

UKERNA Quarterly Report to the JANET Community July to September 2002

This report is produced and published by the United Kingdom Education and Research Networking Association (UKERNA) for use within the JANET Community. We welcome comments on all aspects of this document and on any other UKERNA publications. Please direct feedback or any complaints about the content to JANET Customer Service (JCS), at the contact given in section 3.2.1, or email: service@janet.ac.uk

1 Introduction

This report broadly follows the sequence of the Service Level Agreement (SLA) between UKERNA and the funding bodies represented on the Joint Information Systems Committee (JISC), for the financial year 2002/2003.

The numbering follows the numbering of the SLA, and apparent omissions reflect the fact that there is nothing to report at present.

This report covers the period July to September 2002 (Autumn).

Electronic copies of UKERNA's Quarterly Reports to the JANET Community can be found at: <http://www.ja.net/documents/quarterly.html>

2 Operational Services

2.1 Basic Internet Protocol (IP) Transmission Service

2.1.1 Access to Backbone

This reporting period has seen a total of 20 new or enhanced customer connections completed and made ready for service:

- Banff & Buchan College of FE;
- Borders College;
- Brooke House Sixth Form College;
- Birmingham College of Food Tourism & Creative Studies;
- Belfast Institute of Further and Higher Education;
- Clackmannan College of Further Education;
- Colchester Institute;
- Ealing, Hammersmith & West London College (Hammersmith Campus);
- Falkirk College of Further & Higher Education;
- Jewel and Esk Valley College;
- Newham College of Further Education;
- North East Surrey College of Technology;
- Norwich City College of Further and Higher Education;
- University of Reading;
- Norton Radstock College;
- Oatridge Agricultural College;
- South Downs College;
- West Lothian College;
- Westminster Kingsway College;
- University of Westminster.

For information regarding current upgrades or connections, please contact JCS at: connections@janet.ac.uk

A list of all primary sites connected to JANET may be found at:
<http://www.ja.net/janet-sites/>

2.1.1.1 Further Education

The initial programme of provision of JANET connections to FE colleges throughout the UK is essentially complete.

England

JANET primary connections are now complete for 411 colleges, and new circuits are due to be brought into service at a further three colleges in the near future. The migration of college connections to the new regional network infrastructure in London (LMN-2) is complete, and a similar migration exercise to the Learning Network South East (LeNSE) network in southeast England is approaching completion, with 50 of 53 connections moved to LeNSE.

Northern Ireland

The college links have been extremely reliable. In September, the Belfast Institute of Further and Higher Education (BIFHE) upgraded their existing 2Mbit/s link to a 10Mbit/s Lan Extension Service (LES) circuit.

The only other college to have upgraded their JANET link above the standard 2Mbit/s is the North West Institute of Further and Higher Education (NWIFHE). Their 4Mbit/s link is now showing daytime averages of greater than 3Mbit/s for incoming traffic.

Scotland

All but two colleges in the regions finalising the implementation of new networks have new connections to JANET at bandwidths ranging from 10 Mbit/s to 1 Gbit/s, depending on college location and size. An event to launch the upgraded JANET network in Scotland, aimed at HE and FE, will be held in Stirling on 28 October 2002, organised by UKERNA and the two Regional Support Centres (RSCs) in Scotland.

Wales

All of the Welsh FE Colleges will have their connections upgraded as part of the Regional Network procurements. All colleges in South Wales have had their connections upgraded to either 34Mbit/s or 100Mbit/s during the summer.

2.1.2 Core Network

The JANET core network is provided by WorldCom UK. The network has been running well in the past three months.

The JANET core network upgrade from 2.5Gbit/s to 10Gbit/s is complete. Most access links from regional networks to core nodes have been upgraded according to the upgrade programme plan.

Details of this SuperJANET upgrade can be found at:
<http://www.ja.net/superjanet/>

In the past quarter, the traffic levels over the upgraded core links have been fairly low due to student vacations. There were two major service-affecting problems during the reporting period. The first concerned upgrade work on the South West England Regional Network (SWERN) access link, which led to a 90-minute service outage affecting all sites on SWERN on 23 July 2002. The second concerned scheduled work on a protection path for the East of England regional network (EastNet) access link. On 24 September 2002 all sites behind the Cambridge Backbone Access Router (BAR) suffered an 80-minute service outage beyond what was scheduled. A problem was also detected on the Reading to Telecity link during the first week in September. Traffic was rerouted and service was not affected.

Major outages are reported on the JANET web server at:
<http://www.ja.net/cgi-bin/index.pl/outages/?order=reverse>

2.1.2.1 Regional Networks

During the last quarter, effort has been focussed upon migration of connections to new Regional Network infrastructures and connection upgrades.

The Northern Ireland (NI) – Great Britain connection was extremely reliable throughout the period and the NI SuperJANET link to Northern Ireland is to be upgraded from 622Mbit/s to 2.5Gbit/s on 23 October 2002.

In Scotland four Regional Networks are currently finalising the implementation of new networks and the new interconnect between all the Regional Networks is in service. UKERNA has maintained close liaison with the Regional Networks and with the Scottish Funding Councils throughout the period of network procurement.

2.1.3 IP Multicast

UKERNA will terminate support for Distance Vector Multicast Routing Protocol (DVMRP) tunnels from the end of October 2002 and all Regional Networks will be encouraged to deploy a native multicast service.

See also section 5.2.3.

2.2 External Network Access Provision and Transmission

2.2.1 Access within Europe

JANET access to European National Research Education Networks (NRENs) is via a 2.5Gbit/s connection to GÉANT from Teleticity.

Traffic over the link peaks at around 250Mbit/s.

Further information about GÉANT can be found at:
<http://www.dante.net/geant.html>

2.2.2 Access to the North American Internet

From the beginning of September, JANET access to the global Internet is provided by Sprint, Level3 and previously WorldCom from Telehouse, Teleticity and St. Pancras in London. This provides a high resilience to the service.

