

New Chief Technology Officer for UKERNA

Dr Bob Day, UKERNA's Network Development Director and for much of 2004 Acting Chief Executive of the company, has been confirmed as an executive board member with the designation of Chief Technology Officer.

In this role Dr Day's responsibilities will include leading the development and procurement of JANET services, ensuring that JANET's technology remains fit for purpose and cutting edge, maintaining key relationships with regulators and peer organisations, and developing international relationships with other NRENs and similar organisations.

Dr Day commented: 'I look forward to the challenge of ensuring that JANET continues to enable the UK research and education communities to fully exploit the benefits of a common networking infrastructure and service portfolio. With the procurement of SuperJANET5 well underway we can all look forward to

some exciting developments as the next generation of the JANET backbone comes into operation in 2006.'

UKERNA's new Chief Executive Tim Marshall commented that 'The board was unanimous in this decision, noting the excellent work carried out by Bob during the interregnum and the high esteem in which he is held in the community. I am delighted that the board will continue to benefit from Bob's experience. In this fast changing technology landscape the company will be able to take maximum advantage of Bob's knowledge as we provide the research and education communities with the very best network, and associated applications and services.'



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New JANET Security Policy

The JANET Security Policy has been updated and a copy sent to all management contacts at JANET primary connected organisations.

It has been ten years since the JANET Security Policy was first produced, and in that time a number of legal changes have taken place within the UK – for example, the Data Protection Act 1998, the Regulation of Investigatory Powers Act 2000 and the Malicious Communications Act 1998. The JANET community has also changed, with a much increased and more varied user base, as has the way it uses and manages computers and networks. UKERNA and

JISC therefore felt it an appropriate time to update the policy.

The new Security Policy clarifies the requirements, responsibilities and authority of JANET sites and users, and also of UKERNA as provider of the network. It has a number of goals, one of which is to protect JANET, the networks connected to it and the computer systems using it from abuse. This includes ensuring that appropriate local policies are in place, and that mechanisms exist to help prevent and identify abuse of the network. Other goals are to ensure an effective response to complaints and queries about real or perceived abuses, and to ensure that

the reputation of JANET is protected and that the network can meet its legal and ethical responsibilities with regard to its connectivity to the worldwide Internet.

Along with a copy of the policy, a leaflet has also been sent out that outlines the policy's overall intentions. This includes and summarises the responsibilities and organisations for all parties concerned – all JANET connected organisations, organisations providing access to JANET, individual users, and UKERNA itself.

The policy can be found at:
<http://www.ja.net/documents/JANETSecurityPolicyJan05.pdf>

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Looking Forward for JANET: A Word from the Chief Executive

The first few weeks in any job can be quite formidable, with no more fiery a baptism than being thrust straightaway into the UCISA Annual Management Conference followed in short order by Networkshop and the JISC conference. Between these events there has been the opportunity to meet with many of the diverse range of users and stakeholders associated with JANET. Encountering such a broad group of people for whom the network is so essential only serves to reinforce the unique nature of JANET. This powerful network is no longer just 'nice to have' but has truly become mission critical to the UK's Research, HE, FE and school communities. The fact that JANET specifically meets their needs in a way that no off-the-shelf provision can match is due in no small part to the strong collaborative bond between the UKERNA team and the community it serves.

In this initial period there have also been one or two surprises for me. Finding that the Olympics, the Royal Wedding and the Pope's funeral have been multicast on the network (see page 5) gave a distinct feeling of déjà vu from my former BBC Outside Broadcast days. However, JANET's role extends far beyond such content. Today the network is crucial as it underpins the flow of content and data which is the very lifeblood of the UK's research and education activities. The scope of the network is constantly

broadening, ranging from five year children who will be using the rich media in the BBC's Digital Curriculum to particle physicists passing multiple gigabytes of data throughout the UK and beyond by way of our international peer networks.

Achieving all this so effectively is credit to the UKERNA team who develop and support JANET, both at UKERNA's headquarters located at the Rutherford Appleton Laboratory and throughout the

"The network and its associated services can liberate opportunities which hitherto have just not been available"

UK academic community. This strong relationship with the users is further cemented by the Network Operations and Services Centre, a world class networking unit based at the University of London Computing Centre. National distribution is supported by the Regional Networks, each one connecting to the central network while also developing provision to meet the specific needs of that region. It is crucial to the future success of the network that there is the appropriate balance between global and local approaches in order that maximum value is generated

by the synergy between UKERNA and its regional partners.

As a community we now stand at a critical point with the opportunity to further liberate the power of the network and so bring real added value to all those who use it. The foundation for success will be UKERNA's continuing network upgrade programme which will meet the demands of the next three to four years. Crucial to this is the SuperJANET5 procurement, on schedule for delivery next year. This will provide a highly reliable network with a resilient infrastructure which can meet capacity demands in a cost-effective way. The new infrastructure will provide separate network services for research and development without significant risk to production traffic. It will also have the flexibility to provide additional network services.

