



KAREN Members Report

For the 6 months ending 30 June 2008

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Audience

The intended audience for this document are:

- KAREN members
- REANNZ Board members
- REANNZ staff

Reference Documents

No documents are referenced.

Version control

VERSION	DATE	REASON FOR UPDATE	AUTHOR
1.0	18 June 2008	Initial Draft	David Brownlie
2.0	17 July 2008	Final Amendments	David Brownlie

Review and Approval

This document has been approved for release by the following:

NAME	ROLE	ORGANISATION	DATE
Mark Cordy	Operations Manager	REANNZ	4 July 2008

Introduction

This report is intended to provide a high level overview of the performance of KAREN and REANNZ for the 6 month period ending 30 June 2008.

Projects Delivered

A variety of project work has been undertaken in the six months ending 30 June 2008.

APAN 26

The Asia Pacific Advanced Network Consortium meeting (APAN 26) will be held in Queenstown from 4 – 8 August 2008 involving over 220 guests and speakers from across the Asia – Pacific region. This conference will be supported over KAREN, and is a great opportunity for members to interact with users of other advanced networks.

A part of the work to support APAN has been the provisioning of an additional STM-4 (622Mb/s) to Australia which has been made available by The Southern Cross Cable Network with the assistance from Verizon. REANNZ is working with AARNet and TEIN2 to also provide more efficient transit into Asia across Australia, rather than through the United States of America. While this improved path is only available to APAN attendees, it will allow REANNZ to quantify the performance improvements that would be possible if this were implemented on a long term basis for KAREN.

Lower South Island Fibre Diversity

The lower South Island diverse fibre path was included in the core network in April 2008. This fibre path provides physical fibre diversity in the core network south of Christchurch and was the final deliverable from the original project. This additional path, which has been cutover, has significantly improved the resiliency of the core network in this area. It has also supported the temporary breakout in Queenstown in support of the APAN meeting above.



KAREN Network Development

Three new logical networks (public VLAN's) have been implemented on KAREN. These VLAN's will support a new group of members, while preserving the characteristics of the network for the core members.

One VLAN will provide a National Education Network supporting connectivity for schools, polytechnics and other educational institutions. The other networks will support connection aggregation and additional content and services for KAREN members.

The final component of this work will be the commissioning of a third router in Dunedin in late 2008 to provide additional points of inter-VLAN connectivity.

This work has been undertaken to ensure that points of visibility and control exist to ensure that all KAREN members receive the same quality of service.

KAREN Services

While our principal concern is with the core network, REANNZ has, this year, also introduced a number of additional network based services. These new services are aimed at supporting members with their use of KAREN, and to illustrate some of the potential from the use of high definition video conferencing. Each of these new services is described in further detail below:

KAREN Video Conferencing Service

A 12 port bridge supporting high definition video conferencing, including streaming, over KAREN was made available in April 2008 as a service trial. It includes the option to support end points that are not available on KAREN via ISDN or the Internet.

The service also includes a booking system which can be seen at <http://cmp.karen.ac.nz>.

The IP address of the bridge is 210.7.46.10 and the ISDN number is 04 916 5420.

If you are interested in finding out more about this service trial please contact techinfo@reannz.co.nz. Additional information is also available at <http://www.karen.net.nz/vc-service/>.

KAREN Router Proxy

A proof of concept router proxy was tested in March 2008 with great success. This will be similar to the router proxy that is available at Internet2 (<http://routerproxy.grnoc.iu.edu/internet2/>) allowing members to run a limited set of commands from the core KAREN routers. This will assist in troubleshooting and change activities. This service will be available before the end of 2008.

KAREN Network Diagnostic Tool

The network diagnostic tool is an open source, web based platform intended to provide objective information about the maximum network throughput that can be achieved from a host system. The tool also attempts to analyse the possible bottlenecks in the path to the KAREN core network.

It is currently in proof of concept mode at <http://netperf.karen.ac.nz:7123> and will be migrated to a production platform within the next 6 weeks. This move should ensure that a consistent objective response should be achieved on each test.

