Reports from Regional Networks for UKMMG Meeting of 10 January 2007

MidMAN: James Hendry

MidMAN REPLACEMENT / REPROCUREMENT

In late October, MidMAN in conjunction with UKERNA and the West Midlands Regional Broadband Consortium (WMnet) held a Workshop to identify a suitable procurement strategy for the MidMAN replacement. The principal conclusion from the Workshop was that MidMAN / UKERNA should endeavour to attempt to maintain a true regional perspective for the reprocurement outcome with a view to there being a single integrated regional network infrastructure suitable for use by all education (viz tertiary, secondary, primary and other). To this end, MidMAN / UKERNA / WMnet are currently constructing a document describing how it is believed that the current WMNC Ltd structure and organisation should evolve to meet this aspiration. In due course this document will be discussed with other influential regional players.

In parallel, MidMAN is in discussion to ensure a further year of service using the current infrastructure to bridge the gap until the above reprocurement has been successfully completed.

RPAN3

MidMAN has confirmed that following consideration of the UKERNA consultation document it wishes in principle to continue as an RNO under RPAN3.

Of course this in principle decision has to be viewed against both the eventual detail of the RPAN3 arrangement as well as any local factors arising from current discussion with UKERNA and others relating to a truly regional network infrastructure being procured as part of the MidMAN replacement.

SuperJANET5

The MidMAN SuperJANET5 transition has been delayed since the wrong optical interfaces were installed in the Ciena optical equipment at both RNEPS. UKERNA / Verizon have now sourced and installed the correct equipment (just before Christmas), and connectivity between the Ciena equipment and the regional network infrastructure was successfully achieved (and low level testing carried out). The MidMAN transition itself is scheduled for 11 January 2007 (all being well in the meantime).

DISASTER RECOVERY PLANNING

In the context of Collaborative DRP a well attended 'best' practice meeting of MidMAN HEIs was held in October 2006 (and focussed on resource sharing amongst HEIs). The next 'best practice' meeting is in February 2007 (and will focus on network aspects of collaborative DRP).

GOVERNANCE

Notwithstanding the potential governance changes that may emerge from the reprocurement / replacement discussions outlined above, work continues in the context of 'todays' arrangements to update the associated MoA between the lead site and members of the consortium.

SWERN: Kit Powell & Andy Mason

Our SJ5 transition was carried out without problems; the opportunity was taken to carry out a successful test of failover between the RNEPs.

Our Policy and Planning (management) Committee has agreed that SWERN is willing, in principle, to enter into RPAN3.

The SWERN2 build is nearing completion; a sixth loop has been added in Somerset where there will be an additional PoP in Bridgwater.

We would like to discuss the issues surrounding using BAP funding to provide sites with second circuits for resilience.

We note the continuing uncertainty about the reporting of a fault affecting one of two circuits to a site, but not its JANET connectivity.

YHMAN: Ed Carter

1. YHMAN-SJ5 Transition

The YHMAN to SJ5 connection at YHMAN(Leeds) and YHMAN(LeedsMet) took place 16 November 2006. The Migration went as planned with the exception of a problem with the link to the British Library link at Boston Spa, this is not service affecting and was subsequently dealt with when suitable staff were available at Boston Spa. The actual migration was achieved with less than five seconds of interruption to the service and was complete by 7:15 on the 16th. There were then two interruptions of less than a minute as the fail over between the two connections to SJ5 was tested.

2. YHMAN-SJ5 Exploitation Plan – Review of progress to-date

- YHMAN PoP development: Uninterruptible Power Supplies (UPS) have be provided for each core PoP and progress is underway to connect one of the PoP Cisco 4507R switch/router dual power suppliers to the UPS with the second connected direct to the supply. Remote Power Management (RPM) and Out-of-Band (OoB) monitoring has been installed at each core PoP. Each of the SJ5-RNEP (at Leeds and Leeds Met) is equipped with Fire Suppression Systems.

- HEI Access Upgrade: YHMAN is progress the upgrade of Leeds Trinity and All Saints from 8Mbps to 10ME, the new York St.John University from 34Mbps to 100ME and Northern School of Contemporary Dance from 2Mbps to 10ME.

