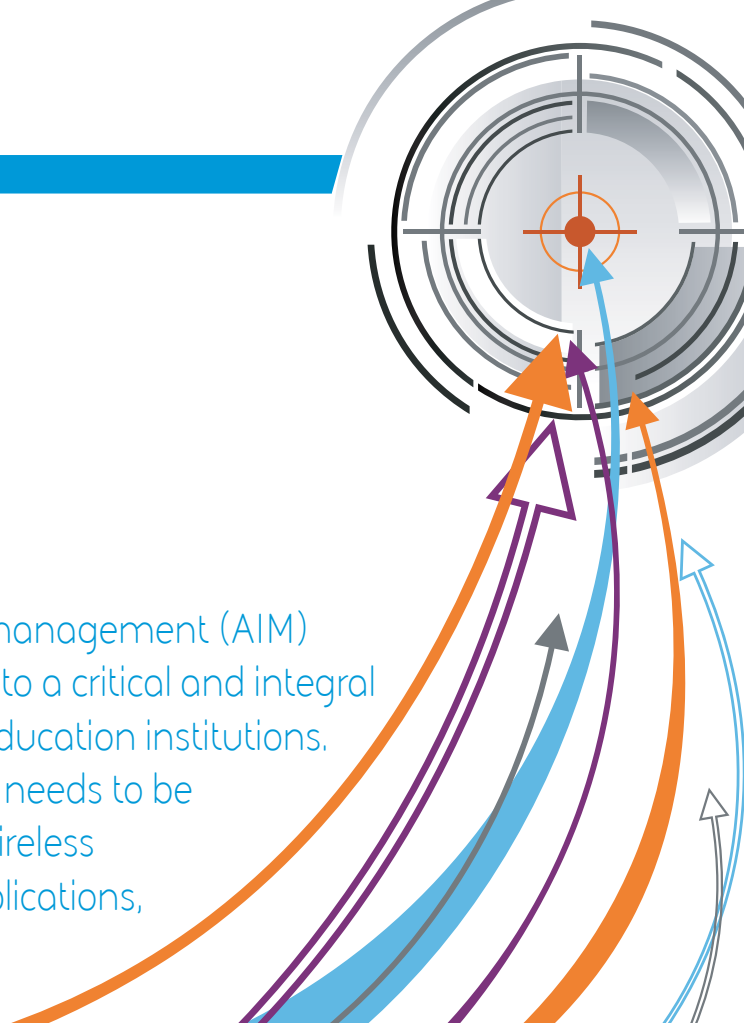
The transition into new Jisc presented an opportunity to review all AIM activities undertaken by Jisc organisations to support the research and education community. The AIM Review looked at services operated by Janet and Jisc Collections (eduroam(UK), the Janet Certificate Service and the UK Access Management Federation) and also development and international liaison activities undertaken across the Jisc companies, including Project Moonshot.

This internal review recommended a rationalised and joined-up approach to development and service delivery with a focus on customer requirements to deliver maximum value to our community. Work is now underway to address the identified issues, including establishing a single function with responsibility for the leadership, management and coordination of all aspects of AIM services, service developments, research and innovation.

Over the next few months we will be consulting with the user community to provide input into a single comprehensive Jisc AIM strategy and also reviewing existing AIM service infrastructures with a view to achieving efficiency savings by combining processes, policies and technologies. This work will ensure Jisc continues to provide the AIM services, tools, best practice and policy frameworks that the community needs.

Moonshot – federate anything and everything

Moonshot has been developed to provide a cost-effective solution for secure federated access to non-web applications. Led by Janet, in partnership with the GÉANT project and others, Moonshot technology enables the management of access to a broad range of services and applications, including cloud infrastructures, High Performance Computing and Grid infrastructures, and commonly deployed services such as email, file store, remote access and instant messaging.

Moonshot is expected to significantly improve the delivery of these services by providing users with single sign on capabilities for a wider set of services and infrastructure. Providers will be able to offer their services more easily to users from other organisations using a single common authentication mechanism. This will enhance the user's experience, and reduce costs for those organisations supporting users, and delivering services to them.

