Reports from Regional Networks for UKMMG Meeting of 16 October 2007

NWMAN: David Stedham

The MAN has run smoothly over the summer. We have just one router swap to do and the migration to LLN will be complete.

We are waiting for a formal announcement about the contract for the All-Wales public sector network (PSBA). The announcement is likely to be made in mid-October and more details will emerge over the following few weeks. NWMAN would like to thank all those from WNL who played a major part in the procurement and selection on behalf of the whole HE/FE/Research community in Wales.

LMN: Pete White

Procurement
The LMN3 core was delivered in mid July 2007 running a 2 by 10Gbps DWDM core around the 3 PoPs at King's, Imperial and ULCC. There was no disruption during cut over from LMN2.

The HEI's have now starting receiving their 1Gbps primary links plus in most cases 1Gbps resilient links. LMN has found that the biggest challenge is coordinating installation around individual institution's timetables (hardly surprising) so we now project that completion for the majority will be end 2007. One of the 4 non-PoP JANET Lightpath 10Gbps services at Queen Mary has now been handed over.

Many of our FECs have ordered 100Mbps upgrades and resilient circuits, many of which are now complete.

LMN has faced another PoP shift within the Imperial premises which is projected to complete by the end of October/early November 2007. This will disrupt over one third of our 156 connections and will be planned over consecutive 0000-0600 slots, one within the at-risk period day.

Business Development Activities

1. Timetable of events

Tuesday 27th November 2007 Digital Depositories: What are our expectations?
Thursday 18th October 2007 E-Learning Strategies
To be announced Issues surrounding VoIP, London Networkshop.

2. Service Adoption

2.1 Back up with InTechnology
21 institutions now use these services many of which have now been consolidated producing less total institutions, but more services. The turnover for these services exceeds £1.5 million/annum.

2.2 Message labs
19 institutions use this service. The turnover for these service exceeded £1 million/annum.

3. New Services

3.1 Transit of JANET to halls of residence managed service
LMN has now closed a deal with Catalyst Ltd to deliver managed student internet services to halls of residence. The circuit is on order for the Harrow Halls of residence for University of Westminster.

3.2 Inuk IP TV
LMN is now finalizing contracts with Inuk who already deliver IP TV

over JANET. Again we are close to a deal but at this stage this remains commercial in confidence.

3.3 Endoline
LMN is seeking way to assist its members follow the WEEE directive by negotiation preferential rates with Endoline who are already used by many member institutions.

3.4 Salford Technologies Ltd
Salford T Ltd offer consultancy services to assist institutions develop integrated systems and applications by using various identity management techniques. They have already successfully deployed these techniques in many institutions nationwide e.g. University of Westminster, London Business School, Nottingham University etc some 87 institutions. LMN intends to deploy our business model to assist our members achieve cost savings and improved service.

ClydeNET: Linda McCormick

Procurement
Thus have been awarded the contract for the replacement managed telecomms infrastructure for our non-Metro FE colleges. Work is in progress. Clydebank College has been commissioned as a priority as the college has moved to a new location.

Due to the delay in receiving funding confirmation from JANET (UK), the procurement for edge router and switching kit was conducted as part of a wider exercise by the University of Glasgow to establish a framework for its own use. This framework been extended to cover the ClydeNET infrastructure and any ClydeNET member institution that wishes to take advantage of the deals secured. The full outcome of the procurement has been a framework with Virgin Media for Cisco equipment, which ClydeNET Management Committee has approved, and Intrinsic for Cisco and Nortel equipment. The contractual negotiations with Virgin Media have proved more protracted than anticipated. This delay coupled with a slower response than expected for pricing information of specific kit configurations has meant that an order has not yet been placed for equipment. having agreed a portfolio of equipment, delivery has been promised by mid December.

Issues
The POS interfaces purchased for our RNEP routers are end of lifed for our particular configuration and we have had to upgrade the RNEP routers.

NIRAN: Chris Kelly

NIRAN Incidents: March – September 2007 Thirty network incidents were reported during this six-month period, of which only seven were network related faults. The remainder comprised unscheduled site power outages and scheduled maintenance events. Approximately four of the incidents were reported outside normal working hours.

Total Incidents for 6 months	Scheduled Maintenance	Unscheduled local site power outages	Network faults
30	13	10	7

NIRAN Backbone Split
In July NTL and QUB cooperated successfully to split the 155Mb backbone link from Derry to Belfast into two separate circuits, thereby providing the sites connected to the Derry PoP with a resilient link to the Internet. This development caused some initial teething troubles for the sites connected to the Derry router. Whilst the splitting of the 155Mb circuit proved problematic for

a few days, it has worked to the benefit of the North West sites. For example, they did not suffer any outage on 4th August during a ½-day outage due to the new Queens University computer lab relocation and again on August 19th when the majority of sites connected to the Belfast POP1 router lost their Internet connection.