- Core Capacity Development: Capital funding has allowed for the provision of second wavelengths between Leeds-Sheffield and Leeds-York. Leeds-Sheffield is under review for the region's participation in the Large Hadron Collider GridPP project (see below). Looking at other PoPs, YHMAN needs to think about an additional 1Gbit/s for Leeds in the not too distant future because normal traffic is now at about 300Mbit/s. The next most busy PoPs, at Hull and York, are beneath 200Mb/s and should not need any attention in in the next 18 months. Looking forward, I would hope that 10Mb/s technology would be the next step for YHMAN rather than additional 1Gb/s.

- SJ5/YHMAN Enhanced Resilience Programme: The project to roll-out SJ5 resilience gains to the region's institutions via second discrete PoP locations providing for second university campus connection and options for resilient connection of access circuits as bandwidth demand grows has commenced. The programme is aligned with institution Disaster Recovery Plans. Second connection circuit's costs to core PoPs are charged to the institutions.

3. Grid activities

- Large Hadron Collider (LHC) GridPP: I understand tests are progressing, by the project though there is no official notification, ready for the participation in the GridPP service by the University of Sheffield. The service will be provided over the SJ5 and YHMAN production IP service. Pre-service testing has taken the Sheffield University traffic to 628.56 Mbit/s (in-bound) during first week of December 2006. YHMAN is current reviewing resilient transit capacity which is currently 1Gbps. On enquiry, the researchers in Physics themselves still seem uncertain about the actual level of production traffic. What we do know is that their proposed storage (which will be entirely populated from the network) is set to increase from under 20TB to at least 100TB. Internally at Sheffield they expect to split traffic between two 1Gbit/s pipes. One pipe for GridPP (routed by source/destination address as appropriate) will not be screened by their Packeteer so will have low latency and may have different (stronger(?)) firewall rules. The other pipe for normal traffic will continue to take its existing path through the Packeteer and firewall. Commissioning an additional 1Gb/s pipe for YHMAN will not be difficult.

- White Rose Grid (WRG): YHMAN continues to support the WRG high-performance computing nodes based at Leeds, Sheffield and York.

- UK National Grid Service (NGS): The YHMAN-WRG has continued hosting a NGS node during the period. NGS have recently renewed the agreement to host a new/replacement node for a further 3-year period (to 2010).

- UKLight:

1x1GE connection has been provided to University of Leeds Campus Network to support the Lancaster-Leeds (St James Teaching Hospital) Pathology project.
1x1GE connection has been provided through a new YHMAN Leeds-York wavelength and on-ward to York University Music Researchers to support the Birmingham-York Low-Latency project.

4. UKERNA BGP Clients & YHMAN Connection Only (Layer-2) Services

YHMAN has progressed with UKERNA the Border Gateway Protocol (BGP) connection for both Bradford ACL, York City Council ACL. YHMAN is providing Layer-2 connectivity only to these clients with UKERNA providing support for the JANET BGP service and support. Both ACL local authorities will continue to offer ISP services for their council and schools traffic.

5. YHGfL-SJ5 Implementation

YHMAN has supported access to JANET via the RNEP for the new managed Yorkshire & Humber Grid for Learning (YHGfL) network. This has been poorly managed by the third parties involved.

6. Planned future development activities

YHMAN will continue to press its supplier to progress migration of the 10ME JANET connection to Grimsby & Franklin colleges from radio to cable during the forthcoming period. YHMAN is progressing revision of the South Yorkshire FE college sub-regional network during the forthcoming period. It is planned to provide resilience in connection through YHMAN(Sheffield) and YHMAN(SheffieldHallam). YHMAN is reviewing the redeployment of legacy fibre-optic cabling installed in 1999 between two FE colleges in Scunthorpe to provide peer-to-peer resilience against a single failure in the colleges 10ME connections to YHMAN/SJ5.

7. Schools

YHMAN Ltd is concerned to maintain a scalable operational management service and as such will connect Local Authorities to the YHMAN with the responsibility for onward service connection to the Schools devolved tho the Authority. We have recently, 20/12/06, connected our first private school, St Peter's School York, as a pilot whilst their service support needs are observed.