JANET private peering with US research network Abilene and ESnet is provided via GÉANT

The topology of current external connectivity can be found at the following URL:
<http://www.ja.net/topology/external.html>

2.2.3 Access to the UK's Internet Exchanges (LINX)

The London InterNet exchange (LINX) is the facility that allows the transfer of traffic between Internet Service Providers (ISPs) within the UK. JANET access to the LINX is achieved via two GigaEthernet connections from Telehouse and Teleticity. During the reporting period, traffic peaked at around 500Mbit/s and the service was fairly reliable. A new private peering arrangement at 155Mbit/s was established with United Pan Europe Communications at the end of September.

UKERNA applied for membership to the Manchester Network Access Point (MaNAP) in late September and this membership has subsequently been approved.

2.2.4 Access to the Chinese Education and Research Network (CERNET)

The peering connection between JANET and CERNET has been upgraded to 2Mbit/s during this reporting period. More information on CERNET can be found at:
<http://www.edu.cn/HomePage/english/>

2.3 Fault Handling

2.3.1 Fault Reporting

The existing fault reporting mechanism remains unchanged. UKERNA's reporting problems web page has been recently updated to clarify the procedure.

http://www.ja.net/reporting_prob.html

Due to developments in Regional Networks, fault reporting numbers for some sites within particular Regional Networks may have to change. JCS will confirm the fault reporting numbers to individual JANET primary sites in due course.

Announcements relating to major service outages can be found at:

<http://www.ja.net/cgi-bin/index.pl/outages/?order=reverse>

The JANET Operations Desk is the main point of contact for fault reporting and can be contacted as follows:

Telephone:	020 7692 1111
Facsimile:	020 7504 1035
E-mail:	operations@ja.net

2.3.2 Network Status Information

The network monitoring service (JANET Netsight) has been developed by UKERNA to provide an easy to understand view of the status and performance of JANET. The service comprises a number of Unix based machines deployed around the edge of the backbone that will in the long term provide an overview of all the JANET regional networks.

The deployment of the Netsight systems has continued so that there are now 21 in place on the network. This leaves one system to be deployed to satisfy this phase of JANET monitoring and the requirements of the SLA.

There is some work to be carried out to relocate some of the Netsight systems so that they can be connected directly to their respective BAR. These are primarily the new Scottish infrastructure links, which were installed this summer. There is also ongoing work to equip the deployed Netsight systems with In-Band-Access equipment to further enhance the remote management capabilities.

The Regional Network Operators (RNOs) are now managing all the deployed Netsight systems. The majority of the systems have now had all their respective regional connections added. Individual connection details such as traffic, reliability and latency figures, are available to those connections via a username and password on each system. Not every connection has all three items of data available, as there is still some configuration work to be carried out by some RNOs. This work is in progress and will be completed in the near future.

The development of the Netsight system is very much a dynamic process with enhancements being incorporated continually. The Network Resource Group at UKERNA, which is responsible for the development of the monitoring system, maintains an internal and customer based 'wish list' for desired improvements and enhancements to Netsight. A recent enhancement to Netsight enables users to search for a particular connection by organisation name, which then automatically provides visibility of the correct Netsight system. This means it is not necessary to know on which individual Netsight system a particular connection is configured.

The future will see Netsight being developed further to provide a monitoring service to other developing services within JANET. More details are available at:

<http://www.ja.net/services/netsight/>

2.4 Managed Router Service (MRS)

There has been no increase in the number of sites requesting the MRS during the quarter. UKERNA continues to work closely with Synstar on completing the service installation to sites that have already requested the service. There are currently 16 sites connected to the MRS. Further information about this service is available at:

http://www.ja.net/services/managed_router/

2.5 Naming and Addressing

2.5.1 Naming Domain Administration

UKERNA administers the domain name approval service for both the ac.uk and gov.uk second level domains, along with any modifications required to registered entries in the DNS for these domains. The procedure for gaining names in both domains is detailed at:

http://www.ja.net/documents/naming/names_ac_gov.html

The modifications procedure for domain names under ac.uk and gov.uk already registered in the DNS is available at:

http://www.ja.net/documents/naming/naming_mods.html

During the reporting period 320 requests for both new domain name registrations and modifications to existing entries were received. The rate of applications for new domain names averaged 46 per month, with an average of 61 modifications for each month.

The charge for a new name request is £80 plus V.A.T. (including the first two years' maintenance charge). There is also a maintenance charge of £40 plus V.A.T. for all modification requests, although this charge is not applicable to those organisations connected to JANET. Members of the Approved ISP Scheme are invoiced on a monthly basis.

Further information on domain name charging can be found at:

http://www.ja.net/documents/naming/ac.uk-naming-procedure.html#payments_charges

The WHOIS server database of existing names in both the ac.uk and gov.uk domains is currently updated approximately once a month. An automated updating system that will make it possible to amend the database on a daily basis is expected to be in place and operational by the end of 2002. The current server can be queried using one of the following UNIX commands:

```
whois -h whois.ja.net domainname.ac.uk  
whois -h whois.ja.net domainname.gov.uk
```

2.5.2 Domain Name Service

The JANET DNS service continues to run reliably.

2.5.3 Primary Name Servers for Organisations

UKERNA is in the process of finalising a Primary Domain Name Server Service for JANET customers.

2.5.4 Secondary Name Servers for Organisations

The Secondary Nameserver Service is currently available, without charge, to any customer with a primary connection to JANET. Under this service UKERNA will arrange for a secondary nameserver to be run on the customer's behalf at a remote site on JANET. By the end of this reporting period the number of organisations using the service had increased to 400. Further information about the service may be found at:

http://www.ja.net/services/secondary_nameserver.html

2.6 Supporting Infrastructure Services

2.6.1 Network Time Service

The JANET Network Time Service delivers a stable time reference to customer organisations using the Network Time Protocol (NTP) specified in RFC 1305. It consists of four 'stratum-1' servers distributed across the JANET network, and located at London, Bristol, Manchester and Edinburgh. This mesh of communicating systems gets 'true time' from external references such as MSF time signals broadcasted by the UK Time and Frequency Standard Station, and the GPS (Global Positioning System) satellite navigation system. The result is that clock settings across the whole mesh are very closely synchronised and a single rogue system with the wrong time will have very little effect. A synchronised time service is important for some services, such as distributed file systems and for monitoring security problems.

As mentioned in the last report, the system at Manchester lost its time reference clock in mid May due to a problem caused by the antenna having a broken seal. The part was replaced at the end of July, and all four JANET NTP servers are now fully operational.