Further Education Merger
The Department for Employment and Learning had proposed a merger of the 16 NI FE colleges down to 6 larger colleges. NIRAN had prepared an economic appraisal on the wide area networking implications of the Further Education merger. The recommendations of the appraisal, including several bandwidth upgrades to accommodate anticipated extra data traffic, were presented to the sector in early 2007 and accepted by the stakeholders as a viable network model for the 6 new Area Based Colleges.

The Department has agreed to fund the network bandwidth upgrades. NIRAN has been busy procuring these upgrades and has coordinated their implementation over the summer 2007. All the upgrades are scheduled to be in place by early October 2007. Many of the Colleges have implemented new services over the higher bandwidths, such as Voice over IP. Thus far, these new networked applications are operating successfully.

FE college upgrades
Limavady college (100Mb)
Omagh college (100Mb)
East Antrim institute (100Mb)
Armagh college (34 Mb)
Newry institute (100Mb)
Lisburn institute (34 Mb)

HE institution upgrades
University of Ulster (300Mb)

AbMAN: John Linn

We have experienced a relatively quiet summer period while waiting on Cisco to produce the next IOS for the 7600 which is purported to fix the IPv6 multicast problem identified almost a year ago. We are looking into ensuring that all our nominated connections have resilient connectivity so that the probability of loss of service is minimised. It is hoped that this may make the extended cover hours practical. We have also submitted out first "resilience test" due to a fault at Leeds (this would be excluded in the JPA operations manual as we had not scheduled a test).

SWMAN: Chris Price

WNL have enjoyed a relatively quiet period on the network, with little to report in terms of network outages and changes to connections over the summer months. UKMMG members will be aware that WNL were able to decommission the SWMAN backbone in early 2006 in order to utilise the Lifelong Learning Network (LLN) backbone, and that the LLN now has the interconnect to SJ5.

In September 2007 WNL improved resilience upon the LLN backbone by running a second Gigabit circuit between the two RNEPs which are located in Cardiff. This additional Gigabit connection over private fibres (rented from Cardiff University) is load-balanced and provides a diverse route between the two RNEPs. The fibres were brought in to service to mitigate the risk of congestion on the previous single Gigabit link between RNEP1 and RNEP2 in the event of failure of the primary interconnect to SJ5 which regularly tops 1.5Gbps during peak hours. This is likely to be the last work on the LLNW as it stands, with all future development and upgrade activity concentrating upon the Public Sector Broadband Aggregation project.

The majority of time and effort for WNL staff has focused upon the PSBA project - two WNL officers and Bob Day of JANET(UK) were closely involved with the procurement and evaluation process. The lengthy procurement process was completed on 3rd September when the WAG awarded a £74million, seven-year contract to build and operate a countrywide public sector broadband network to Logicalis. The PSBA network will allow organisations and agencies ranging from hospitals, universities, colleges, government offices, GP

surgeries, schools, and libraries achieve better value for money in their use of broadband communications, as well as increasing the services available to Welsh Public Sector organisations.

The PSBA network will be an evolution of the existing LLN infrastructure, and over the next quarter Logicalis have a timetable to upgrade existing routing platforms in order to deliver PSBA services. Upgrading of backbone capacity and access links is likely to take place in Q3 2008, although our sector will need to monitor utilisation of the backbone and if necessary bring forward the upgrade to deliver 2.5Gbps.

WNL has also been very closely involved with planning work to formalise governance and operational delivery structures, and coordinate the migration of sectors onto the new network.

SWERN: Kit Powell

We are in the process of increasing the speeds of our regional backbone links to meet increased traffic levels. This upgrade was planned for, but has been brought forward.

We have agreed with JANET(UK) that the connections to the SuperJANET5 backbone at the RNEPs will be upgraded to 10Gbps. This has necessitated upgrades of our RNEP routers, and of the backbone connection between them to 10Gbps, which are in hand.

We have completed the process of replacing private fibre tail circuits with telco circuits: in all cases the fibre circuit has been retained to give the client a second backup circuit to an alternate PoP.

Whilst we can envisage ways of providing the Extended Hours cover required by the draft JPA and Operations Manual, we find it difficult to see how we will provide the full Working Day service during holidays that are not defined as Public Holidays. This is particularly true between Christmas and New Year, when all the staff at the institutions that are currently contracted to SWERN to operate the various components of the RPAN are on leave, and the premises on which they normally work are closed.