Following a successful development phase, we will be launching a Service Pilot on 2 April 2013. The Service Pilot will provide a Janet-managed trust infrastructure that will allow organisations to effectively manage user identities and control access to a wide range of web and non-web services and applications. JN

If you are interested in participating in the Moonshot pilot you can can find further details on our website https://www.ja.net/products-services/janet-futures/moonshot.

You can find out more about Moonshot on our community group https://community.ja.net/groups/moonshot

JANET6: AN OPTICAL TECHNOLOGY PRIMER

With activities well underway for the construction of Janet6, we'd now like to share with you the detailed plans for the network infrastructure — from evolution to the architecture designs and equipment for this super-fast network.

In developing Janet6 we've sought to build on the excellent capabilities of SuperJANET5, which came into service in 2006. At the time, SuperJANET5 had circuits of 10Gbit/s, and the flexibility to upgrade to 40Gbit/s. In that time the infrastructure has been upgraded to carry 40Gbit/s and then 100Gbit/s ethernet circuits on some of the links.

However, those upgrades have presented a number of challenges as the original equipment was not able to carry the higher-speed circuits over the fibre we used. As has been described in the article on page 4, Janet6 will replace both the fibre and the transmission equipment with new systems that are able to transmit high-speed signals nationwide, without regeneration, and this article will explain some of the technology behind that.

The high-level architecture of Janet6 will remain much the same as SuperJANET5 — working down from Glasgow and Edinburgh a "ladder" of fibre that passes through Manchester, Leeds, Birmingham, Nottingham, Bristol and London. Birmingham and Nottingham are new backbone locations in Janet6 and will increase resilience with the addition of an extra "east-west" link across the country. Fibre will then reach from the backbone to two points on each region or regional network.

On top of this fibre will sit the Ciena 6500. This system has a theoretical capacity of 88 channels at 100Gbit/s each, for a total of 8.8Tbit/s. This is far in excess of our current planned requirements, but this long-term investment will provide the flexibility for network growth, as required, for the forseeable future.

Other than raw capacity, some of the key components of the 6500 that make it suitable for Janet are the Wavelength Selective Switch, and Coherent Detection. The Wavelength Selective Switch (WSS) is used in a number of advanced dense wavelength-division multiplexing systems and utilises array waveguide gratings and mirrors mounted on tiny actuators. This enables it to take a fibre carrying up to 88 wavelengths in one side, and split those wavelengths across a number of output ports in any combination. This can all be controlled remotely from Janet's Network Operations Centre (NOC), enabling wavelengths to be routed around the network dynamically. This means that new wavelengths can be provisioned by simply inserting interface cards in the equipment at either end which removes the need to send engineers to all the intermediate points when provisioning wavelengths.

Coherent Detection uses a local reference light source in the optical receiver to match the frequency and phase of the signal being received to effectively "tune in" to the signal. In contrast, older systems used a series of filters to drop all the other wavelengths and pass the received signal to a wide-band photodetector. Coherent detection is more complex, but far more sensitive and enables the new systems to drive 100Gbit/s signals across the length of the country without having to pass through a cycle of "regeneration" to clean it up -- i.e. being detected, converted to electrical signals and sent out as a new optical signal.

On top of these wavelengths, more complicated encoding schemes allow for better use of the optical bandwidth. Dual-Polarisation Quadrature Phase Shift Keying allows for 100Gbit/s signals to be carried within 50GHz of the electromagnetic spectrum. In this, the 100Gbit/s signal (actually 112Gbit/s once the overhead is taken into account) is split into two 50Gbit/s signals that will correspond to two modes of polarisation. Each of these 50Gbit/s signals is then halved again to 25Gbit/s and used to modulate the "in phase" and "quadrature phase" of the carrier. As well as the efficient use of spectrum, this lowering of the bit rate also contributes to the reach of the signal.