Thirteen more sites registered to use the JANET NTP service during the reporting period. Overall, it is a stable and well-used service. Details are available at:
<http://www.ja.net/ntp/>

2.6.2 Co-ordination of Message Handling Services

At the end of April, JANET launched the JANET Mailer Shield pilot service. The pilot is expected to run until April 2003, when it will be reviewed and a decision taken about what service, if any, to offer. The supporting documentation is now available at:
http://www.ja.net/mail/mailer_shield/index.html.

During this reporting period, one more organisation registered to take part in the pilot, which makes a total of six participant sites to date. The service, as its name suggests, provides a shield to the site mailers, which are vulnerable in terms of SPAM (Unsolicited bulk email) hijacks and attacks.

2.6.2.1 Message Handling Conversion Services

In the last reporting period, an announcement of the termination of the JANET X.400 – Simple Mail Transfer Protocol (SMTP) Gateway Service was made. During July, the service administrators at ULCC provided a great deal of support to the JANET customers in assisting them to migrate their local mail service from X.400 to SMTP or to change the service provider to support their remaining domains, and provide a smooth transition. All the functions of the JANET Message Handling Conversion Service were gradually wound down at the end of July and beginning of August as planned, and the Administration Management Domain (ADMD) service was terminated at the same time.

The JANET customers who used the MHS service had enjoyed the success of this stable and long running service for many years. As the result of the service closure, the service will no longer be reported in future JANET quarterly reports.

2.6.3 X.29/Telnet Conversion Services

The Terminal Access Conversion Service (TACS) is a central JANET facility for accessing remote terminal services attached to the X.25 Packet Switched Public Data Network from telnet calls in JANET.

Notification has been received from the supplier of our X.25 circuit, that due to reduced demand, it will not be available beyond 31 December 2002. As a result UKERNA is unable to continue the support of the TACS and will close down the service at the end of 2002. Further information may be found at:
<http://www.ja.net/documents/TACS/TACS.html>

2.7 Usenet News Distribution

2.7.1 Usenet News Backbone

The JANET Usenet News Service enables JANET customers to receive Usenet News feeds from a backbone of JANET News servers. The service is available free to all customer organisations with a Primary Connection to JANET and can provide a full feed of all the newsgroups available worldwide, except for geographically limited hierarchies and groups excluded because they have a record of containing illegal material. A customer organisation may choose to be provided with a News Feed, which does not include all the newsgroups available.

The field trials of the News Cache Service continue. Four PCs are located at customer sites. Experience showed the PCs were not sufficiently reliable and a small server has been acquired as an alternative. The initial testing by the Cache Pilot Team has started and the server will be deployed to a customer site for full testing. A review of the present pilot stage occurred in late September and it is expected that the trial will be completed by the year-end.

There are currently two ways of receiving Usenet News over JANET and the JANET Usenet News Service documentation reflects this. The documentation is linked from:
<http://www.ja.net/usenet/>

2.7.2 JANET News Feed Service

Two sites have discontinued using the service during the reporting period. There are now 101 sites connected to the service. More information is available at:
<http://www.ja.net/usenet/feed.html>

2.7.3 JANET News Reader Facility

Two sites have changed from the News Feed Service to the News Reader Service during the reporting period. There are now 34 connected sites. The service is documented at:
<http://www.ja.net/usenet/reader/reader.html>

2.8 Videoconferencing Services

2.8.1 JANET Videoconferencing Service (JVCS)

There are 324 Coder/Decoders (CODECs) registered to use the JANET Videoconferencing Service over ISDN. During the reporting period 998 conferences took place over a total of 4751 hours.

The project to procure the Videoconferencing Management Centre is underway. UKERNA announced the 'Operational Requirement for the Management of the JANET Videoconferencing Service' in the European Journal on 1 July 2002. A preferred supplier has been chosen and the contract is due to be signed in mid December. UKERNA will announce the new supplier at this point. The expected service start date is 1 April 2003. A copy of the Operational Requirement can be found at:
http://www.ja.net/development/video/vcmc_itt.html

It is envisaged that this procurement exercise will ensure that the Management Centre will support the requirements of the JANET community as it moves to videoconferencing over IP, as well as continuing to support ISDN videoconferencing and gatewaying between videoconferencing technologies.

See also section 5.3.2.

There are 53 CODECs registered to use the JANET IP Videoconferencing Pilot. During the reporting period 110 conferences took place, over a total of 567 hours.

2.8.2 Video Technology Advisory Service (VTAS)

VTAS is a UKERNA service that provides unbiased technical advice to JANET connected FE, HE and Research Organisations.

One of the aims of the advisory service is to develop documentation of interest to the JANET community. An entry-level guide, entitled 'Introduction to Videoconferencing' may be found on the VTAS website at:

<http://www.video.ja.net/intro/>

The VTAS guide 'Videoconferencing Rooms' is available at:

<http://www.video.ja.net/rooms/>

VTAS has maintained its schedule of product evaluations, full details of which may be found at:

<http://www.video.ja.net/evaluation/>

Work is continuing to facilitate the integration of the VTAS and JCS helpdesk and ticketing systems

Further details about the service can be found on the VTAS web pages at:

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

A factsheet outlining the features of the service is available from JCS.

2.9 Administrative Services

2.9.1 Connection Administration

UKERNA is responsible for administering the procedure for the approval and commissioning of new and upgraded connections to JANET. This involves liaising with customers to report progress on their new or upgraded connections. All sites connected to JANET must fit JISC's Connection Policy. Requests for new or enhanced JANET connections should be made via JCS.

A list of organisations connecting to JANET during the reporting period is provided in section 2.1.1.

For information regarding current upgrades or connections, contact JCS at:

connections@janet.ac.uk

2.9.2 Peer Networking Agreement Administration

Peering agreements with the following companies were reached and implemented during the reporting period:

- Griffin;
- Star Internet;
- Your Communications;
- Beyond the Network;
- Telecom Italia.