NWMAN: David Stedham

We have had a hectic few months in the run up to the end of our original contract with Cable & Wireless on 31st December 2006. Of the five BT circuits ordered on our behalf by Logicalis only three were delivered on time. These three have allowed us to move three FE Colleges onto direct links to the Assembly Lifelong Learning Network (LLN).

The MAN's backbone routers at UWB (Bangor) and NEWI (Wrexham) have been connected to their adjacent LLN core router and part of the radio backbone has been taken out of service. Also out of service is the Wrexham SJ4 BAR since SJ5 core traffic now flows through LLN to the Cardiff RNEPs. The MAN to LLN connections should be gigabit ethernet. However, compatibility issues between the MAN's Cisco 7507s and LLN's GSR interfaces and incorrect IOS versions have caused considerable problems. At the time of writing, UWB is connected to LLN at 100M and NEWI at 1G, but with a dumb switch in the middle of the link to avoid the packet loss experienced with a direct link.

To serve the two colleges still waiting for BT links we have retained the fibre link along the A55 trunk road and some, but not all, of the radio links. We have a contract direct with Networks by Wireless (NbW) for the radio link hardware, licences and site shares, i.e. they are no longer sub-contracted by C&W. C&W do, however, still maintain a few backbone routers, which we need to keep in service for a while longer. They also provide, under a new contract, six BT links we have retained from the previous contract.

All this has left us with an unenviable tangle of contracts, suppliers and helpdesks to deal with. The current list is: Logicalis for three BT links and access router and 7507 maintenance; C&W for 7602 backbone router maintenance and the remaining BT lines; NbW for radio links; Welsh Assembly Government (WAG) for the A55 fibre and, finally, the LLN helpdesk (run from UoW Swansea) for LLN faults. On the plus side we have direct access to all the organisations concerned and are no longer reliant on C&W to call out NbW for radio faults.

Because of changing delivery dates for BT lines, plans have been made and re-made several times. Final decisions were delayed until lines were actually in service and contracts had to be negotiated at the last minute. I am pleased to report that all the companies and organisations involved, including C&W and NbW which are effectively losing parts of their contracts, have been extremely helpful and supportive throughout.

Our next task is to decommission and remove the redundant radio links. Over the next three or four

months we hope to have the remaining two BT lines in service and be able to decommission the remains of the old network. We will then work with the WAG Public Sector Broadband Aggregation project team to manage the transition to a new all-Wales network.

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

The Welsh RNEP2 is now operational, lacking only its resilient link into the LLNW and UPS protection on the LLNW GSR router.

Our SJ5 migration went very smoothly on schedule.

The re-engineering of our West Wales links is complete, we now have only one microwave link in service on SWMAN.

Our Aberystwyth link into the LLNW has been upgraded to 1Gb.

The All Wales Public Sector Network (AWPSN) project continues to grind its way forward. There is now a shortlist of 3 potential suppliers (BT, Logicalis and Synetrix) who are being subjected to the Competitive Dialogue phase of the procurement. Governance issues are now coming to the fore with UKERNA (in conjunction with WNL and NWMAN) lobbying for a strong voice for Welsh Tertiary Education.
The official timetable is still to award a contract at Easter 07 with delivery starting in Summer 07. No migration timetable for existing networks to move to the AWPSN yet exists.

PKF are auditing us at the end of the month. This will be our second RPAN audit.

Kent MAN: Paul Kentish & David Hayling

SJ5 Connections
The Kentish MAN was one of the first two RNs to connect to SJ5 on 31st October 2006. Resilience tests conducted so far have been successful, though there has been slight concern as to whether the NOSC is truly co-ordinating work affecting both RNEPs in a fashion to avoid actual disruption to user traffic – particularly for work at the same time but which is announced at widely separate times by separate management domains.

Core bandwidth increase
Kent MAN Ltd took the opportunity to implement the existing second 1 Gb Ethernet channel on the BT Wavestreams. Thereby increasing the core to 2 Gb to keep ahead of the C.800Mb and growing traffic that Kentish MAN has.