Our equipment maintenance contract has been placed with Logicalis.

Net North West: Tim Robinson

Rating Fibre (Valuation Office Agency)
I have had no interactions with the VOA recently though I understand other RNOs and Universities are being approached. I'm happy to discuss my experiences of dealing with the VOA with other RNOs.

RPAN Funded Connections
FE sites and ACLs are continuing to request 100 Mbps links in order to be able to accommodate higher JANET bandwidths. Several of these have been delivered with more on order. We are seeing requests for '50 Mbps over a 100 Mbps bearer' from JANET(UK). For this type of connection some of our telcos can restrict the bandwidth as requested but others just rely on monitoring the usage and take action if this exceeds the agreed limit.

SURFnet 2007
Our 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 has been progressing. Orders for 16 new 100 Mbps and 1 Gbps links were placed with a target date of service by the start of the 2007/8 academic year. Due to the usual Telco issues - wayleave, capacity, distance etc, none of these were delivered on time. Thus have now delivered most of their circuits and BT expect to deliver this month.

SuperJANET5
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. Most of the sites are transferred onto the new core with a few changes still be to completed this month.

Live 'tests' of our resilience, caused by Verizon losing the RNEP-1 link to planned maintenance by their Telco, showed that the IP resilience happened as planned but that there may be capacity

issues between RNEP-1 and RNEP-2. An early procurement of a dark fibre link, which will be operated at 10 Gbps, between the two sites has started.

e-Research Network
Plans to deploy dark fibre to allow an e-Science network to operate between Manchester, Liverpool, Daresbury and Jodrell Bank are progressing slowly but steadily. All the necessary dark fibre has been obtained.

Equipment to provide a single 10 Gbps link between Manchester and Daresbury has been procured. It is proving much more complex to bring 10 Gbps wavelengths into service compared to 1 Gbps. We have had extensive discussions with our supplier, Transmode, about power levels, amplification, attenuation etc. It is now hoped to have this in service to match up with a 10 Gbps link over JANET and GEANT to Frankfurt this month.

The procurement document for the optical equipment to drive the network at (multiple) 10 Gbps is still not complete but is expected to be issued shortly. The first link required will be 10 Gbps to Jodrell Bank as part of a high speed link (4 Gbps) from there to Malmo in Sweden.

National Optical Developments
The JANET Lightpath Service has been launched. There is a JANET Optical Event at Aston in December.

Liverpool Capital of Culture
NNW is in active discussions with our telcos about building a dark fibre network around Liverpool to link organisations involved with the Liverpool Capital of Culture 2008. The idea is to link arts organisations and museums, such as the Royal Liverpool Philharmonic Orchestra, Liverpool Institute for the Performing Arts and National Museums Liverpool, to JANET and the wider internet. NNW has had support and encouragement for the project from Tim Marshall at JANET(UK).

LeNSE: Mike Byrne

LeNSE has successfully completed its regional network upgrade following an intensive OJEU competative dialogue procurement. The technical design and architecure is as outlined in my presentation to the "RUSI" SJ5 planning meeting held on 5th March 2007. This means that our new network has 10Gbps links to SJ5, a 10Gbps inter-RNEP resilient link, protected 1GE links to all LeNSE member HEIs and core FEI aggregation routers. We are running full IPv4 and IPv6 unicast and multicast services natively to JANET. During both the IP router equipment staging process and the subsequent IP router and transmission network system commissioning, we successfully tested multiple link failure scenarios to all HEI and FEI core routers for all protocols (observing sub-second, zero-low packet loss). MPLS VPNs are also used for other LeNSE services. Our new 24x7 network monitoring, help desk and maintenance services are operated under contract by Alcatel-Lucent, and tentative discussions are being conducted to assess whether this service could be extended to other RNOs unable to afford full 24x7 cover. However, this large project coincided with (a) a large LSC FE bandwidth upgrade project and (b) BT's national business restructuring process - the latter causing significant delays to the provision of new FE BT circuits and hence an enormous amount of additional project management effort by myself and other LeNSE staff. We are still waiting for a few BT circuits to be supplied even now, including a 100Mb connection to the Chilbolton Observatory which also seeks 3-10Gbps research channels in the future. We designed the new transmission infrastructure to cost-effectively accommodate multiple 1GE research channels (JANET lightpaths) if and when needed.

During the procurement process, and because of the quality and extent of suppliers tendering, we've had the opportunity to discuss and evaluate the optical transmission systems/equipment and IP routing platforms and architectures of many the UK's leading Telco suppliers, together with associated procurement costs. This has given us a good

insight into transmission design options likely to be relevant over the next decade.