2.9.3 Licence Administration

Over the past three months JCS has issued four new Sponsored Connection licences and two new Proxy Connection licences. Further information about Sponsored and Proxy Connections can be found at:

http://www.ja.net/connect/types_connect.html

2.10 Operational Support Services

2.10.1 Management of Maintenance Activities

During the 13 'at-risk' periods available during this reporting period, 51 planned maintenance activities took place. There were a further 15 planned or emergency maintenance activities that took place outside of the 'at-risk' times due to the nature of the work involved. Details of the 'at-risk' periods are available at:

<http://www.ja.net/services/at-risk.html>

3 Information and Support Services

3.1 Network Information Services

The JANET/UKERNA web server has continued to perform satisfactorily over the quarter. Work to meet accessibility requirements is ongoing and an audit of the website on behalf of the JISC will take place over the next quarter. During the reporting period the section lost a part-time member of staff but recruitment is under way to bring the group back up to full strength.

Any comments or suggestions on the web server structure and page appearance will be gratefully received and should be directed in the first instance through JCS at:
service@ukerna.ac.uk

3.2 JANET Customer Service (JCS)

JCS provides the primary point of contact for all enquiries concerning JANET services and requests for information. Enquiries may be made by telephone, e-mail, fax, post, or in person.

The number of enquiries received and logged by JCS in this reporting period was 1715. As in previous quarters a large proportion of these queries related to the ac.uk and gov.uk naming domain registration service.

A total of seven complaints were received in this reporting period. Of these, one is currently awaiting final resolution.

Work is continuing to facilitate the integration of the VTAS and JCS helpdesk and ticketing systems.

3.2.1 Contact Information

JCS is staffed from 08.00 to 18.00 Monday to Friday, with voicemail available for calls outside these hours, and if staff are temporarily unable to answer a call.

During the next reporting period there are two UK-wide Bank holidays on Wednesday 25 December and Thursday 26 December. There are also local holidays on Friday 27 December, Monday 30 December and Tuesday 31 December when JCS will be operating from 09.00 to 16.00 with limited cover.

Enquiries may be made by e-mail, telephone, fax, post, or in person as follows:

Email: service@janet.ac.uk
Tel: 01235 822212
Fax: 01235 822397
Post: JANET Customer Service, UKERNA, Atlas Centre, Chilton, Didcot, Oxon, OX11 0QS

3.3 Documentation and Newsletters

During the reporting period, UKERNA produced the following documents. Unless otherwise stated, paper copies of these documents can be obtained from JCS, but please note that some documents are now produced primarily for publication on the web and are better read on-line. If an electronic version of a document is available, the URL is given. Electronically available documentation is in HTML, PostScript or PDF format.

UKERNA welcomes feedback from the community on the usefulness of all documentation produced and encourages suggestions as to which areas require additional documentation.

Comments should be sent by email to:
documentation@ukerna.ac.uk

Tariffs for Additional Bandwidth for Colleges of Further Education
CS/DOC/022

JANET Technical Guide: The Domain Name System
GD/JANET/TECH/003(02/06)
http://www.ja.net/documents/tg_dns.pdf

UKERNA Quarterly Report to the JANET Community (April to June 2002)
<http://www.ja.net/documents/quarterly.html>

Factsheet: Further Education and JANET
PB/INFO/023(02/07)
http://www.ja.net/documents/factsheets/FE_and_JANET.pdf

Factsheet: JANET Netsight August 2002
PB/INFO/013(02/08)
<http://www.ja.net/documents/factsheets/netsight.pdf>

JANET Mailer Shield – Pilot Service
PS/ANS/Service/DOC/001
http://www.ja.net/mail/mailer_shield/ (Available from Web only)

Pamphlet: Training
PB/EDU/001(02/07) re-issue (Available on paper only)

Data Sharing within Videoconferencing
GD/VTAS/003
http://www.video.ja.net/misc/data_sharing.html

VTAS Factsheet
PB/INFO/024
<http://www.ja.net/documents/factsheets/vtas.pdf>

Logfiles Guidance Note
GD/NOTE/008 (02/08)
http://www.ja.net/documents/gn_logfiles.pdf

Using the UKERNA Logo (available on request only)

JANET Report 2001-2002

UKERNA News 20 September 2002
http://www.ja.net/documents/UKERNA_News/index.html

3.4 Technical Updating for the JANET Community

3.4.1 Workshops and Conferences

Multi-Service Networks (MSN2002) 4 – 5 July 2002, The Cosener's House, Abingdon

The fifteenth in this annual series of workshops was held in Cosener's House. The purpose of the workshop is to provide a forum for leading senior researchers and research students, from industry and academia to meet and exchange ideas and update each other on progress. The remit is somewhat broader than the title might suggest and covers many topics in multiservice and multimedia systems as well as networks and communications. This year there were 77 participants, including 20 research students, and six overseas visitors from Australia, Europe and USA. There were 23 talks, including seven from students, addressing a wide range of subjects. A number of participants commented that this had been a particularly interesting workshop with an unusually large number of new ideas being discussed. Proceedings are available at:
<http://www.acu.rl.ac.uk/msn2002/>

UKERNA is very grateful to the Council for the Central Laboratory of the Research Councils (CLRC) for contributing to the cost of running the workshop.

Multicast Workshop 10 July 2002, Royal College of Physicians, London

The workshop supported UKERNA's efforts to encourage the wider deployment of IP multicast within the JANET community, and more specifically provided operational information on configuring regional networks to exchange multicast traffic with the JANET backbone. About 50 members of the community attended and various issues related to the support of multicast were brought out during the discussions. A number of the presentations are available at:
<http://www.ja.net/conferences/multicast/july02/prog.html>

The JANET User Support Workshop (JUSW) 4 – 5 September 2002, The University of York – cancelled

This workshop was cancelled as of 8 August 2002 due to low delegate bookings. It is hoped to organise a one-day event in London in the autumn where some of the User Support topics will be covered.

Scottish Education and Teaching with Technology Show (SETT) 25 – 26 September 2002, Scottish Exhibition and Conference Centre, (SECC) Glasgow

UKERNA had a stand at the SETT conference and exhibition.

