

## Reports from Regional Networks for UKMMG Meeting of 24 April 2007

### ***NIRAN: Chris Kelly***

#### SuperJANET5

NIRAN has been connected to SJ5 since December 2006 and the service is running well. The Multicast resilience testing was not completed at the time of the switch and will need to be confirmed at a later date.

NIRAN will soon expand its backbone network into two separate circuits: one connecting from the Derry PoP to Belfast PoP1 and the other from the Derry PoP to the Belfast PoP-2. One of these circuits will be the live traffic-carrier and the other will serve as an automatic failover circuit, thereby giving the Derry sites a resilient route to the Internet.

#### FE Colleges Merger

Northern Ireland's existing 16 Further Education Colleges are merging into 6 larger Area Based Colleges [ABCs] by September 2007. NIRAN has been closely involved in discussions with the major stakeholders over the future network topology. A preferred network solution has now been agreed with the Department for Employment and Learning and the FE sector. This will entail a number of bandwidth upgrades, including 100Mb circuits to each new ABC primary campus; all NI FE Colleges will then have a 100Mb Internet link.

#### RPAN3

The NIRAN Board has agreed, in principle, to the RPAN3 consultative paper. NIRAN intends to continue to operate as an RNO under RPAN3 and has responded to UKERNA positively, albeit with some concerns about the ability of NIRAN to use its own company name in future re-branding plans.

#### Research Bandwidth (UKLight)

The Belfast E-Science Centre had a dedicated 1Gb circuit into SuperJANET4, separate from NIRAN's IP production service bandwidth. As a result of the demise of SJ4 and the non-readiness of the research bandwidth/UKLight, NIRAN had to accommodate the Belfast E-Science project by providing it with a 1G circuit directly into NIRAN. It is anticipated that this is a temporary measure in advance of developments with the 10G research bandwidth and UKLight.

### ***MidMAN: James Hendry***

#### REGIONAL NETWORKING AGGREGATION

Since the previous UK MMG meeting, extensive discussion has taken place on the general topic of regional networking aggregation. This has involved representatives of MidMAN, UKERNA, LAs (education / child services as well as corporate) and the regional development agency (AWM). The outcome is that there is overwhelming support for continuation of an integrated regional network infrastructure and to that end discussion is underway both to ensure an ongoing integrated service for 2007/08 and to progress the procurement of a replacement regional network infrastructure from October 2008. MidMAN will lead both these procurements. Inter-alia this latter discussion will embrace aspects relating to governance arrangements for the replacement procurement and the ongoing operation. From a MidMAN perspective, these outcomes are encapsulated in the formal UKERNA request to MidMAN to initiate both procurements involving as appropriate the LAs. UKERNA will be involved in the replacement procurement to reflect RPAN3/JPA aspects and also to take cognisance of the wider regional LA educational (and other corporate) needs.

## SuperJANET5

While it is of course early days, MidMAN is somewhat 'concerned' about the number of incidents affecting the Verizon / UKERNA infrastructure serving MidMAN in the three months of service to date. In total there have been five 'outages' with three reflecting a failure in this infrastructure and two reflecting unannounced Verizon scheduled maintenance on the infrastructure. In all cases, there was no interruption to the MidMAN service since the failover to the other RNEP worked without hitch. These experiences have led us to raise with UKERNA the practical criteria by which a 'real' incident affecting resilience counts as a scheduled test, but to date no response has been forthcoming. Nevertheless in the immediate short to medium term, MidMAN would in any case want to carry out quarterly IP resilience tests as 'defined' in its IP Resilience Testing Scheme (à la RPAN) to allow a better practical understanding of the extent to which the overall MidMAN service is resilient with respect to SuperJANET5 (and not just focus on testing at the RNEPs). The first test was successfully carried out on 17 April.

## DISASTER RECOVERY PLANNING

In the context of Collaborative DRP, a number of HEIs is seriously investigating use of another HEIs site to host equipment to provide a level of service in the event of a serious incident at their site. Within the aegis of MidMAN, it is intended to draw up a 'simple' hosting agreement to cater for this approach.