At the heart of all this is UKERNA's commitment to develop a strong customer focus by being both proactive and also responsive to the needs of those who use the network. UKERNA's strategy must be broader than that of just a 'pipe provider'. In the future we will continue to work with colleagues in the JISC and with other partners to explore the broader aspects of the total information environment in which the network operates.

Research has always been at the heart of the network, and in partnership with the research community UKERNA is supporting major initiatives such as the distribution of large quantities of data generated by the Large Hadron Collider at CERN – data that could not be effectively handled without the support of a powerful and resilient international network. Elsewhere, research colleagues at the National e-Science Centre in Edinburgh lead the development of high power computing by connecting supercomputers throughout the UK and Europe with TeraGrid in the United States. The Centre also leads innovative research projects such as on-demand processing power for 3D animation and the creation of a virtual observatory using collaborative grid power as the UK contribution to a global Virtual Observatory – all these projects requiring the availability of significant network bandwidth.

UKERNA's concern with the whole information environment is also demonstrated as we embark on projects to



Development Update

Shibboleth Adopted for Authentication and Authorisation

integrate the Shibboleth authentication and authorisation middleware with the JANET Videoconferencing Service Booking Service, an essential development as the take-up of collaborative videoconferencing increases within the community. JVCS, our videoconferencing service, is one illustration of how UKERNA is more than just a network provider. This area is potentially a sleeping giant and this is supported by the positive findings of the current schools' videoconferencing project. In some areas educational projects now account for up to 75% of videoconferencing traffic with new opportunities for learning constantly being realised. Colleagues at Swansea College have developed fresh applications, regularly engaging in sessions with organisations such as the National Archive at Kew, the National Portrait Gallery and the National Maritime Museum. These events conveniently fit into students' schedules and save what in other circumstances would have been an impossible journey to the resource location.

Videoconferencing is but one example of how the network and its associated services can liberate opportunities which hitherto have just not been available. It is our vision at UKERNA that we will collaborate with others, not only to provide a resilient and fit for purpose network but also to develop and capture the valuable opportunities that applied network services can bring to those in the UK's research, education and learning communities. The future is truly exciting and will not so much be limited by technology, but only by how adventurous, innovative and collaborative we are prepared to be in exploiting the power of the twenty-first century network.

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JANET Security Policy

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Further information on security measures can be found at:

<http://www.ja.net/documents/factsheets.html#sec>
and

<http://www.ja.net/CERT/cert.html>

Meanwhile, UCISA (Universities and Colleges Information Systems Association) has a very useful Security Policy Toolkit and model user regulations at <http://www.ucisa.ac.uk/resources/>

In an announcement made in April, JISC (the Joint Information Systems Committee) adopted Shibboleth as the standards based architecture for access management in the communities it serves.

Shibboleth is an open source based initiative developed by the Internet2 community in the United States to facilitate the sharing of web resources that are subject to access control. The Shibboleth architecture defines a way of exchanging information between an organisation and a provider of digital resources such as data and video. By using Shibboleth, the information is exchanged in a secure manner, protecting both the security of the data and the privacy of the individual.

In accordance with the JISC Core Middleware Program, UKERNA has been working with the University of Edinburgh

to determine the feasibility of integrating Shibboleth with the JVCS (JANET Videoconferencing Service) Booking System. The University has produced a feasibility report which states that Shibboleth offers significant benefits, with only minimal re-engineering of the existing booking system. The report will be available on the JANET website in May 2005. The next phase of the project will now focus on producing a detailed technical evaluation of the integration.

Further information about Shibboleth can be found at:

<http://www.ja.net/development/aa/index.html>

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JANET Network Reliability Study

UKERNA is undertaking a six month study into network reliability which seeks to provide practical advice on the main difficulties currently facing JANET connected organisations. The results from the study, in the form of advisory documents, will be available in July. The consultants selected to undertake this work on behalf of UKERNA are Jon Duke and Andy Jordan.

To gather information about the problems facing JANET connected organisations the consultants have interviewed a broad range of organisations about network reliability to understand the issues that they currently face. The results from this work have provided the basis for constructing two online surveys – the first aimed at strategic managers, the second at network managers. These surveys were sent out in April and aim to gather a picture of reliability issues from right across the JANET community.

Preliminary results from the study have shown that the predominant issue

facing organisations is problems relating to the failure of mains power supplies. Another area of concern which has been highlighted as significant is problems associated with single points of failure within both local network infrastructure and services provided via the network, for example e-mail. There are also concerns surrounding the security of the network and its management systems.

Further information and the results from the study will be available on the JANET website at:

<http://www.ja.net/development/reliability/>

Copies of the advisory documents will be sent to all JANET connected organisations.

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LIN Trial Extended

UKERNA has taken the option to extend the LIN (Location Independent Networking) trial by an additional six months. This will provide an opportunity to gain further feedback from participants in the trial, and also to finalise policy and security recommendations in the move towards a JANET service.