JANET IP Videoconferencing Conference 26 September 2002, Imperial College, London

This one-day conference was very well received by the delegates. The presentations included several live video links, which added interest and value. Topics included: Overview of JANET IP Videoconferencing Pilot; Implementation of Global Dialling Scheme; Registering for the Service; Implementing IP Videoconferencing in Wales and Scotland; and Video Technology Advisory Service. Seventy delegates attended this event and the overall feeling was that a similar event would be useful in about 12 months time. Several suggestions were made on the feedback forms about possible topics for future events, such as Multicast and Voice over IP (VoIP). The presentations will be available (subject to speakers permission) at:
http://www.ja.net/conferences/video_2002/prog.html

3.4.2 Study Groups

3.4.2.1 Video Technical Advisory Group (Video-TAG)

Video-TAG met by videoconference on Thursday 5 September 2002. Fourteen sites joined to the meeting using both ISDN and IP based videoconferencing technology. Discussion was focused in three main areas. The first was the current status of development activities in videoconferencing. The second was planned development activities for the coming year in the area of VoIP. The final area was a briefing from the JANET Videoconferencing Management Centre on the plans for site registrations and Quality Assurance (QA) testing as part of the JANET IP Videoconferencing Service. The next meeting will be held by videoconference on 16 January 2003, between 14:00 and 17:00. Further details on Video-TAG can be found at:
<http://www.ja.net/video/video-tag/>

3.4.2.2 NTLG

The group no longer meets.

3.4.3 Training Courses

The Training Course Portfolio has been amended by splitting the long standing Technical Course into two components - JANET Essentials and Technical Overview. This change was driven by a number of factors, a desire to fulfill an ongoing request that the duration of the courses be reduced to one day; and putting a course in place (JANET Essentials) that would be appropriate for a larger audience.

The Training Section has delivered six courses over the quarter and had another cancelled because of low application numbers.

The London Regional Support Centre commissioned UKERNA to deliver a router configuration course on 18 July 2002. This was successfully delivered at the University of North London

The Regional Support Centre Scotland North and East commissioned UKERNA to deliver JANET Essentials and Technical Overview courses in Edinburgh on the 3 - 4 September 2002. Lack of sufficient delegates caused the cancellation of the JANET Essentials course, but the Technical Overview course was delivered at Edinburgh's Telford College.

The following courses were delivered by UKERNA at Aston University:

- JANET Essentials course on 16 September 2002;
- Technical Overview course on 17 September 2002;
- Security course on the 18 September 2002;
- Router Configuration course on 19 September 2002.

CSIRT Training Course 24 – 25 July 2002, Aston Business School

The course focused on how to establish an Incident Response Function and was attended by 18 delegates from JANET sites. The course used materials prepared by TERENA's European CSIRT Task Force, which are now being supported by European funding through the TRANSITS project (<http://www.ist-transits.org/>). All available places on this course were filled only three days after opening for booking, which firmly indicates its high demand. Feedback from delegates suggested that the course had been extremely useful. The course will therefore be repeated in London in January, and, according to demand, thereafter.

Details of courses and a timetable can be found at:
<http://www.ja.net/training/>

3.5 Network User Groups

JANET User Groups represent the views and needs of all users of JANET, both to the bodies that fund JANET and to the providers of the network. The JANET User Groups include those representing geographical regions, those representing particular interest groups and the National User Group. User Group meetings are usually held two or three times a year. UKERNA also sends representatives to these meetings, as this is a good way of disseminating information concerning the latest changes and developments, as well as distributing recent publications. The meetings also provide a forum for informal technical help, and discussion with people doing similar jobs. Please ensure that your organisation is represented at your regional user group, and that appropriate people know about the various special interest groups.

None of these groups met during the reporting period.

Further details about the groups and their meetings can be found at:
<http://www.jnug.ac.uk/>

4 Security Services

4.1 Security Monitoring and Information Dissemination

4.1.1 Response

The last quarter has largely been dominated by Denial of Service attacks. The JANET Computer Emergency Response Team (JANET-CERT) also detected an increase in probes seeking vulnerable SQL servers (1433) and an increase in scanning for known Trojan Horse ports. Abuse of open mail relays and proxies continued to be observed and it seems this is rapidly becoming the preferred method of attack.

UKERNA has discovered sites whose proxies and servers were being abused to transmit copyright material (often MP3 and DIVX). In all cases, careless configuration had allowed intruders to make use of university or college resources and left them at risk of legal claims by commercial copyright owners.

During this quarter several pieces of malicious software were also observed. OPAServe, a worm that is spread by vulnerable network shares, resulted in JANET-CERT receiving 18000 probe reports in one day. The more publicised 'Slapper' and 'Bugbear', however, seemed to have had a limited impact on JANET. Several webpage defacements were also detected, though this activity appears to have subsided. Sites are reminded, however, that they can be singled out for attention and that the activity can be extremely embarrassing for those compromised.

This quarter, JANET-CERT has responded to 988 requests for assistance. 358 (36%) of these involved only JANET sites, 531 (54%) involved both JANET and other networks while 99 (10%) did not involve the JANET network and were passed to other agencies for action. In the same period over 35000 informational reports of unauthorised activity on the Internet were received. However, this is an artificially inflated figure resulting from the impact of the OPAServe. There has been a 41% increase in reports over the equivalent period last year.

4.1.2 Awareness

The JANET Security Course was presented once this quarter, at Aston University in Birmingham. Over a number of presentations it has become apparent that this course tries to cram in too much material for a one-day course. The decision has therefore been taken to remodel the course into two variants, one concentrating on the management aspects of security and one on the technical. Since this requires the course to be rewritten, the opportunity has been taken to update some of the material and present other sections in a different way. Work is proceeding well on the new versions and it is hoped to have them ready for presentation in the new year.

Another new course is a two-day Introduction to Managing Incident Response. The materials have been developed by the European CSIRT Task Force, with UKERNA's Chief Security Advisor acting as editor. Funding has now been secured from the European Commission for the Training of Network Security Incident Teams Staff (TRANSITS) project to maintain this course, present it to European audiences and make it available to others for their own constituency. The course was presented very successfully to members of the JANET community at Aston University in July 2002. The next JANET presentation is scheduled for January 2003 in London. The first two European presentations will be in the Netherlands in October and Poland in May 2003.

UKERNA's participation in training the police National Hi-Tech Crime Unit (NHTCU) has continued, with a presentation on JANET and its security procedures being made to staff at the unit in September. The JANET response to security incidents was also discussed with the National Information Security Coordination Centre (NISCC).