### ***WNL (Running the SWMAN and the LLNW): Roger Williams***

The SWMAN (which now uses the LLNW as its backbone and JANET access) is performing well. Power supply problems (both with the public supply and with institution's supply) are becoming a significant cause of outage reports to UKERNA.

The Welsh RNEP2 now has its UPS protecting the LLNW GSR Router. However we are still waiting for BT to move the Cardiff end of the Cardiff to Wrexham LLNW link from RNEP1 to RNEP2. BT have a large backlog of work in South Wales but we are told to expect this move to be done around end April.

The procurement of the All Wales Public Sector Network (AWPSN) progresses. The three shortlisted suppliers have to submit their tenders by 20 April, with the announcement of the successful supplier being made in late May. We will then know SWMAN's place in the AWPSN migration timetable.

PKF's second RPAN audit of WNL went smoothly with two actions placed on us.

We received a request from UKERNA to accept a 100Mbps link into SWMAN from the National Library of Wales at Aberystwyth. It turned out that this request originated from the British Library as part of their book digitisation project. Because of our concerns on projected loading of the LLNW links to Aberystwyth, given the timescales for the AWPSN and the growth in bandwidth usage on the LLNW, we had to turn the request down as we were not confident that the current LLNW could accommodate a continual 100Mbps from this connection. I understand that the British Library are now exploring a direct connection from Aberystwyth into SJ5 as they are not prepared to wait for the AWPSN.

### ***LeNSE: Mike Byrne***

Our main activity at the moment is the project management of the new LeNSE "Next Generation (NG)" network service replacement project. Neos Networks are contracted to provide an extensive (30Gbps +) GE core network, while Alcatel-Lucent are supplying LeNSE with new Juniper core routers (M120) and PE edge routers (M10i) as well providing the new outsourced 24x7 HE/FE help desk service. This is essentially a £5M procurement over 5 years. For those who missed the 5th March 2007 SJ5 Planning day, the full details of this procurement and the supply solution may be found at:

<http://www.ja.net/sj5/rno-mtg-mar07/lense2.pdf>

We've been equally intensely engaged with UKERNA on the recent LSC funded FE bandwidth upgrade activity, which has been complicated by our need to re-select a BT circuit provider as part of the main NG project. This is effectively another £5M contract over 5 years. Like everybody else using BT circuits, we've been hit by BT's recent change of business practice (i.e. the introduction of BT Openreach) and the market confusion it caused, not to mention having to deal with the huge price hikes for existing BT LES circuits and new WES/EES services (price hikes in three stages up to June 08!). We've also been victim to BT's lack of core fibre and ducting infrastructure in the far East, West and South (i.e. Isle of Wight) parts of our region. While getting fibre across the water to the IoW is an understandable hassle, the lack of infrastructure on the mainland is less amusing. However, the programme of works now appears to be under control (for the time being!)

Otherwise, not much else to report. The usual occasional operational incident on tail circuits and a couple of non service affecting SJ5 incidents. We've also just had the latest RPAN Audit, which was thankfully light-weight this time around.

#### ***AbMAN: John Linn***

On the network side things have settled down with respect to SJ5 with the primary link to Leeds not showing the short outages that it did to begin with. We are still waiting on a bug fix from Cisco so as to complete the IPv6 multicast configuration using the latest dbeacon as the multicast monitor and are reviewing the IPv6 ACLs for router services security. The use of the network management services with cacti and Inmon's Traffic Sentinel, for netflow analysis, are being refined.

In preparation for RPAN3 we together with FaTMAN and UHI considered merging but after thorough consideration are not going to pursue this. However we are going to make every effort to collaborate with each other and the other RN's in Scotland. This is not a vote for independence but a result of the fact that our funding comes from the SFC.

#### ***Kentish MAN: Paul Kentish***

All but two radio links have now been replaced with BT circuits. Only one of these remaining links is part of the main network, linking Canterbury with Broadstairs. The other is a back up for a LES100 circuit. Overall performance has been good with the main problems being due to power failures at customer sites. UCCA Maidstone also lost connectivity when a digger broke the fibre in three places. A power failure at the RNEP at Chatham caused a 67 minute outage after the UPS and generator did not work as expected. All equipment with a single power supply was affected.

The Risk Register has been updated to reflect the removal of radio links and the increased resilience of the two RNEPs. Plans are in hand to do an office-based test of the Disaster Recovery Plan.