UKERNA's LIN trial was established in January 2005 to assess the feasibility of providing the JANET community with a scaleable and secure solution to guest network access, with a view to providing a JANET service. LIN provides an infrastructure for local or guest users to use their unique credentials to gain network access both at their home organisation and at organisations that they visit, without any administrative burden or added complexities.

At present 36 JANET connected organisations are taking part in the LIN trial, letting users from participating organisations gain guest network access from any other organisation taking part. The LIN concept was also demonstrated at Networkshop 33 in Manchester where 41 users from 19 organisations successfully gained guest network access.

Workshop

A LIN Workshop will be held for trial participants in Southampton on 14 June 2005. Participants will be able to test logging in to their own networks from a remote location using a variety of authentication methods. The Workshop will provide an opportunity for participants to share experiences and give feedback.

Further information about the LIN trial can be found at:

<http://www.ja.net/development/aa/index.html>

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Advanced Regional Networking

SuperJANET5 promises to bring increased levels of reliability and flexibility to the provision of current and new services, as described in the document SuperJANET5, An Architecture for Diversity (available at <http://www.ja.net/SJ5/requirementsanalysis/an-architecture-for-diversity.pdf>). As well as the JANET backbone these advances need to be delivered across Regional Networks, the next stage of JANET connectivity, if users at JANET-connected organisations are to take advantage of them. Chris Cartledge of the Yorkshire and Humberside MAN (YHMAN) describes how they are ahead of the game in terms of being able to exploit the advances that SuperJANET5 will bring.

YHMAN II: A Fibre-Optic Network

Educational establishments are as dependent on reliable high speed data networks now as they have been on a good transport system in the past, says Chris Cartledge of YHMAN. It may seem expensive to get fibre-optic links to remote sites, but no university would tolerate being at the end of a cart track. Now fibre-optic links are the twenty first century equivalent of the canal in the eighteenth century, the railway in the nineteenth century or the metalled highway in the twentieth.

YHMAN has a core based on leased fibre-optic cables. The network was first implemented in 1998 on 155Mbit/s SDH circuits, and as existing contracts came to an end, it undertook a study of future needs. Key among these was a continued growth in traffic.

Getting the Network

An EU tender for the core network resulted in Kingston Communications Ltd (of Hull) supplying and maintaining leased fibre-optic cables on a 10 (+2) year contract worth £4.5 million. (Links into Hull itself are leased Ethernet circuits for commercial reasons – Kingston is the monopoly supplier in Hull, so can only offer services to a price list.) Every university in the region is served by the core network, while access circuits for customers such as Further Education colleges are based on leased Ethernet services to the most convenient core point of presence. The fibre-optic cables provide a flexible transmission platform over which a range of services can be offered.

Running the Network

The initial IP service on the core network is what Chris Cartledge calls 'a true Metrolan', with Ethernet and layer 2 switching throughout. Routing to and from the JANET backbone is at Leeds. The network is configured in multiple rings for resilience with the Spanning Tree protocol being used for continuity of service in the event of the failure of a single link. For privacy and robustness, the traffic for each site (or site cluster) is carried on separate VLAN.

The fibre-optic cable network is implemented as point to point circuits, with the links driven by Adva FSP 2000 DWDM (Dense Wave Division Multiplexing) devices. These can transmit multiple laser light signals through 80km or more of fibre-optic cable, with each signal a different colour (wavelength or lambda). Each lambda runs at 2.5Gbit/s and can carry two 1Gbit/s Ethernet links. The initial implementation is with a single lambda, but link speed can be scaled to 16Gbit/s simply by adding cards to the Adva FSP 2000. It is expected that link speed can be scaled to at least 64Gbit/s in the future.

The core Ethernet switches are Cisco® Catalyst 4507R chassis based gigabit switches, only implementing layer 2, though these devices are capable of layer 3. Routing to the JANET backbone is done by a resilient pair of Cisco® Catalyst 6509s. Upgrading a single link by 2.5Gbit/s (two 1Gbit/s Ethernets) requires a pair of new optical cards at a capital cost of about £15,000 including VAT.

Past, Present and Future

The network has now been in operation since August 2004, run by the YHMAN operations centre at the University of Leeds, and Chris Cartledge says it has proved to be extremely reliable and

Services Update

Guide to the Access Grid Support Centre

capable. By October 2004, speeds of 200Mbit/s were seen on some links, showing that the upgrade from 155Mbit/s was only just in time. Since then, traffic from the Particle Physics Grid (GridPP) alone has peaked at 300-400Mbit/s. The upgrade of FE circuits on to YHMAN is making good progress and bandwidth on the core is not an issue in determining what bandwidth can be provided.

Meanwhile, YHMAN is already planning new applications. The University of Leeds is planning to install archive servers at the University of Sheffield over a private circuit; it is also planned to carry UKLight over the YHMAN infrastructure, again on private circuits.