4.1.3 Liaison

As well as contacts with the NHTCU, UKERNA is a member of the Internet Crime Forum where police, government and the ISP industry meet to discuss legislation and its implementation. Information from this forum and discussions with other members have been very useful in writing the latest Technical Guide, which deals with Log Files. This is now available from JANET Customer Service and can be browsed on the UKERNA web site (see section 3.3).

JANET-CERT continues to participate in national and international collaborations between CSIRTs, including attending a meeting of UK CSIRTs hosted by NISCC in August, and a meeting of TERENA's European CSIRT Task Force (TF-CSIRT) in September. The Chief Security Advisor has been elected chair of the review board for the TF-CSIRT's Trusted Introducer service, which aims to provide a trusted directory of CSIRTs in Europe to facilitate communications. UKERNA was invited to present on this work, and to participate in panel sessions on the wider issues of cooperation in Europe, at a Critical Infrastructure Protection conference of the Dutch Government. The opportunity was also taken to arrange a meeting between members of the European CSIRT community and representatives from the Asia-Pacific region where opportunities for collaboration between CSIRTs are also being explored.

The CERT Manager was invited to Malta for discussions with the Maltese government agency charged with establishing a CSIRT. UKERNA has also had meetings on how CSIRTs work and collaborate with QintetiQ and MessageLabs. Members of the team attended the latest Réseaux IP Européens (RIPE) meeting.

Discussions with the NHS have continued, providing input to pilot projects that are establishing connections between JANET and NHS users and services, and also meeting with consultants who are developing a formal process for designing and approving such connection agreements.

4.1.4 Information

Each month a summary of recent security activity is sent to site security contacts through the UK-security mailing list. This includes a reminder of the need to keep systems up to date with security patches. In addition to these mailings, 28 messages containing new or updated security information were sent to the list during the quarter.

The JANET-CERT web site has been further developed over the quarter to include an updated list of peer-to-peer software ports on traffic reduction. The site also now contains a selection of ideas that JANET sites have found useful when trying to control the volume of traffic over the wide area network. Information relating to Distributed denial of Service (DdoS) tracing designed to offer the Systems Manager guidance when faced with an intrusion into the computer system. Details can be found at:

<http://www.ja.net/CERT/JANET-CERT/whatsnew/>

5 Other UKERNA Activities

5.1 TERENA

The Trans-European Research and Education Networking Association (TERENA) was formed in October 1994 by the merger of the Réseaux Associés pour la Recherche Européenne and the European Academic and Research Network '...to promote and participate in the development of a high quality international information and telecommunications infrastructure for the benefit of research and education'. TERENA carries out technical activities and provides a platform for discussion to encourage the development of a high-quality computer-networking infrastructure for the European research community.

5.1.1 Mobility Group

The TERENA Mobility group met in Limerick, Ireland, in June 2002, since then the group has set up a task force and is in the process of drafting a charter. The focus of the task force is to investigate wireless LAN access and mobile roaming with an early objective of enabling wireless LAN access between, and within, National Research and Education Networks from specific institutions.

Further information about the TERENA Mobility Group can be found at:

<http://www.terena.nl/tech/mobility/>

5.1.2 TF-CSIRT

See section 4.1.3.

5.1.3 TF-NGN

The joint TERENA/DANTE Task Force Next Generation Networking (TF-NGN) was established to determine the suitability of advanced networking technologies for the research community in Europe. Through Dr Tim Chown from the University of Southampton, UKERNA is leading the IPv6 work of the task force.

UKERNA will be attending the next meeting of TF-NGN which will be held in Budapest in October 2002.

Further details about the TF-NGN activities can be found at:

<http://www.dante.net/tf-ngn/>

5.1.4 TERENA Networking Conference

A call for papers has been issued for the TERENA Networking Conference, which will take place in Zagreb, Croatia from the 19 - 22 May 2003. Further information may be found at:
<http://www.terena.nl/tnc2003/>

The 2003 conference will be organised jointly with the Croatian Users' Conference.

5.1.5 TERENA General Assembly

The General Assembly is the governing body of TERENA. It comprises representatives of the TERENA members. It meets twice a year to discuss policy issues concerning the organisation. It next meets 24 – 25 October 2002 in Prague. Prior to the meeting there will be a mini-symposium on Authentication, Authorisation and Accounting. For further details see:
<http://www.terena.nl/about/GA/ga18/>

5.1.6 TERENA Compendium

The 2002 edition of the Compendium is available now on-line at:
<http://www.terena.nl/compendium/>

5.2 Development Activities

5.2.1 Broadband Network Developments

5.2.1.1 Digital Scotland

UKERNA continues to work with the Digital Scotland team of the Scottish Executive and is involved in the procurements currently taking place for connections to local authorities in the two Pathfinder project areas, South of Scotland and Highland & Islands. UKERNA staff are also working with the Scottish Education Executive Department to investigate the feasibility of connecting local education authorities in Scotland to JANET, in order to interconnect schools and provide infrastructure for the delivery of centrally located management and content services.

5.2.1.2 Welsh Video Network (WVN)

Rollout and commissioning of all WVN studios are now complete and all studios have ISDN and IP connections. The WVN have been fully involved in the piloting activities of IP Videoconferencing on JANET. It is anticipated that as IP Videoconferencing becomes available as a service on JANET the majority of conferencing on WVN will change to use IP transport technology in place of ISDN technology, thereby providing a direct cost saving to organisations. All organisations have an H.323 proxy gatekeeper to help them manage their IP Videoconferencing and to provide an enhanced level of security.

In addition to the original 81 videoconferencing studios as part of the WVN, three additional self-funded studios have now been installed and commissioned, bringing the total number of studios at FE and HE organisations across Wales to 84. A further six studios have been installed at the National Library of Wales, the Welsh Language Board, Fforwm/ Further Education Development Agency (FEDA) Cymru and Education and Learning Wales (ELWa) bring the overall total number of WVN studios to 90.

5.2.1.3 The Lifelong Learning Network for Wales

The Lifelong Learning Network for Wales, which links the 22 local authorities in Wales to JANET, was delivered to schedule on 1 August 2002.