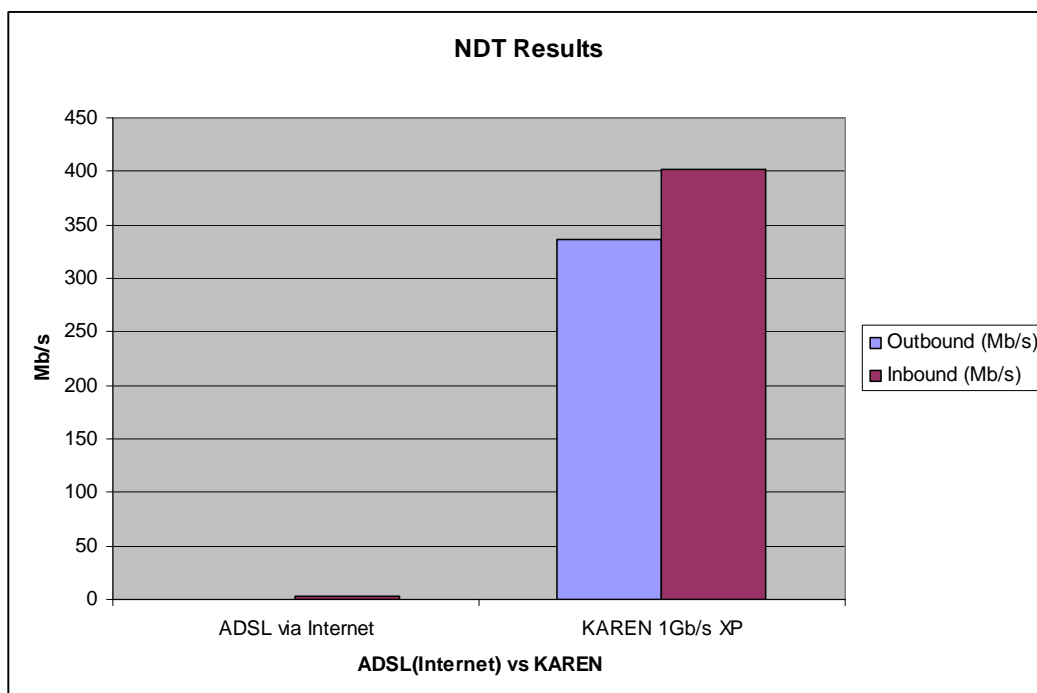


Figure 1 - NDT Throughput Results

KAREN DNS Servers

In response to member requests REANNZ has been working on the implementation of a DNS service for both IPv4 and IPv6 name resolution.

This is currently being tested and should be available towards the end of 2008.

KAREN Monitoring and Measurement

In an effort to provide more information about the network and its performance, REANNZ has been working on a suite of open source tools for monitoring and measurement. This has allowed us to add features such as the ability to monitor the availability of our international routing peers, the latency and jitter over the international paths and to start gathering data on which international peer networks we are sending most traffic to.

These services are also in proof of concept mode at present, but will be moving to a production system before the end of 2008. Once in production we will make many of the graphical outputs available for members to view.

Network Operations

This includes a variety of normal business activities resulting from the operation of the network.

Member Connections

All founder (core) members had at least one connection to the network at the end of January 2008. There are currently 62 connections to the network including KAREN accredited aggregators FX Networks, SNAP and The Nelson Loop.

Peering

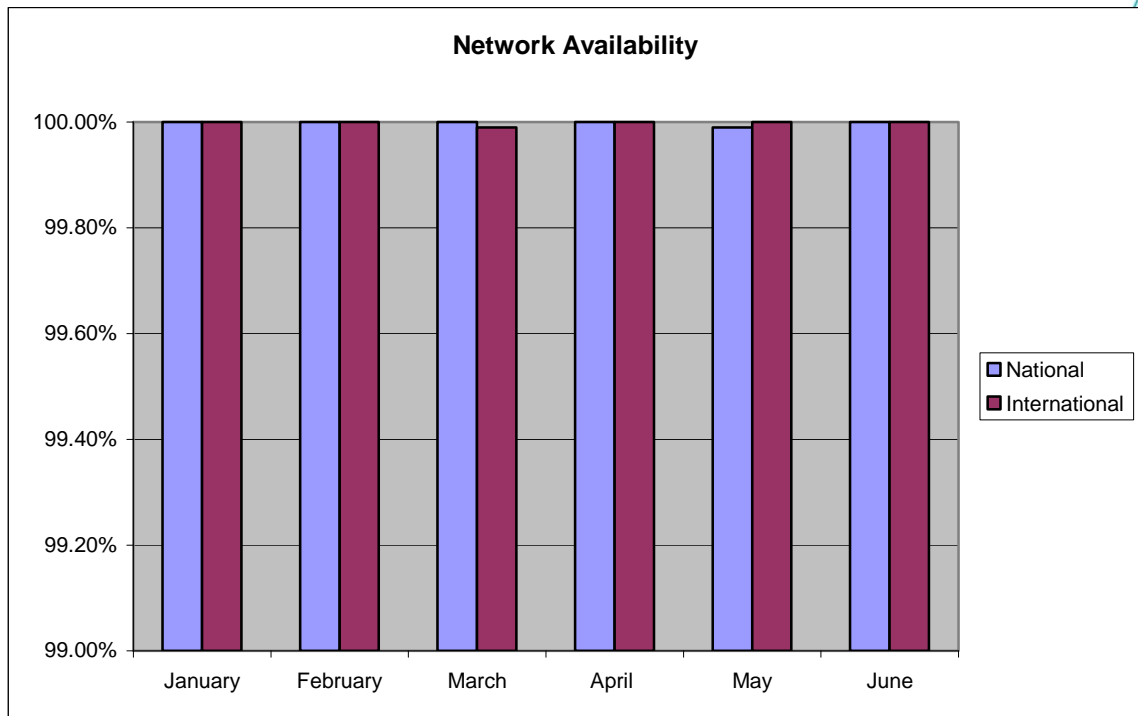
KAREN is peered with 18 networks internationally providing IPv6, IPv4 and multicast routes for KAREN members. There were 11,150 IPv4 prefixes, 2691 multicast destinations and 1127 IPv6 prefixes available as at 30 June 2008.