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Multicast Peering for Pope & Prince

The funeral of Pope John Paul II on 8 April and the Royal Wedding the day after were just two events that could be watched over JANET, thanks to the direct multicast peering that UKERNA has established with the BBC.

IP Multicast is a bandwidth conserving technology that can deliver traffic more efficiently by transporting single streams of information across the network backbone to regional and local distribution points, where the data is replicated for simultaneous delivery to multiple users. Applications that can take advantage of it include videoconferencing, video serving and news distribution.

Multicast data is transported on the SuperJANET backbone and is delivered to each regional network where it connects to a Backbone Access Router (BAR). Each regional network is responsible for forwarding multicast data to its member organisations, who are in turn responsible for internal distribution to end-users over their LAN infrastructures.

More information on JANET Multicast is available at:

<http://www.ja.net/development/multicast/index.html>

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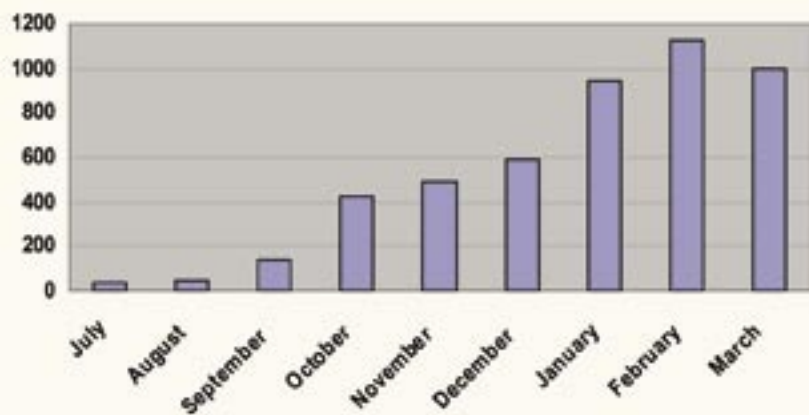
The Access Grid Support Centre (AGSC) is becoming increasingly important within the academic community as a focal point for enquiries and advice for those adopting Access Grid technology. It has now reached the point where the majority of recommendations detailed in the initial commissioned report have been implemented. The next logical step is a move to recommendations for research and development of Advanced Collaborative Environments to further enhance user experience of Access Grid.

Use of the information published by the AGSC on its website has increased markedly in the past months. The number of visits is now 7760 per month – an increase of 200% from March 2004 to May 2005 – and file downloads have increased by 600% over the same period, to 5875. This

demonstrates an awareness of the AGSC and an interest in Access Grid amongst the academic community, and the usefulness of publications and documentation to the end user. There has also been a growth in deployment of Access Grid nodes within the last quarter, from 30 to over 50, and activity has increased by 2000% over the past nine months (see figure). With a planned publicity drive for the H.323–Access Grid Gateway, the services are expected to increase and the forecast is for over 2000 conferences per month by September 2005.

Further activities planned for the AGSC have a focus on interoperability, including VRVS (Virtual Room Videoconferencing System), Access Grid and H.323 endpoints, and provision of new services that may be of interest outside the Access Grid

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Total number of conferences, July 2004-March 2005. Note that these figures only include studio, room-based nodes and do not take the increasing number of desktops into account.

What is Access Grid?

Access Grid is a set of facilities for interaction, collaboration and presentation, and allows access to Grid middleware and to visualisation environments. These resources are accessed via one of about 50 nodes deployed throughout the UK. A node is typically an environment incorporating large projection screens and high quality audio, so that all participants at contributing nodes can be displayed and heard simultaneously. There is also a Bridging Service which allows interactivity between videoconferencing and Access Grid nodes, although this is in the early stages.

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community, such as the newly-released screen sending software.

Helpdesk

The AGSC help desk is a single point of contact for the Centre and an interface to AGSC staff, supporting UK academic and research users on every aspect of AGSC services, as well as general Access Grid queries, such as technical problems, procurement advice, and help on managing events.

Pocket Guide

UKERNA has published a pocket-sized guide to the AGSC which gives further advice on AGSC workshops, connecting to the Access Grid, and further services offered by the AGSC. Copies of the guide can be obtained from JANET Customer Services at:

service@janet.ac.uk

The AGSC is managed by UKERNA and run by the University of Manchester with funding from JISC's Committee for the Support of Research. It is located at the University of Manchester.

The AGSC's home page is at:
<http://www.agsc.ja.net>

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Content Providers and Schools in JVCS

Now is the time to dust off your videoconferencing equipment, connect it either by IP or ISDN and make sure it has passed a Quality Assurance (QA) Test, so that users at your organisation can use JVCS, the JANET Videoconferencing Service. Significant changes are afoot in the JVCS Booking Service – the means of accessing the JVCS multipoint and bridging services – which will result in users being able to find and book conferences more easily with a wider range of other users.

Content Providers

New groups of users are being registered to the JVCS Booking Service and unrestricted access has been given to Content Providers, the name being applied to all national and regional museums, archives, galleries and other providers of educational content that can be made available and delivered through the medium of videoconferencing.