There is concern that there may be pressure to take on B end support for the FE college connections ahead of the arrangements to be made via the JPA. We would like to see the funding of B end routers at the sites and the additional staff effort agreed before we go ahead.

There has been a larger than usual spate of requests for quotations for potential new circuits in recent months. Not many of these look like being confirmed. It would be better if more use could be made of local knowledge within Kent MAN Ltd. In addition, quotes for some schools may be better addressed in conjunction with our links with Kent County

***ClydeNET: Linda McCormick***

IPv6 implemented on the ClydeNET core but there has been no demand for IPv6 multicasting.

First of the FE new builds has completed and 100Mbps service commissioned to new site. Regretably this results in the first migration from dark fibre provision.

Had preliminary useful meeting with rates assessors from Glasgow District Council in February. No further contact to date.

Had to revise plans for expenditure of SJ5 plans due to merger of Paisley University & Bell College on 1 August 2007.

Have now advertised in European Journal for replacement of our managed telecomms services.

***LMN: Pete White***

**Progress on LMN3 network Procurement**

On the 16<sup>th</sup> February a contract was signed with Thus plc to deliver the transmission infrastructure for LMN3, the next generation of the LMN network.

The overall architecture of the LMN3 backbone is three PoPs (Points of Presence) interconnected by a high capacity optical backbone network. Each PoP will act as the delivery mechanism, via access links, to the Higher and Further Education institutions and other education and research organisations.

Two of the key requirements for the LMN3 infrastructure was the capability of delivering high reliability and obtaining maximum benefit from the twin connections to the SuperJANET backbone. Another was scalability, the LMN3 network will be capable of keeping pace with demands for network capacity in a timely and cost-effective manner. Current demand suggests that network capacity usage is doubling every nine to twelve months. This is likely to continue, and to meet this demand the LMN3 backbone has the capacity to expand rapidly, from two initial 10 Gbit/s resilient channels to multiple 10 Gbit/s channels. In addition there is the potential for increased bandwidth in the network access links that will allow the potential of the network to be fully exploited.

Resiliency will be provided in the backbone and in the access links to those institutions that have the requirement. Institutions increasingly depend on their networks for teaching, research and business processes. Having a fallback in the event of an access link failure is becoming a necessity for business continuity.

Provision is made both within the backbone and access links for managed bandwidth to be delivered to those institutions that have the need. This will principally be those institutions that have the research requirement to collaborate and exploit the network with others in London and beyond using the SuperJANET 5 managed bandwidth network.

The current LMN community is made up of Higher and Further Education, Adult and Community Learning and other educationally related institutions. It is the intention of LMN Ltd. that this community will be extended. To accommodate this expansion LMN3 will allow for the resulting growth in the number of access links.

**Business Development Activities**

**1. Timetable of events**

Month	Theme	Company	Venue	Speakers
<b>29<sup>th</sup> Sep2005</b>	Compliance to e-mail management	LMN	British Library	J. Burke-JISC C. Thomas-Lough B. Beabey-Farrer's B. Hashmi-Middlesex
<b>6<sup>th</sup>Dec 2006</b>	IT Director's Forum	LMN	Birkbeck	Chair- Dr Jas Gill Gartner
<b>15<sup>th</sup>Dec 2006</b>	ID_Shibboleth	LMN	Birkbeck college	John Robinson-JISC Henry Hughes-UKERNA John Paschoud-LSE Robin Wilton SUN
<b>26<sup>th</sup>Jan 2006</b>	AGM	LMN	SOAS	LMN Board

## 2. Service Adoption

In August 05 two services were available to the LMN community, the VBAK from InTechnology and e-mail filtering from Message Labs.

### Table 1: VBAK customers/InTechnology

This table summarises the members using the VBAK as on August 06 and the new LMN customers by January 06.

This has been a very slow quarter in adoption of the VBAK service despite our extending visits and interest from the community. Only 1 LMN member sign on the service.