By managing the optical equipment directly at our NOC, we can exploit the flexibility offered to us by these technologies. We will also be able to get a better gauge of what is happening across the network and respond to new requirements, without the overhead of further upgrades. This has just been a very brief introduction to some of the technologies used at the start of Janet6 — so where do we go next? Just as we're getting our head around DP-QPSK, it turns out that beyond 100Gbit/s we're probably looking at Quadrature Amplitude Multiplexing (QAM), to double the spectral efficiency, and replacing fixed 50GHz slots on the spectrum with "flexgrid" and liquid-crystal based WSSs. JN

You can read more about the technical design of Janet6 on our blog https://community.ja.net/blogs/janet6/article/healthy-dose-fibre

WHAT YOU SHOULD KNOW ABOUT RIPA

It is a rare occurrence for an IT security incident to have life threatening repercussions but when they do, organisations may receive a law enforcement request commonly referred to as RIPA.

What is RIPA?

The Regulation of Investigatory Powers Act 2000 or RIPA is an Act of Parliament that allows designated public bodies to acquire communications data. For Janet customers, it is commonly used by law enforcement and child protection bodies to track Internet communications down to an individual user.

You are most likely to receive a request originating from the Child Exploitation and Online Protection (CEOP) Centre, your local police force, and less frequently from national crime agencies. Often these agencies will use Janet CSIRT as an initial point of contact and we will pass the request on to affected sites as a priority.

The Home Office manages a registrar of SPoCs (Specific Point of Contacts) who are the only authorised persons permitted to send RIPA requests. We have access to the Home Office RIPA database and can verify that a RIPA request you've received is from a permitted and valid contact.

Are you prepared?

To help you manage RIPA requests we recommend that you:

- Check that your security contact details are up to date (including out of hours details) in case a life threatening incident occurs on your network. The Janet Service Desk or CSIRT can assist in checking and updating these details.

- Ensure that your institution has a complete and thorough logging system of all web traffic and other associated logs so that such requests can be dealt with at a technical level. You should check that you can track users through the logs.

- Make sure that you have a clear procedure in place for dealing with requests.

- Ensure that senior management within your organisation is aware of the RIPA process to avoid any delays in passing the results of the request on to the police in a timely manner.

CSIRT assistance and reassurance

We will assist in the technical aspects of an investigation and help to ensure that the communication gets through to the correct contacts. We explicitly request that sites do not send personal data of affected individuals (such as names or incident details) other than what we may need to assist you with the incident.

There have been concerns in the past about the usage of RIPA by authorised public bodies such as local authorities to perform lawful interception on its residents for civil issues. As far as we are aware we have never received an unsubstantiated or frivolous RIPA request.

Most commonly, police forces have experienced RIPA requests regarding consumer broadband connections. Therefore many requests may not initially contain enough data to track the requested connection through NAT or proxy servers. Part of our role is to help the police better understand what is required. By explaining the situation to the police, they can be more forthcoming with the data required to track the connection. JN

For one-to-one technical advice, email irt@ja.net or call us on 0300 999 2340

You can read more about security issues on the CSIRT blog https://community.ja.net/blogs/csirt

twitter

Follow us on Twitter @JanetCSIRT

RIPA REQUEST GRADING

RIPA requests come in three grades, which reflect the level of severity and urgency of the enquiry. Often if a grade 1 or 2 RIPA request is received out of standard working hours we will be in contact immediately to the out of hours phone numbers of security contacts.

The grades of a RIPA request are generally defined as:

Grade 1
These requests are incidents which involve an immediate danger to life. These are extremely critical and the police expect out of hours work and communications in order to protect vulnerable persons. An example of such a case could be someone attempting to take their life.

Grade 2
These requests relate to important, time-critical investigations but do not have an immediate life-threatening element. Previous incidents of this severity have involved priority investigations such as a murder inquiry.

Grade 3
These requests are commonly used for investigating less time critical or severe crimes. Common examples include threats or fraud.

JANET SERVICE DESK: MORE THAN A HELPING HAND

Many of you will be familiar with the Janet Service Desk (JSD) as the team is your first point of contact with Janet. The JSD fields enquiries into the organisation and ensures that they are dealt with in a timely manner. Alongside these duties, JSD, in conjunction with the Network Engineering Group and the Core Architecture Team, help maintain Janet's core infrastructure by pro-actively monitoring each of the 1500 circuits that make up the network, tracking and progressing any faults that occur through to their resolution.