The result of this change is threefold.

- Content Providers will no longer need to be brought into conferences as guests, so time will be saved when making bookings – in fact, the Content Providers will be able to broker their own bookings.
- The JVCS Booking Service will act as a directory of Content Providers that have videoconferencing facilities, making it easier to establish initial contact.
- The time spent on connectivity testing in advance of sessions will be reduced, as videoconferencing locations will be registered in the Booking Service and therefore already QA tested.

Once users of videoconferencing are comfortable with its functionality, many often go on to use it to deliver the curriculum in a relatively traditional manner. However, innovative users are emerging who are increasingly pushing the boundaries and expanding the uses and applications. The way Content

Providers use videoconferencing to enable the development of new and innovative practices, to enrich the experience of students and to facilitate learning activities that had previously been difficult or impossible to organise, is clearly an example of such developments.

Schools

Meanwhile, the schools sector is also starting to register its endpoints – there were 64 at the beginning of the year and by the beginning of May there were 239. Recent research by Becta into videoconferencing in schools reflected what is happening in the academic community. Becta identified four main types of videoconferencing activity in schools: *familiarisation*, *substitution*, *enhancement* and *adaptation*. The report, 'Report for Schools of the DfES Video Conferencing in the Classroom Project', can be found at:

http://www.becta.org.uk/page_documents/research/video_conferencing_report_may04.pdf

It is also worth noting that manufacturers of videoconferencing equipment are working to improve video and audio quality at lower bandwidths, with the aim of making videoconferencing accessible to a wider range of users. They see the most significant growth in the use of videoconferencing in the health and education sectors. So, if your organisation has not yet started to use videoconferencing, now is the right time to consider making it available to staff and students.

(You can recommend Content Providers be registered with the Booking Service by following the link from the Administrator Tasks page.)

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New Training Service

Following a process of redevelopment, UKERNA has launched a new training service. Three courses are now available: **Introduction to JANET**, **DNS on Windows 2003** and **Managing IT Security**. More will follow in the summer covering topics such as an introduction to routers and the management and use of videoconferencing. A list is published on the UKERNA web site (see below).

All courses are or will be one day events, costing £150 for attendees from primary connected sites. This includes a specifically written course workbook which also contains a further information section for future reference and research. Other support materials include a course CD containing links to relevant web sites, documentation, and in some cases specially created multimedia materials.

Training venues through the UK have been identified to avoid excessive travel for staff. Locations currently include Birmingham, Bristol, Edinburgh, London, Newcastle, Wolverhampton, Glasgow and Huddersfield – further venues will be added to this list in the near future.

In response to feedback from the community, UKERNA has also been exploring ways to provide accreditation for the courses it provides. To this end the company has joined NOCN (the National Open College Network), and although details are yet to be finalised it is hoped to provide NOCN qualifications by July 2005. UKERNA believes this will provide both staff and their organisations with a method of recording their achievements.

To support this work, a new collection of web pages have been published on the JANET site. This area provides a full list of scheduled courses, overview of each of the courses, details of venues and a summary of what to expect from one of our courses. This can be found at:

<http://www.ja.net/training>

Feedback and support from the community will be vital in ensuring that the courses UKERNA provides meet users' needs, so comments and suggestions are welcomed. This includes suggested courses or topics for consideration as well as delegates' feedback on the courses they attend.

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Community Update

Making Connections for Colleges

UKERNA has published the final report of a survey designed to take a snapshot of Internet connectivity and telecommunications networking in Further Education and Sixth Form colleges. *Making Connections for Colleges* is a companion to last year's publication *Making Connections for People*, which reported on a similar survey to map Internet provision for ACL Learning Sites in England.

For *Making Connections for Colleges*, a questionnaire survey was sent during July-September 2004 primarily to IT and Network Services Managers from the 400 Further Education colleges in England. Replies were received from 278 of these, which together contained details for 1271 college learning sites.

The report's purpose is to assist the LSC (Learning and Skills Council) in the development of policies for telecommunications infrastructures in the Further Education sector in the future. Eight of the report's key findings are highlighted as 'issues for further discussion', which UKERNA intends to take forward in discussion with the LSC and JISC.

Picture of College Sites

The survey found that about one third of colleges have a single site. Others have mostly a small number of main, college-

managed sites with a very variable number of 'outreach' centres that might be managed by the college or might be managed by a third party.

Internet Connectivity

All colleges (but not all college sites) are dependent on their JANET connection for Internet services. In multi-site colleges, most college-managed sites are connected to a college WAN. A variety of other means of connection are used for Internet access, but sites not connected to JANET use commercial ADSL (broadband) more than any other means of connection to the Internet.

Network Management

Almost all colleges have mature networks and use sophisticated network management tools and applications.