Outages

We continue to experience a small number of fibre optic breakages in the core network, transparently dealt with by the networks redundant design. The only service affecting outages were due to a loss of peering in Seattle in March for 35 minutes and an unplanned power outage in Wellington which caused a loss of service for around 30 minutes in May.



REANNZ started actively monitoring all international peering sessions in April 2008.



Network Maintenance

At the end of June 2008, the Juniper M320 core router in Auckland was moved from the North Shore to central Auckland to make more efficient use of the 4 10Gb/s paths that can now reach that router. This was completed with an outage of less than 90 seconds and included the software upgrade that was signalled in the last members report. The second router will be upgraded to the same software version in early July 2008.

The planned Extreme software upgrade that was mentioned in the same report has not reached general release availability yet. We expect to move to this release before the end of 2008. This software release includes a number of new features that will allow better management of multicast traffic on the layer 2 network. We are reluctant to move to the new software ahead of general release because of potential stability concerns.

Network Capacity

The average utilisation across the network is still modest. However, total daily traffic measured across all ports in the network continues to grow

steadily. The months of April and May 2008 saw total volume come closer to exceeding the 200TB mark for the first time.

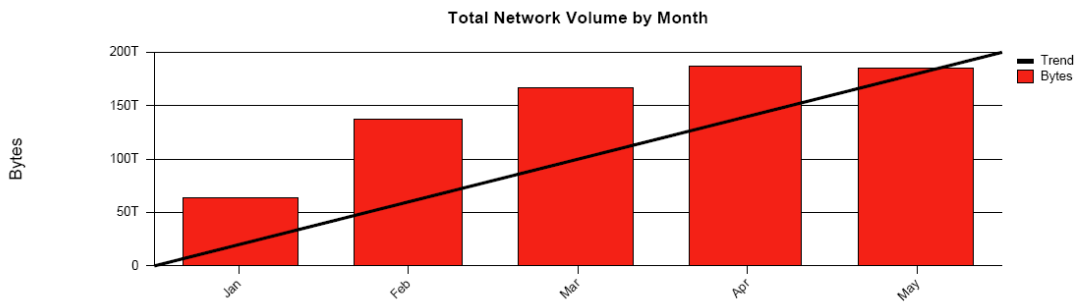


Figure 2 - Total Volume (All Ports)

Individual member traffic has also continued to grow with a number of sites generating sustained periods of more than 150Mb/s use of the network.

The increase in the use of KAREN has been visible through the Weathermap with traffic registering in the 1-5% range on the core regularly. The snapshot depicted in Figure 3 shows over 250Mb/s of traffic leaving Christchurch and terminating in Hamilton in May.