The Janet network runs the length and breadth of the country and is joined together at six major Points of Presence (PoP), from Glasgow, through Leeds and Warrington, Reading, London and Bristol. From these PoPs we connect to the regional networks that have their own infrastructure and connections to our customers in those geographical areas.

The Janet network has been designed to ensure that all routes throughout the core infrastructure have, in case of an outage, an alternative route, providing resilience and minimising problems. This resilience is, of course, tested when outages occur and JSD is part of a dedicated team on hand to identify, track and resolve faults. Given the scale of our core infrastructure, the challenge is to ensure that every circuit is up at all times.

Peace of mind 24-7

Our ethos is to be open with our community, so we endeavour to keep you informed of any issues that affect your connection. JSD works beyond normal office hours to reflect the demands of our customers.

During these hours, we have direct contact with our engineering resource based in London, which enables us to respond quickly to incidents and also provide valuable information to third party suppliers so they can begin working on a fix.

Outside of these hours, a network engineer and a core architect are on call to deal with any major issues across the Janet infrastructure, ensuring that we provide 24-7 cover throughout the year.

JANET SERVICE DESK OPENING HOURS

The Janet Service Desk is open Monday to Friday from 07:00 to midnight.

We also run a limited desk on Bank Holidays 09:00 to 17:00 and on Saturdays and Sundays 09:00 to 19:00.

To check our opening times, please visit https://www.ja.net/support-advice/support/janet-service-desk

In order to maintain the health of the network, we schedule a weekly, two-hour window in which we undertake most of our work although other periods are sometimes used. Customers are alerted to these System Maintenance Periods (a process conducted by all ISPs), which are scheduled on Tuesday morning between 07:00-09:00. To minimise the impact of this, we keep a calendar of expected work and cross-reference any new work so that it doesn't have too large an impact.

Spotting problems quickly

Alongside our role of monitoring and tracking issues across the core network, we are also responsible for monitoring the connection of over 400 Janet customers. Any perceived outage to a customer connection is investigated and ticketed within 15 minutes of our spotting the first monitoring alarm

— we also call you with a reference so you can keep track of the issue. For faults that involve multiple sites, we provide up-to-date information through our 'trouble tickets' where an email is sent to customers whose connections are geographically located within the area of the fault.

We have developed long-standing relationships with third party suppliers and this helps to ensure that faults are investigated as soon as possible. Given the number of connections we have with each of our suppliers, as well as the relationships we have built over the years, we can encourage them to focus on our customers' outages until they've been resolved.

We have clearly defined escalations paths so that if outages unexpectedly run over our stated SLA, 100% focus is

given to escalating and resolving the issue. We have regular meetings between all engineering parties to highlight any potential faults and develop solutions, so that we cover all bases.

Committed to providing excellent service

JSD is committed to providing the best service possible to you, be it via our incident-related communication, our excellent interaction with the engineering teams in London, or the strength of the relationships built with third party suppliers. We hope that our efforts, through the continued reliability of the core network and our commitment to keep individual site faults to a minimum, provide you with a network that meets all the needs of your organisation. JN

You can contact JSD on 0300 300 2212 or email service@ja.net

REDUCING ONLINE COPYRIGHT INFRINGEMENT

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

Contrary to popular opinion, finding material (words, pictures, films or music) on the Internet does not mean you are free to copy or reuse them. Copyright for online works the same as copyright for offline; unless an author or creator explicitly permits copying or reusing material, doing so is likely to break the law.

The majority of universities, colleges, schools and other Janet customer organisations have always been quick to get the message out and deal with any complaints about their users' behaviour. The Janet Acceptable Use Policy (AUP) requires customers to deal effectively with all reports of copyright infringement. As a result, the level of complaints that we see is much lower than that of ISP networks of equivalent size.