Networked Services

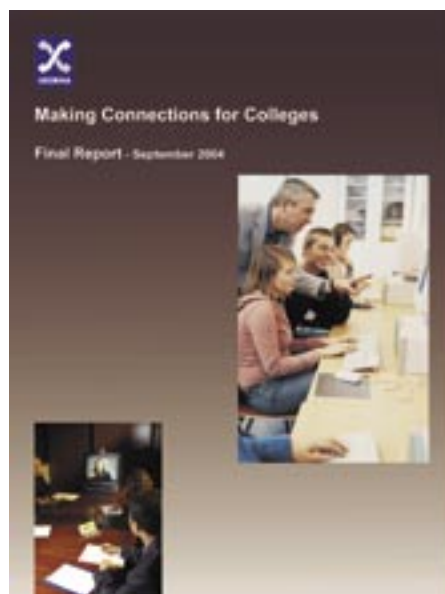
A large number of college sites have VLEs (Virtual Learning Environments) available. Small but significant numbers use video streaming, videoconferencing and VoIP. VPNs (Virtual Private Networks) and online testing are in place or under development in a number of colleges. These are all bandwidth-hungry applications.

The report describes and illustrates a common Network Development Path of networked applications, and shows that different colleges are at different points along the path.

Bandwidth

Over one third of colleges explicitly mentioned that inadequate bandwidth constrained Internet access for students and/or prevented the development of new networked services. UKERNA is currently upgrading the bandwidth for college connections to JANET but this survey indicates that this might still be inadequate to meet the demand from

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these colleges. The report estimates that, very approximately, one third of colleges are satisfied with the current (2Mbit/s) bandwidth, one third hit constraints at peak times, and one third have serious problems with inadequate bandwidth.

Respondents also raised the point that colleges can lose bandwidth if they merge, because under current policies any organisation is only entitled to one funded JANET connection. There is a lot of activity in this sector with many mergers underway,

and the loss of a funded JANET connection is often overlooked in the excitement of the merger.

Actions Going Forward

UKERNA will take forward the key issues for discussion with the LSC, in order to ensure that the connectivity needs of FE Colleges continue to be taken into account, as broadband becomes ever more vital to the FE sector.

Copies of both *Making Connections for Colleges* and *Making Connections for People* can be obtained from JANET Customer Service: service@janet.ac.uk

Higher Education Survey

UKERNA carried out a survey of Higher Education organisations between November 2004 and April 2005. Eighteen organisations were visited and interviewees – mostly IT Directors or Network Service Managers – were asked questions about their use of JANET network services and emerging technologies.

Key networking issues to emerge included security, resilience, keeping up with best practice and technological developments, upgrading of networks, single sign-on, student control and misuse of JANET. JANET-CERT (UKERNA's Computer Emergency Response Team) and JISCMail in particular were highly praised and are used by everyone. Seventeen (94%) respondents were very happy with their JANET service, though several would like a 'free' second JANET connection, having a concern about single points of failure.

Campus networking

Thirteen (70%) respondents now have wireless implementations with 30+ access points in communal areas across the campus. All the rest, bar one, have plans to roll out wireless access within the next 12-18 months.

There is a wide variety of solutions for networking Halls of Residence. Five of the institutions (27%) have outsourced the connectivity of their Halls of Residence to commercial suppliers, and the student traffic runs on a separate network. The other institutions mostly use hard-wired Ethernet connections to all student rooms,

though the traffic bandwidth is often capped. A high percentage – 90-100% – of students in Halls of Residence now have Internet access.

The percentage of students with their own laptop varies widely between institutions, ranging from 25% of students at one organisation to 90% at another.

Sponsored Connections

Three organisations had several sponsored connections and see them as a key way of extending JANET usage. The others either had no sponsored connections or only one (typically to the Student Union or the building adjacent).

Several organisations had more sponsored connections in the past (typically to Further Education colleges) which have now been turned into Primary Connections.

Training and Events

Having learnt of the changes in the training department (see page 7), most look forward to the new courses.

There were many positive comments about Networkshop; CERT events and the recent VoIP event also received positive comments. Most responses were summed up by one respondent's remark that 'UKERNA's events are topical and relevant, reasonably priced and aimed at the academic community'.

Many had not attended Networking Strategy in years, and were pleased to

discover a new format is planned this year (see article on page 10).

Procurement of SuperJANET5

All were happy about the consultation process, feeling they have been listened to and their comments taken on board.

VoIP

Fifteen (84%) are very interested in VoIP as part of a long term strategy and plan to move to it with 'new builds', though they acknowledge the costs involved with converting existing buildings to VoIP. One organisation said it had saved £100k using VoIP over the last year.

While three respondents say they were not interested in VoIP, another four specifically asked UKERNA for a 'best practice positioning paper' on implementation of this technology whilst the issue is hot.

Actions Going Forward

Respondents have been generous in giving their time and thoughts to this survey. These are now being fed back into the Network Development Division so that we can continue to develop new services and products for our HE community. Much thanks go to all respondents, who will receive a copy of the final report in due course.

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Events Update

Networkshop 33

22-24 March 2005
**The University of
Manchester**



First the Workshops ...