The network is a 622Mbit/s Synchronous Digital Hierarchy (SDH) ring inter-connecting seven core-PoP sites at Welsh Higher Education Institutions, which themselves are connected to the 22 local authority access-PoPs and seven Wales Assembly Government access-PoPs. The access links are

provided as 100Mbit/s LES circuits, with 155Mbit/s SDH to Pembrokeshire and Powys. The core routing technology is provided by Cisco routers; the access routers are Cisco 7200 series devices. The primary purpose of the network is to provide high-speed network links, which will provide Internet access via JANET to schools, libraries and Information and Communications Technologies (ICT) Learning Centres. The project supports a number of the key actions set out in the Assembly's ICT Strategic Framework, the Welsh Development Agency (WDA) ubiquitous Broadband report and the e-Learning report commissioned by ELWa. The project is being implemented in conjunction with additional network infrastructure development within the Local Authorities.

5.2.2 JANET Videoconferencing Booking Service

An evaluation of a booking system as part of the procurement for the supply of equipment for the JANET IP Videoconferencing Service is underway. The evaluation will be complete by mid November 2002, at which point a decision will be made about whether the system is suitable for the JANET environment.

See also section 2.8.1

5.2.3 Multicast

UKERNA will terminate support for Distance Vector Multicast Routing Protocol (DVMRP) tunnels from the end of October 2002 and all Regional Networks will be encouraged to deploy a native multicast service.

A multicast workshop took place on 10 July 2002. The main topics covered were inter-domain multicast between the Regional Networks and the JANET backbone, and multicast on LANs with case studies from sites. Attendance was good and there was constructive discussion on the implementation of multicast on Regional Networks and within organisations. Presentations from the workshop are available at:

<http://www.ja.net/conferences/multicast/july02/prog.html>

To assist visibility of the status of Multicast, a JANET Beacon server is currently being deployed and all Regional Networks running Multicast will be encouraged to establish Beacon clients. A Beacon infrastructure provides a performance measurement tool that works on the principle of a set of Beacons sending packets continuously to each other through a multicast session, and measuring performance of the transmission. The Beacon clients then report to the Beacon Server periodically.

5.2.4 Content Delivery Infrastructure Development and Co-location Services

Co-location facilities on the JANET backbone (SuperJANET) are now available. Details of this service are available from:

<http://www.ja.net/co-location/>

The streaming content demonstrator project has been set back by a lack of staff due to illness. As a result there has been a delay in the issuing of a call for participation in this project. It is expected that the call will be published during late October to early November 2002. UKERNA are working with the Managing Agent and Advisory Service (MAAS), the JISC Committee for the Information Environment (JCIE) and the JISC Data Centres on this project.

5.2.5 Internet2

A report from the JANET / Internet2 workshop that was held in July 2002 is available from:

<http://www.ja.net/development/internet2/>

In September UKERNA participated in a workshop that was organised by JISC between SURF (JISC equivalent in the Netherlands) and Internet2. The aim of the workshop was to explore the opportunities for joint working between the three organisations and it led to an agreement for closer collaboration. Involving experts from the UK, the Netherlands, and the USA, the event established a strong foundation for closer co-operation in developing an optical network between JISC, SURFnet and the

US-based Internet2 to create a London – Amsterdam – Chicago optical testbed that will enable research into leading edge networks and applications.

5.2.6 Quality of Service (QoS)

5.2.6.1 JANET QoS Working Group

A UKERNA QoS working group was formed in early January 2002 to manage the launch of a QoS development initiative.

UKERNA has conducted a risk analysis associated with implementing IP Premium (IP premium is a term for a specific service within a network Quality of Service (QoS) service set) on the JANET backbone. The outcome of this analysis will be considered during the next quarter while UKERNA finalises the timescales and the implementation plan for the JANET QoS Development Project.

It is envisaged that the SuperJANET Development Network will be used to test the IP Premium implementation before any plans are made to implement it on the JANET backbone. LBE (Less than best-efforts) has already been enabled on the JANET backbone routers to allow LBE testing. Details of the JANET QoS development project can be found at:

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

5.2.6.2 SEQUIN

Further information about this service can be found at:

<http://www.dante.net/sequin/>

5.2.7 Internet Protocol version 6 (IPv6)

Early this year, UKERNA launched a JANET IPv6 Experimental Service and issued a JANET IPv6 positioning statement. Details can be found at:

<http://www.ja.net/development/ipv6/>

During the last quarter a number of JANET organisations joined the experimental service. Also, two native IPv6 peering arrangements were established between JANET and BT's UK6X and the LINX IPv6 infrastructure.

UKERNA is a partner in a European Commission funded project called 6NET. This is a project that aims to establish a pan European native IPv6 network to gain practical experience of managing and implementing an IPv6 network. The project officially began in January 2002, and during the last quarter UKERNA attended the second meeting in Brussels. Also, UKERNA has installed and commissioned the 6NET infrastructure in the UK to provide IPv6 connectivity to the UK Universities (University College London, University of Southampton and Lancaster University) that are also participating in this project. Further details about the 6NET project can be found at:

<http://www.6net.org/>

5.2.8 e-Science/Grid

The summer period has been quiet with no further e-Science centre and project visits, though the remainder of the first round of visits should complete soon.

e-Science connections at 1Gbit/s for the Hinxton Genome Campus, the ScotGRID project (Edinburgh/Glasgow) and the DTI are all making progress with orders for some of the circuits and equipment now being placed.

Recruitment for a Network Performance Officer to support UKERNA's e-Science activities failed when the candidate selected withdrew at the last minute, and the post has been re-advertised.

UKERNA staff attended the Global Grid Forum meeting in Edinburgh, the e-Science Technical Advisory Group (TAG) meeting and the e-Science all-hands meeting in Sheffield.

Optical networking discussions are beginning to bear fruit with the submission of papers to the JISC committees (JCN and JCSR) to seek funding for an optical networking facility with connections to peer facilities in Europe and the USA.

5.2.9 SuperJANET Development Network

The SuperJANET Development Network has been commissioned and the access links (Manchester University and UCL) for the first external project that will use the network are still to be commissioned.