Regent's College	Christ the King 6 <sup>th</sup> form College
London Business School	
Birkbeck College	
Ravensbourne College	
University of Westminster	
King's College London (MIS)	
King's College London (ISS)	
School of Pharmacy	
Royal Academy of Music	
The Working Men's College	
City of Westminster College	
King's Fund	
UKERNA JANET NOSC	
Multiple Sclerosis Society	
Royal London School for the Blind	
Senate Housing	
St Mary's College	
<b>July 06-UKERNA related</b>	<b>July 06-UKERNA related</b>
Plymouth College	None
University of Abertay	

**VBAK prospects developed for period 08/06-01/07**

**UCL** - Services to Sponsored Connection Customers

**Middlesex University** - "VBAK Plus"

**Tower Hamlets College** - "VBAK"

**London South Bank University** - "VBAK Plus" and possibly, "VBAK"

**Brunel University** - "VBAK Plus"

**Roehampton University** - "VBAK"

**Havering College of Further and Higher Education** - "VBAK"

**City University** - "VBAK Plus" and possibly "VBAK"

**Learning and Skills Network (LSN)** - "VBAK"

**RSC London:** "VBAK" Evaluation for feedback

**Table 2: E-mail filtering customers/Message Labs**

There has been a very slow 6 months for MLs service with only 1 LMN member institution signing on the service.

Birkbeck College	LSN education
Harrow College	
Kings College London	
Kingston College	
London Business School	
National Inst.of Social & Economic Research	
Newham College of Further Education	
South Thames College	
The Place	
Tower Hamlets College	
ULCC	
Conservatoire Dance	

**E-mail filtering prospects developed for period 08/06-01/07**

**King's fund**

**Imperial War Museum**

**Roehampton University**

**City University**

**Kew Gardens**

**3. New services/ Service evaluation**

At LMN's AGM on 26<sup>th</sup> January 2007 the WFS service was withdrawn from the

portfolio of LMN services as we did not manage to get a cost effective price card and an effective SLA. This quarter LMN evaluated a series of services that could prove to be of benefits to our community in the future such as transit of internet to halls of residence, real-time collaboration environment designed for distance learning and collaboration in academic institutions and wireless among a few.

### **3.1 New Services**

#### **3.1 Email Archiving**

This service has now been resolved at RAM so the prospects *London School of Economics and Political Science, UCL, Birkbeck, Middlesex University, Multiple Sclerosis Society, Ravensbourne, City of Islington College* will be notified shortly.

#### **3.2 New Services Evaluation**

This year we have evaluated 13 services. Most of evaluations that were related to improving security, authentication, N3 connectivity have been placed on hold due to the LMN3 procurement but they have been referred to the technical group and shall resume as soon as procurement is in place.

*The most relevant services that could add value to our network could be achieved via engagement with the Catalyst to provide internet transit services*

## **4. Exposure of the LMN Brand**

### **4.1 Web-site Development**

The web site has been regularly updated:

- Interactive feedback member area,
- Clear information on LMN and partner services
- LMN publications
- Events calendar
- student area

### **4.2 Newsletters**

LMN has produced successfully two newsletters for this period:

26<sup>th</sup> September 2006,

26<sup>th</sup> January 2007

### ***SWERN: Kit Powell & Andy Mason***

Failure of one of our PoP routers resulted in a large aggregate loss of service. While incidents of this sort are thankfully rare, we are more than ever convinced of the importance of client sites connecting to both of our PoP pairs to give protection against PoP equipment and tail circuit failure.

We have successfully carried out our first RPAN2.5 fail-over test.

The roll-out of our new regional backbone should be complete in all respects by the end of May.

After several years of annual growth of traffic to SWERN sites of at most 50%, and often less, the last three months of 2007 showed a doubling. Preliminary examination of Netflow data shows that YouTube and similar services represent a large proportion of incoming traffic. We are bringing

forward our backbone capacity upgrade programme to meet the new demand.

### ***NWMAN: David Stedham***

We now have all but one college connected via the Lifelong Learning Network. This has allowed us to turn off most of the old fibre/radio backbone and we are busy decommissioning the radio equipment and recovering redundant routers and other equipment. The final BT link is promised for the end of April, but we have not been given a date.

We have had endless problems with a low level of packet loss in the gigabit interfaces in the backbone routers (Cisco 7507) at Bangor and Wrexham. The main effect was felt by University of Wales Bangor which was fully loading its 100Mbps link to the MAN. Eventually Cisco has admitted that the problem is caused by bursts of traffic from the LLN GSR router overflowing buffers in the 7507 and is incurable.