Following feedback from the community, UKERNA decided to run two workshops prior to Networkshop. The first ran on the Monday afternoon with an introduction to JANET, including talks on the network, getting help and the development programme. Two parallel sessions ran the next morning, each providing an overview of a JANET service and presented by the relevant service manager, and delegates had the opportunity to ask questions.

Feedback from both workshops was very positive and participants felt that the mix of information was useful. Several noted that additional workshops prior to Networkshop were something they would be interested in seeing at future conferences. Our experiences during these events and the feedback provided will not only inform future plans, but have already had an impact on the work underway within UKERNA training. This includes a review into the need for a specific JANET services course.

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.. then the Event

As seems to be the tradition with Networkshop reporters, I was new to Networkshop, and also quite new to UKERNA.

My colleague Heather Barwick and I were dispatched to the JANET Workshop on Monday morning in 'read mode' to listen and learn. The first afternoon was spent learning 'Everything we need to know about JANET'. The talks were short, but varied and well-presented, and the arrangement of parallel sessions interspersed with frequent tea breaks afforded us the opportunity to meet and exchange views with other members of the JANET community who were at the workshop. After a pleasant evening touring the nearby Chinese quarter, we reconvened on Tuesday morning with the other delegates for an Overview of JANET Services. The range, quality and sheer practicality of the JANET services on offer was impressive and quite a revelation to many of us attending.

Networkshop itself started with registration, and the traditional collection of this season's 'must-have' bag and the indispensable conference pack. The conference was action-packed but very well organised, and the conference programme and quick reference guides proved invaluable. Keen to learn and get a few clues about my new-found milieu, I attended as many talks as time-space continuum limitations and human endurance would permit. We were treated to a variety of interesting, inspirational and entertaining talks, which were a bit baffling at times for the non-techie, but very well received by the target audience.

Our hosts, the University of Manchester, provided excellent IT support for delegates, including network access from just about anywhere on campus. The vast array of exhibition stands was centrally located, so delegates could easily visit the exhibitors in a spare minute or en route to their next session.

As Regional Network Contract Manager for the North I found the Networkshop social

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Photographs on this page by Ed Swinden

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events especially valuable as they allowed me to meet some of my Regional Network Operator and Regional Support Centre contacts – who are, of course, all based a long way from UKERNA headquarters in Oxfordshire. The conference dinner on board the Orient Express was a sophisticated and enjoyable affair as we glimpsed the starlit Welsh coastline whilst chatting and sipping our champagne. Intoxicated by our sumptuous surroundings in the appropriately named 'Harlech' carriage, we efficiently demolished our delicious four course dinner and spent the rest of the journey held spellbound by the prestidigitator of the charismatic Russ and his magic rubber bands. This was one of the limited range of options for hosting 400 delegates for a conference dinner in Manchester and it was thanks to the income from the exhibition that it was made possible.

JANET's coming-of-age party proved to be a great success, thanks to the hard work and organisational talents of the team of conference organisers, UKERNA, the University of Manchester and all the individuals and companies who played a part.

Presentations from the conference can be found at:

<http://www.ja.net/conferences/networkshop/Networkshop33/prog.html>

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Bill St. Arnaud of CANARIE presents his talk on 'Service Oriented Architectures for Research and Education Networks'

The Future of Networking Strategy

The Networking Strategy Conference is to become two events, with different aims and objectives.

Delegates at the last Networking Strategy Conference were asked to comment on the format and structure of the event. The feedback showed that there were a number of key benefits to the community from this event, two of which were that the community found the briefing on key networking issues useful and that they also found it useful to network amongst their peers.

As a result of discussions within UKERNA and the JISC Committee on Networking there will be two events. The first will be a one day briefing day on JANET and its future. This has been planned for 28 June in London and details can be found on the JANET web pages under:

<http://www.ja.net/events>

The second event will be aimed at reflection and group discussion. It will take

place in late November/early December and include an overnight stay, to allow the networking that delegates found so useful. The event will start with a dinner followed by a guest speaker; the following day will then comprise presentations and discussions on the future of JANET and new developments required to support the ever increasing demands of Research and Higher Education. Details will be put on the JANET web site as soon as they are finalised.

A committee that will represent the various interests of the community is being put together to discuss the programme for this event. Details will be made available on the JANET web site as they become available.

Shirley Wood
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Forthcoming Events

JANET IPv6 Workshop

7-8 September 2005, University of Southampton

Highly Available Networks: Building Resilience and Reliability

2 November 2005, English Heritage Lecture Theatre, London

For further information:

http://www.ja.net/conferences_training/calendar.html

Training Courses

UKERNA is running repeating courses on:

- **Introduction to JANET**
- **DNS on Windows 2003**
- **Managing IT Security**

For information on dates, prices and location, see:

<http://www.ja.net/training>

Photographs on this page by Ed Swinden

JANET IPv6 Workshop

In collaboration with the University of Southampton, UKERNA is holding a two day, hands-on IPv6 workshop on 7 and 8 September 2005. The workshop will be held at the University of Southampton's main campus.