In 2008 the Government looked at how to reduce online copyright infringement. The Digital Britain Report concluded that ISPs needed to warn their subscribers about copyright infringements (something Janet customers were already doing under the AUP) and that court cases should concentrate on repeat infringers who ignored these warnings. When this was debated in Parliament, the

Government was asked to exclude organisations such as libraries, schools, colleges and universities. While recognising the good work we already do, they didn't consider an exemption appropriate. The Digital Economy Act, covering all UK Internet connections, became law in 2010; Ofcom, as telecommunications regulator, was asked to develop the necessary implementation Codes.

> **"**
>
> Organisations should also ensure that any contracts for commercial WiFi hotspots make clear that users will be treated as 'subscribers' of the ISP

The Act's model of the Internet is simple: 'ISPs' provide connections to 'subscribers'. Each has a different role in enforcing copyright: ISPs forward complaints and information to the relevant subscribers; subscribers prevent infringement or at least keep it below the 'serious' threshold of three complaints in a year. Any organisation complying with the Janet AUP should already be doing more than the Act requires of an ISP.

Unfortunately it is unclear how to fit the Act's definitions of 'ISP' and 'subscriber' to anything other than domestic broadband connections. This raised a concern that organisations might count as 'subscribers', which would stop them dealing with infringing users (since ISPs will not pass on every complaint they receive) and make them 'serious infringers' if they exceeded a threshold designed for family homes. Janet has worked with Ofcom and rights-holders to prevent this happening to our customers and damaging our existing effective measures to reduce infringement.

Ofcom's latest draft Code now addresses the position of libraries, schools, colleges and universities. These organisations almost always provide Internet connectivity to users under a wider agreement, in which case they will count as ISPs, not subscribers. Ofcom also recognises that the current level of infringement on their networks is unlikely to reach the qualifying threshold for reporting to Ofcom and paying its fees. Janet can therefore continue to help copyright holders report infringements to customer organisations, and to require those organisations to deal with complaints under the Janet AUP. We will also assist with guidance such as our factsheet on Investigating Copyright Complaints[1] and UCISA's standard Copyright Infringement Notices[2].

The Code also recognises that a library, school, college or university may obtain Internet connectivity from a commercial ISP. In this situation, there is a risk that the ISP may not notice that these customers are different and treat them as 'subscribers'.

Organisations should ensure that contracts make their status under the Act clear, and tell the ISP if it mistakenly sends them a 'subscriber' letter. Organisations should also ensure that any contracts for commercial WiFi hotspots make clear that users will be treated as 'subscribers' of the ISP.

The Code has taken longer than expected to develop, but its recognition of the good work that Janet customers do to reduce copyright infringement is welcome. With legislators now discussing improved enforcement of other aspects of the law online, we need to continue to demonstrate and explain our good practice. **JN**

You can find further information on developments in this area at https://community.ja.net/blogs/regulatory-developments/tags/Digital-Economy-Act

twitter

Follow us on Twitter @Janet_LegReg

[1] https://community.ja.net/library/janet-services-documentation/investigating-copyright-complaints [2] http://www.ucisa.ac.uk/groups/ng/bestpractice.aspx

REGIONAL NETWORK DELIVERY

Almost all Janet customer connections are delivered via regional networks, each connected to the Janet backbone, and then to the Internet. The cost of regional networking is a significant fraction (~40%) of the total cost of Janet.

During 2009, we reviewed our approach to regional delivery in response to anticipated reductions in central funding and increasing demand for services, in particular the growing bandwidth needs of customers. The review concluded that we should move from a model of outsourcing regional delivery through contracts with 14 regional network operators, in favour of a more directly managed model for regional delivery.

The review identified in-house network operation as the preferred means to implement this strategy, whilst also recognising partnership in a public services network as an appropriate delivery model in certain circumstances.

A programme of work began in 2009 to implement the recommended changes to regional delivery over a period of approximately five years.

Progress

In 2009 there were 14 regional networks operating under contract, whilst Janet itself operated a further three regions (Thames Valley, East of England and West Midlands), and partnered with the Welsh PSBA network to deliver Janet connectivity in Wales.

Since then, we have worked with the operators listed in the table below to transfer these regional networks to Janet management.