Plans are being made by UKERNA to undertake some immediate IPv6 and QoS development over it. Information about the Development Network will be made available shortly on the JANET website.

5.3 Pilot Services

5.3.1 JANET Asymmetric Digital Subscriber Line (ADSL) Trial

As part of the JANET network access programme, UKERNA is trialling ADSL technology to connect off-campus learning centres to JANET. A network infrastructure has been deployed where 23 off-campus learning centres across the UK have been connected directly to JANET via BT's ADSL infrastructure. Customer service and support structures have also been implemented for this trial.

Some trial sites have extended the use of the pilot by developing wireless networks and Virtual Private Networks over their ADSL connection, enabling ease of use and secure connectivity to their main campuses respectively. So far, positive feedback from the trial participants has been received.

An ADSL trial meeting took place in Birmingham on 30 September 2002 for those participating in the trial. This meeting was well attended and gave the attendees the opportunity to share experiences and thoughts on both the trial service and requirements for a full service.

During the last quarter, UKERNA produced a 'register your interest' web form for Directors of Computing Centres / Heads of Information Services to express interest in a JANET ADSL Service and to enable UKERNA to assess the demand for such a service. This is available at:
http://www.ja.net/development/network_access/adsl/register-interest.html

Further information about the JANET ADSL trial can be found at:
http://www.ja.net/development/network_access/index.html

5.3.2 JANET IP Videoconferencing Pilot

The equipment to support the JANET IP Videoconferencing Pilot was delivered and installed at the JANET Co-location facilities during July. The equipment hosted at the Reading C-PoP has now been successfully commissioned and is now being used as part of the JANET IP Videoconferencing Pilot. It is anticipated that a JANET IP Videoconferencing service will be launched in early 2003.

See also section 2.8.1

5.3.3 JANET Satellite Pilot

UKERNA is working with the JISC Satellite Working Group to deploy a 12 month trial of two-way connectivity to the Internet using satellite technology. The trial is due to commence next quarter. The aim of the trial is to evaluate the satellite technology and service support infrastructure for JANET organisations located in rural and remote areas of the UK. The performance of the network, especially in variable weather conditions, will also be examined.

During the last quarter, DC Sat.Net was selected as the preferred supplier to provide the necessary equipment for this pilot. Both Gilat (for individual users) and BBI (for connecting local area networks) technologies will be trialled.

Sites that will be participating in this trial were selected on the 17 September 2002, as part of a targeted call for participation.

Further information about the satellite trial can be found at:

http://www.ja.net/development/network_access/satellite/trial.html

5.4 e-Learning

The Business Development Division is continuing to discuss e-Learning developments with the JANET community, and with organisations involved in aspects of the promotion, development and use of technology in teaching and learning.

UKERNA has been represented at events promoting the development of e-Learning in specific sectors including:

- Managing Information Learning Technology (ILT) – Joint Information Systems Committee (JISC) Regional Support Centre (RSC) North West (NW);
- Association for Learning Technology (ALT) Policy Board;
- Manchester Information and Associated Services (MIMAS) Forum;
- Association for Learning Technology – Conference (ALT – C);
- Scottish Education and Teaching with Technology (SETT).

The Business Development Division as a whole is looking at the issues involved in widening the JANET community. Discussions are continuing with the Learning and Skills Council (LSC) in regard to connecting the Specialist Colleges in England as well as the Adult and Community Learning sector. Teaching and learning issues are at the forefront of negotiations in shaping all technical decisions.

The e-Learning Business Manager has taken on a formal role as part of the JANET Content Delivery Infrastructure Project. This involvement will continue through to the project's conclusion and will become a focus for UKERNA's e-learning activities.

5.5 FE Liaison

The FE Account Managers for England and Wales continue to liaise with the FE community. The UKERNA/Regional Support Centre (RSC) Liaison Day, held in July 2000, attracted delegates from all the RSCs. In addition, the Account Managers have participated in some of the regional RSC activities.

At the invitation of the (LSC), UKERNA attended and exhibited at the 'After The Distributed and Electronic Learning Group (DELG): enabling e-Learning locally' conference for LSC staff.

As part of the next stage of the National Learning Network (NLN) Programme, UKERNA is conducting a pilot project to connect Specialist Colleges and is represented on the NLN's Specialist Colleges ILT Implementation Group. Preparatory work for a similar project for the Adult and Community Learning sector to connect to JANET has been carried out.

6 UKERNA

6.1 UKERNA Governance Review

Following the review of the JISC undertaken by Sir Brian Follett in 2000, a review of the governance of UKERNA was commissioned by the UK funding councils. Fred McCrindle, Principal of Reading College and the current Chair of the JISC Committee on Networking chaired the working group. The review was carried out in the latter part of 2001 and the working group reported in early 2002. The report of the working group was accepted by the funding councils and recommended some changes to the constitution and governance of UKERNA. In order to implement the recommendations it was necessary to make changes to the company's Memorandum and Articles of Association, requiring the approval of members in an extraordinary general meeting. The requisite majorities for each of the three resolutions proposed to effect the changes were obtained at the meeting on 27 May 2002.

Work has now commenced on the practicalities of implementing the approved changes to UKERNA's constitution. The UK funding councils are being installed as members of the company and are in the process of nominating directors to the UKERNA board. UKERNA has written to its higher and further education organisations and individual members to solicit their nominations for three directors to join the UKERNA board. If more than three nominations are received, an election will be arranged with a view to having the new directors in place by the end of 2002.

6.2 UKERNA Staff

The following staff changes were recorded during the reporting period.

Leavers

- Janet Fox-Davies, Training Manager, 12/07/02
- Nicola Williams, Web Designer, 04/11/02

New Staff

- Russell Nelson, Information Services Manager, 01/08/02
- James Bell, Documentation Officer, 05/08/02
- Duncan Rogerson, Networking Technical Specialist, 15/07/02
- Simon Cooper, Networking Reporting Officer, 01/08/02

Internal Changes

- Norma Martin, ISO 9001 (2000) Project Manager, 01/07/02
- Stephen Warner-Jones, CERT Member, 01/08/02

7 Further Information

Further information on any aspect of this report can be obtained through UKERNA's general enquiry point, JCS. They can be contacted using e-mail at: service@janet.ac.uk