The workshop is intended for Network Managers at JANET primary connected organisations who wish to gain some practical experience in configuring IPv6, and it will provide both a theoretical and practical insight into the differences between the current internet protocol IPv4 and IPv6, together with opportunities to hold discussions with IPv6 experts from within the JANET community.

Further details on the JANET IPv6 workshop can be found on the UKERNA Events and Training calendar at:

http://www.ja.net/conferences_training/calendar.html

A maximum of two people per JANET primary connected organisation will be accepted for attendance and bookings will be taken on a first come, first served basis, so it is advisable to make an early booking.

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Recent Publications

Requests for publications or comments should be sent to: service@janet.ac.uk

Reports

Quarterly Report to the Community
 November 04 - January 05
<http://www.ja.net/documents/reports/winter04/index.html>

Quarterly Report to JISC
 November 04 - January 05

Quarterly Report against Operating Plan
 November 04 - January 05

Making Connections for Colleges
 RT/FE/001 (05/04)

Factsheets

Copies can be found at:
<http://www.ja.net/documents/factsheets>

JANET Services Available for ACL
 via RBC
 PB/INFO/O59 (05/03)
<http://www.ja.net/documents/factsheets/059-JANET-services-available-for-ACL.pdf>

Networkshop

Networkshop Programme
<http://www.ja.net/conferences/networkshop/Networkshop33/guide.pdf>

Services

Access Grid Support Centre Pamphlet
 PB/GRID/001 (05/03)

JANET Network Services Booklet
 (version 2)

Newsletters

UKERNA News no. 30
http://www.ja.net/documents/UKERNA_

[News/news30.pdf](#)

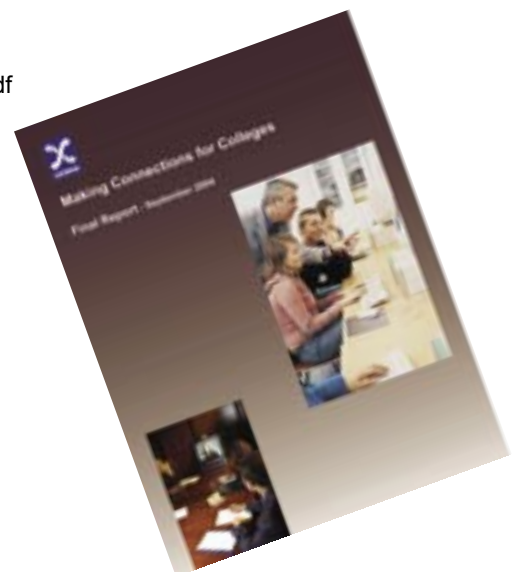
Case Studies

MCAS Case Study - College of North West London
<http://www.ja.net/mcas/North%20West%20London%20College.doc>

Wireless Networking Case Study: The Development of a Secure Campus 802.11b Wireless Network
http://www.ja.net/development/network_access/wireless/wag/uwa-wcs-casestudy.pdf

Security

JANET Security Policy flyer
 PB/CERT/002 (05/03)



Surveying Wireless Networks

A Technical Guide to be published by UKERNA this summer aims to provide all the information needed to perform wireless surveys and to design networks around them. *Surveying Wireless Networks* is concerned with wireless local area network standards in the IEEE 802.11 family.

Wireless networks are a useful complement to a wired network, allowing network connections to be obtained anywhere within an area, rather than only at fixed network connection points. However, they suffer from a number of problems that do not affect wired networks, in particular that the medium they use to transmit packets is a scarce resource, subject to physical limits. The capacity of a wired network can be increased indefinitely by adding more cables but a wired network only has available a finite (and in some cases very small) number of frequencies. Since the frequency band they use is unlicensed, wireless networks must also compete with other users of the same radio band. They may also be subject to interference from accidental generators of radio frequency noise.

Wireless networks therefore need to be even more carefully planned than wired networks, taking account of the surrounding environment to a much greater degree. And wireless surveys are a vital tool in planning and managing wireless networks – the guide states that if a wireless installation is not based on a survey and supported by regular re-surveys then it is likely to provide a very unsatisfactory service.

Surveying Wireless Networks begins with some basic information about wireless networks and their radio transmissions, covering wireless frequencies, signal strength, noise and signal/noise ratio. It then goes on to describe the sort of tools that are best used for the job, using both free and commercial existing tools as illustrations. The final chapter describes the actual performance of surveys. These should be done at the planning stage, to determine where wireless access points should be located; once the installation of access points is completed, to confirm that the performance is expected; and again after that, periodically, to check for changes in the wireless environment.



Copies of *Surveying Wireless Networks* can be obtained from JANET Customer Service: service@janet.ac.uk

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To be added to or removed from the mailing list for *UKERNA News*, e-mail ukerna-news@ukerna.ac.uk or use the UKERNA contact information above.

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