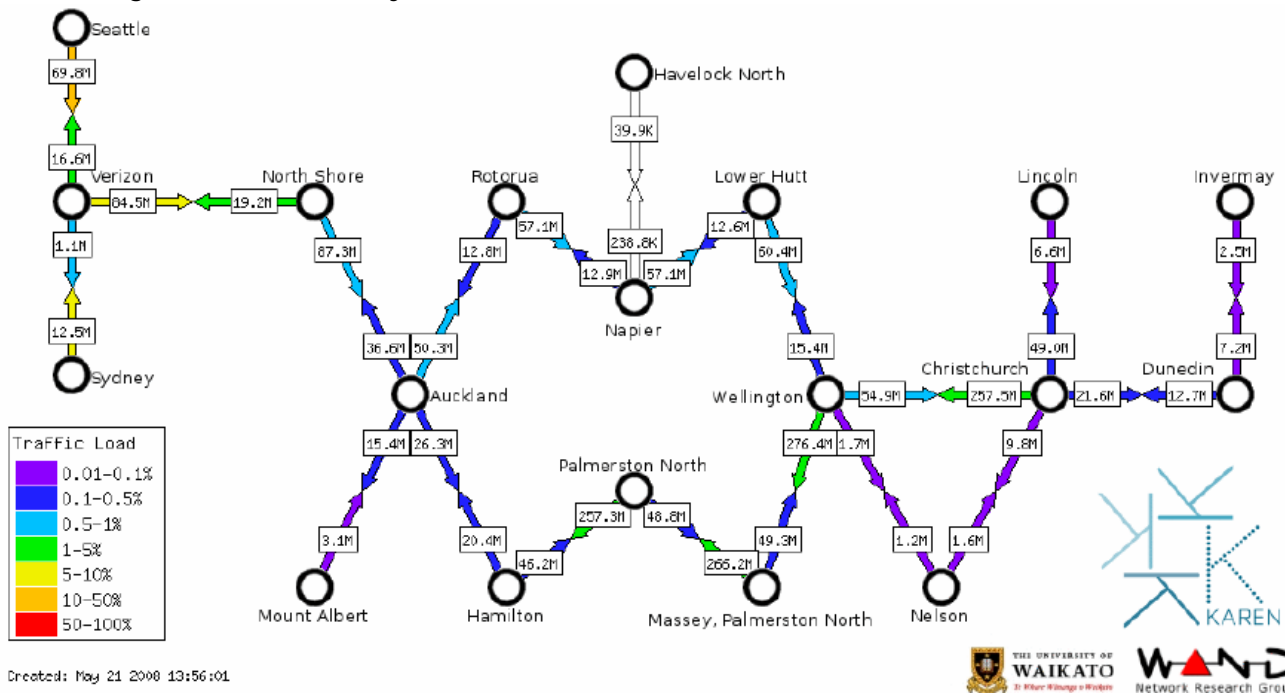


Figure 3 - Weathermap Snapshot

The international capacity continues to have a higher average utilisation due to the comparatively lower bandwidth available. The graphs for the first 6 months of 2008 are incomplete, with no data available for January, due to a change of monitoring platform by Verizon.

Average utilisation on the STM-1 to Australia remains comparatively similar to the trend noted in the 6 months ending 31 December 2007.