Updates by region

In Aberdeen, Fife & Tayside, and South West England, new network infrastructures have been procured as existing contracts came to an end, with Janet assuming responsibility for management and operation of the new network.

In London, the existing network has been retained and upgraded, again with Janet taking on network management and operation.

In South East England, the LeNSE network has been retained, along with the (outsourced) contract for network operations. It is expected this arrangement will continue until 2014, by which time a new network will be procured and subsequently operated by Janet.

In Kent, Janet has become a partner in the Kent Public Services Network (KPSN), and Janet connectivity in the region is now delivered by KPSN.

As a result of the above changes, it is estimated that savings of £1.2m pa have been achieved, broadly in line with original estimates of total savings of £2.5m p.a. across the whole programme.

During the course of 2013 we will be working with East Midlands MAN, Net North West, NIRAN and NorMAN to transition these networks to Janet management. JN

REGIONAL NETWORK INSOURCING

Regional Network Operator	Region	Number of Janet primary connections	Transition date
AbMAN	Aberdeen	4	Aug-2010
FaTMAN	Fife & Tayside	8	Sep-2012
KentishMAN	Kent	15	Sep-2011
LeNSE	South East England	70	Sep-2012
LMN	London	137	Nov-2010
SWERN	South West England	68	Sep-2012

EVENTS & TRAINING CALENDAR

FEBRUARY

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

EVENTS

Online Cloud Speed Dating

26 February 2013

Aim

Meet some of the world's leading suppliers of cloud and data centre services in a virtual environment. Discuss your journey to the cloud and see what they have to offer.

Hear how Janet can work with you to help you save time and money when procuring these services through our Cloud and Data Centre Framework.

To find out more and book your place please visit https://www.ja.net/events

UCISA 2013
13 – 15 March

BT Convention Centre, Liverpool

The premier IT event for UK universities and colleges

Janet is exhibiting at this prestigious event and would like to invite you to visit us on our stand and speak to a member of the Customer Engagement team.

Cloud Speed Dating

10-1pm, 13 March 2013,
BT Convention Centre, Liverpool

We are holding a Cloud Speed Dating event for senior decision makers in higher education, further education and research institutions before the UCISA conference in Liverpool on Wednesday 13 March.

This event will give you an opportunity to meet cloud and data centre suppliers who have gone through a rigorous procurement process with Janet to ensure they can meet the needs of the research and education sector.

- Find out how Janet can save you up to 80 days work and £100k with your plans for the cloud,
- Talk to other institutions looking to move to cloud infrastructure and managed data centres,
- Meet leading cloud suppliers for the sector,
- Tell suppliers what you want from them.

To find out more and book your place for the event please visit https://www.ja.net/events/janet-brokerage-supplier-speed-dating

Networkshop41

9 April – 11 April 2013, Keele

Aim

Networkshop41 offers a unique opportunity to present and discuss technical and practical aspects of providing advanced network services and applications to the research and education community in the UK.

Experts from within the Janet community and further afield will be presenting on issues that affect you along with practical hands-on workshops and discussion groups.

Who Should Attend

The conference will be of particular interest to network managers and technical staff from the UK research and education community. The conference provides a forum for technical updates and discussions on current and developing networking technologies, bringing together expertise from all fields of networking.

Other professionals with an interest in research and education networking and network-enabled services will also find the event very useful.

To find our more and book your place please visit https://networking.ja.net

Learning & Performance Institute

TRAINING

Janet runs a portfolio of one-day courses specifically written for the Janet community and delivered by experts working in UK 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. The 2013 schedule can be found at https://www.ja.net/training/schedule-and-booking

Basic Networking for Service Desk and Support Staff

26 February 2013, Manchester

Course overview

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 is now supporting 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: Building Management Systems (BMS), door controllers, streaming video, guest wireless networks, external partner collaboration, VoIP telephones remote access etc. The practical focus of this course is 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 problems.

Benefits

This course aims to provide delegates with a sound base knowledge of the technologies, terminology and information required for basic troubleshooting of the network. These skills will help increase the first line fix rate and improve the recording of incidents and identification of problems.