KCC joins the company
Kent County Council (KCC) has become a member of Kent MAN Ltd (KML). This was approved by the Board on 15th November 2006. The Kentish MAN backhauls the schools' traffic to the RNEPs and one of the core PoPs is located on KCC premises. A back-up link from Broadstairs to Canterbury is provided via the existing schools' network. As a member, KCC will have some input to future planning and it is hoped that this arrangement will be beneficial across the complete spectrum of education, learning and training.

Radio removal continues
University College for the Creative Arts has requested that its three 34Mb radio links are replaced with LES100 circuits. Although they plan to withdraw from both LeNSE and Kent MAN Ltd, they will be remaining members of KML until at least the end of 2007. On the whole, the radio replacement programme is going well. Most delays have usually been due to problems with the installation of BT circuits.

WiMAX plummets
Telabria Ltd, who operated a WiMAX product under the name "So Broadband" were using the Kentish MAN for transit across Kent. What looked as though it could have been an exciting development turned sour as Telabria went into receivership in December. For KML it has been a good learning experience in dealing with commercial companies.

Monitoring
We are still having issues with getting the Crannog software going. These now seem to be down to the server configuration.

FaTMAN: Mike Whitehead

The Verizon installation process for SJ5 was long and eventful but the result is good. We migrated successfully with helpful support from the NOC. SJ5 is performing well. Our own FaTMAN-5 upgrades had to be delayed to fit the SJ5 timetable but they are almost completed with very few problems. We have a Cisco 7609 at each RNEP with dual paths available to each HE. If the procurement of additional circuits can be completed successfully we will provide diverse routing to each HE. FE do not have resilient connections but do benefit from other resilience within FaTMAN-5 and SJ5. We used Affiniti consultancy and installation services to help with FaTMAN-5 design and installation and this complemented the work of our own team - the combination proving to be very successful.

AbMAN: John Linn

Eventually our new core routers arrived, several months late, and so we migrated from the Foundry BigIron to Cisco 7605's. The migration to SJ5 went smoothly and we introduced resilient IPv4 unicast and multicast and IPv6 unicast. IPv6 multicast is waiting on a new Cisco IOS required to support the address family in BGP and some other functionality. Due to the failure of the Aberdeen RNEP-1 to Leeds CPOP link during normal working hours we checked the resilience actually worked and it did as nobody noticed the re-routing; so we have satisfied the RPAN contract requirement for this year. The Aberdeen SSDN connections have also moved to SJ5 and the SJ4 SDH link is now discontinued; the SJ4 BAR will be decommissioned and hopefully removed soon. The changes in the AbMAN core and SJ5 required a substantial documentation update.

AbMAN has planned another mini-Networkshop for January primarily for those in the Aberdeen area but some are coming from Dundee. The last one was very successful.

NIRAN: Joe Burns & Chris Kelly

1. SuperJANET5 Switchover

NIRAN's SJ5 transition project was left until the bulk of the mainland network had been accepted by UKERNA, and as such was concentrated into the latter part of November and the first week of December. This left a challenging five working days for NIRAN to implement the testing and changeover in order to meet the scheduled transition date of 12th December. With the help of the NOC, the challenge was met. A failover test was also successfully carried out during the switchover.
SJ5 delivers two separate 2.5G circuits to NIRAN, one from Glasgow and one from Warrington, the latter via Dublin. NIRAN procured a second PoP Router to form a major part of RNEP2; this second router, a Cisco 7609 is the same model as the existing RNEP1 router and was installed in July 06. The two RNEP PoP routers are connected with a 10G Ethernet dark fibre.

In NIRAN's configuration both RNEPs are housed temporarily in the same location, the Queen's University contingency data centre, until such times as the data centre part of the new Library Building at Queen's University will be ready in August 2007.

There have been some problems post-transition. The link from Belfast to Warrington went down on December 16th for a week due to undersea cable damage, and again momentarily on December 19th. Service continued un-interrupted via the resilient second RNEP.

The multicast resilience testing was not completed in the short time allowed, so this will need to be

confirmed at a later date. UKLight circuitry has also been successfully installed and tested.