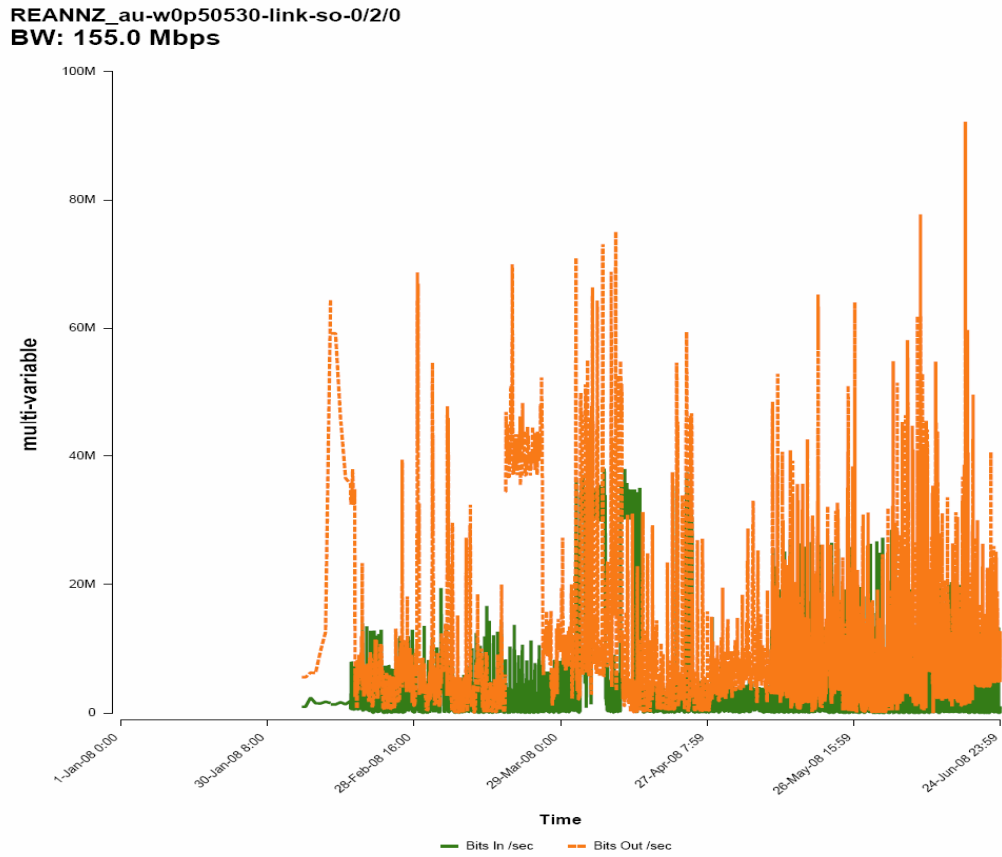


Figure 4 - STM-1 to Australia

The capacity trend on the STM-4 to the US does not have the level of peak usage that occurred in the previous 6 months. However, it does show a more consistent usage pattern.

REANNZ_us-w0p51858-link-so-0/2/0
BW: 622.0 Mbps

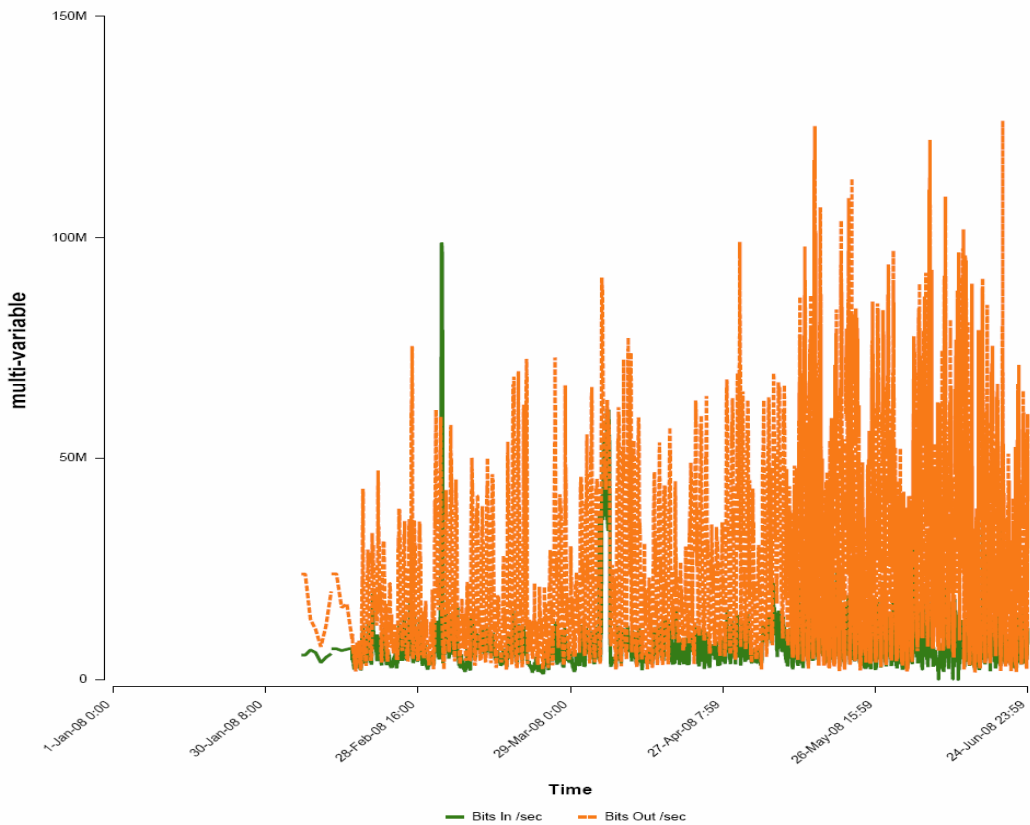


Figure 5 - STM-4 to US

Service Management

REANNZ, in partnership with TelstraClear, has focussed on a number of components of service management in the first 6 months of 2008. In particular we have focussed on the connection process and the level of support members receive from the KAREN helpdesk.

As a result the team providing the service desk function has changed. The team members that answer the service desk calls should now be equipped to provide members with a better quality service and ensure your calls are channelled to the appropriate support staff. Part of this change has included a migration of the service desk email address to karenservicedesk@team.telstraclear.co.nz. Emails to the old address will continue to be received by the correct team, but we would appreciate you updating your contact lists and using the new address wherever possible.

A second outcome from the service management work has been a physical audit of the KAREN access aggregation points (AAP's)¹. This work has highlighted a number of points which will lead to a focus on more effective management of the KAREN facilities. As a direct result the connection process should become more transparent.



¹ This term replaces the term POP which is already in use in the public sector with a different meaning.