Who Should Attend

This course is of benefit to anyone from an organisation connected to Janet who wishes to gain a better understanding of basic networking but it is specifically aimed at Service Desk/Help Desk staff, Immediate Response Teams, Residential Networking support staff and technicians.

DEVELOPING YOUR WHOLE 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 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.
Tel: 01235 822242
Email: training@ja.net
Web: www.ja.net/training

twitter

Follow us on Twitter @janettraining

CUSTOMER ENGAGEMENT TEAM PROFILES

GUY SUDRON

Guy joined Janet in January 2011 from LeNSE, the regional network operator in the south-east. Based in Farnborough, Hampshire, and covering from Oxfordshire to Kent, Guy brings over 18 years of experience in the public sector, including HE and the MoD, to his CE role for the south-east.

Over the last few months I have been working on the transition of the LeNSE network to Janet. Following the successful transition of LeNSE, the next priority is the re-procurement of the network. It is vital that the new network meets the needs of a diverse community and addresses key concerns of increased bandwidth and resilience.

Outside of work, my interests lie in hi-fi equipment, music and gadgets — all taking a back seat due to a house renovation project. **JN**

PAUL WAKEFIELD

Paul joined Janet in 1999, and is the longest serving member of the CE team after Shirley Wood. During his time he has held various roles throughout the company, giving a great breadth of experience.

In the last year, my focus has shifted to the commercial sector and developing the "Janet Connected" proposition (read more on page 18) as a means of supporting private companies looking to deliver "cloud" services, whilst maintaining our primary focus of serving the Janet community. I am also involved in BCE activities providing an expert eye over community initiatives and currently working on a solution to the Public Access issue, offering the community the opportunity to deliver public traffic over Janet infrastructure whilst maintaining our status as a private network.

In my spare time, I am a keen rugby player, and can often be seen sporting various injuries to attest to my weekend exertions! **JN**
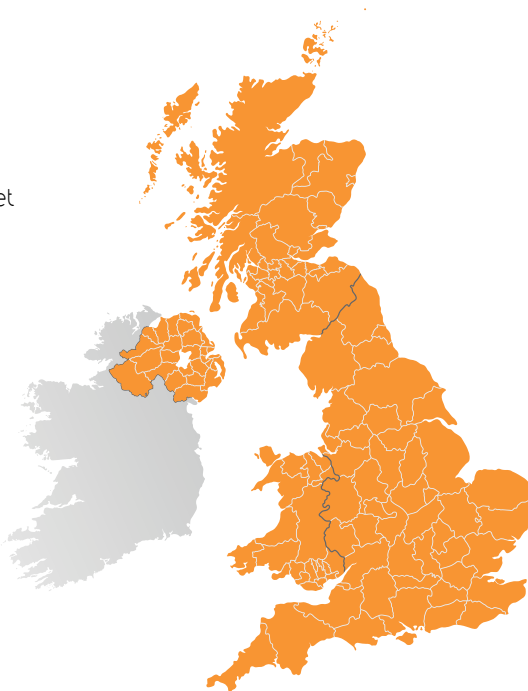
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Northern Ireland
Position Vacant

North West
Position vacant

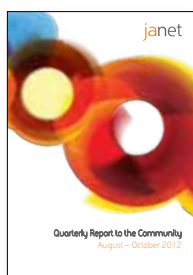Search for your regional community group at https://community/ja.net/groups

RECENT PUBLICATIONS

Find our current publications at https://www.ja.net

Previous publication can be found on the community site at https://community.ja.net
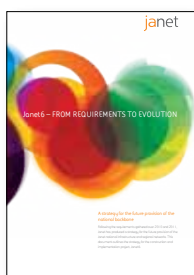
Janet6 Requirements to Evolution

Quarterly Report Aug – Oct 2012
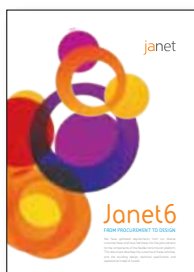
Janet6 – From Procurement to Design

AIM Strategy documents

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