Our plan is to take two redundant Cisco 7206s from the MAN backbone, fit them with new NPE-G1 supervisor cards with on-board gigabit interfaces and deploy them at Bangor and Wrexham in place of the 7507s. As an interim measure we are routing traffic for University of Wales Bangor through gigabit interfaces in a 7206 belonging to the LLN. As well as the immediate benefit of solving UWB's packet loss problem, this proves that the eventual solution will work.

NWMAN has continued to work with WNL and the Welsh Assembly Broadband Unit on the all-Wales public sector network project (PSBA). Activities have included vetting schedules, assisting with data collection on the connections the new network needs to provide and

### ***Net North West: Tim Robinson***

#### **Rating Fibre (Valuation Office Agency)**

Nothing much has happened since January. We have received the bills for 2007/8 and the rates payable have gone up to 44.4% of the RV.

We are accruing the rates due on dark fibre that the VOA has not yet made an assessment.

We are not actively pursuing charitable status as we feel this is unlikely to be successful. The NNW Board in June will probably agree that where dark fibre is used and the rates are not covered by RPAN then the member who benefits will have to pay the bill.

#### **RPAN Funded Connections**

NNW reached 100 RPAN funded connections in 2006. This number is static at the moment with new ACL/Specialist links being offset by FE College mergers. The proposed takeover of Skelmersdale FE by Newcastle-upon-Tyne College will raise some interesting connectivity issues.

FE sites are continuing to request 100 Mbps links in order to be able to accommodate higher JANET bandwidths. These are starting to be delivered with several more on order.

A project to replace the existing SURFnet, not the Netherlands NREN but the Staffordshire University Regional Federation network, based on ATM/SDH delivered over microwave with a fibre/Ethernet based network are well in hand. This is expected to be in service by the start of the 2007/8 academic year.

#### **SuperJANET5**

The SJ5 resilience features have already kept our link to SJ5 live several times as the resilience

protected us from a faulty 10 Gbps POS card in Manchester and a fault on the circuit to Preston. It is also allowed us to get back online in January when RNEP-1 lost all power in the storms.

All eleven new Cisco 6500s being deployed across the region are operational and members are introducing BGP between their networks and NNW to take advantage of the dual links all the HEIs have to NNW. It is planned to complete the transfer by 31-Jul-2007.

Plans to deploy dark fibre to allow an e-Science network to operate between Manchester, Liverpool, Daresbury and Jodrell Bank are progressing. All the necessary dark fibre has been obtained. The last leg, from Liverpool to Manchester, went live at the end of March as a 1 Gbps E link using ZX modules to drive some 100 km.

A procurement document for the optical equipment to drive the network at (multiple) 10 Gbps will be issued at the start of May.

### **and finally**

We all have issues with wayleave - but a circuit we ordered on 20-Sep-2005 was finally delivered on 19-Apr-2007 following more wayleave issues with the NHS and the local council then anyone should expect to have to deal with!

### ***FaTMAN: Mike Whitehead***

#### **Service**

FaTMAN-5 and SuperJANET5 continue to work well.

#### **Documentation**

We revised our Risk Register and are now updating our Disaster Recovery Plan.

#### **Procurement**

We have signed a contract with H2O for the supply of diversely routed, resilient fibres between our second RNEP and a second Entry Point in each of two HEIs served by FaTMAN (University of Abertay Dundee and University of St Andrews). This is an attractive option with a 10-year term using purpose-dug duct routes as well as water/sewage pipes. The third HEI served by FaTMAN is the University of Dundee which hosts the two RNEPs and therefore does not require any additional circuits to achieve resilience.

Next requirement is to procure replacements for our managed services.

#### **Rating**

We have supplied details of our fibre circuits to the local Valuation Board but I have not heard from them about any resulting liability for rates.

#### **Service Development**

We are working with University of St Andrews to explore requirements there for access to special purpose bandwidth and network research facilities at the optical level.

#### **Management**

Discussions with other Scottish RNs about merger options and collaboration have been held as part of the preparations for RPA3/JPA.