2. FE Colleges Merger
Northern Ireland's existing sixteen Further Education Colleges will merge into six larger Area Based Colleges [ABCs] in 2007. The deadline for completion of the mergers is September 2007. NIRAN has been closely involved in discussions with the major stakeholders over the last number of months. The aim has been twofold: (a) to reach agreement on a new network topology which continues to provide superlative Internet services to the FE sector and (b) a seamless transition to the new configuration.

A strategy has been drawn up by NIRAN and DEL (The Department for Employment and Learning [DEL] is the NI HE and FE funding council) to exploit the existing NIRAN network to connect the campuses comprising the new ABCs in a virtual manner. This may require bandwidth upgrades to some of the new ABCs' primary campuses. The funding is currently being discussed with the DEL and the technical strategy is being presented to the FE sector in a consultative fashion.

3. Cross-Border Link
NIRAN entered into a partnership with HEAnet to establish a cross border connection between the NIRAN North West PoP and a HEAnet PoP in Letterkenny. Known as the NIBEST project, a 1-Gigabit link is now in service, with the purpose being to facilitate cross-border research and development collaboration. NIRAN has become the Contracting Authority for this service. The service is funded under the EU INTERREG programme by the NI Department of Enterprise, Trade and Investment.

4. RPAN3
The NIRAN Board has agreed, in principle, to the RPAN3 consultative paper. The NIRAN Board intends to continue to operate as an RNO under RPAN3 and has responded to UKERNA positively, albeit with some concerns for the actual detail of implementation.

5. Miscellaneous
Network performance: The NIRAN network has performed well over the last twelve months, with an average 99.97% availability rating.

Contract: NIRAN is entering its third year of a three-year contract with NTL. NIRAN has an option to extend this service by another two years, up to October 2009. The NIRAN Board will formally decide on this soon.

Traffic: Data traffic levels have risen dramatically right across the member sites, but, thus far, the initial bandwidths are able to meet demand and should continue to do so for some considerable time. As cited earlier in this report, the FE College mergers may invoke some bandwidth upgrades.

New Members: Two new sites have joined NIRAN on 10Mbit/s links as Sponsored Connections. They are the Learning and Skills Development Agency (NI) and the NI Educational Guidance Service for Adults.

UHI: Jem Taylor

The Fibre Rating issue is looming very slowly but surely - we have an initial meeting with the Assessor of the Valuation Board in January.

Net North West: Tim Robinson

Rating Fibre (Valuation Office Agency)
NNW has continued to discuss with the VOA and local councils the rating of the parts of our network that are provided over dark fibre. NNW has engaged the services of Gerald Eve to advise on ways of reducing our liability. Gerald Eve are UKERNA's advisors.

The discussions with the VOA were concluded in October when they issued four separate assessments based on 4 contiguous dark fibre runs. Three of these were with Liverpool Council and one with Crewe and Alsager.

These were dated 11-Oct-2006 and by 18-Oct-2006 we had received rate demands from both councils backdated to 01-Apr-2005. I didn't realise any council could respond so quickly.

These demands were discussed with our rating adviser, Peter Jones of Gerald Eve, who prepared draft letters to send to the councils requesting charitable relief on the basis that NNW is wholly owned by institutions which are all charities.

Liverpool have sent me forms to be completed - one for each of the three assessments. These are worded for the local scout group to complete. I will get these sent back this month and let everyone know how we get on.

Crewe and Alasager rejected our request outright, based on the fact that NNW is not a charity. I will be speaking to them about this later this month.

While we were discussing charitable relief NNW did not pay the outstanding demands which turned out to be a mistake as within a month Liverpool were suing NNW for the outstanding 2005/6 payment. They claim this was an automatic process but it was still a shock to receive a court summons. NNW has therefore paid all the bills at the full amount demanded and will ask for a refund if and when charitable relief is granted.

NNW has so far had to pay out £13322.91 for rates due from 01-Apr-2005 on an assessed Rateable Value of £17,820. The annual bill on £17,820 at 42.2% is £7,520. Given that our RV is likely to be around £200,000 when all the planned dark fibre is in service rates, without charitable relief, will be a large call on our RPAN funding.