

AARNet 3 Equipment

Backbone Routers



Following Cisco Systems purchase of the intellectual property, a majority of the engineering team and select assets from Procket Networks and their inability to provide support for our Procket routers AARNet returned to the market for replacement backbone routers. This resulted in AARNet acquiring Juniper M320 series routers to replace the Procket 8812 routers and the purchase of Juniper M20 series routers for the POPs in Alice Springs, Darwin and Hobart. These routers will be progressively installed during the later half of 2005.

The M320 is an enterprise version of the T320 router that fits well with the environmental conditions of most of our GigaPOP sites. Each of the systems will be equipped with multiple backbone 10G interfaces as well as Gigabit Ethernet interfaces facing the CPE routers and provide support for both IPv4 and IPv6 at line rate.

More information on Juniper can be obtained from their web site <<http://www.juniper.net>>.

Backbone Switches



AARNet has chosen [Cisco Systems Catalyst 6509-NEB-A](#) switches with the Supervisor 720 as the backbone switches for its new network.

The Catalyst 6509-NEB-A is a carrier class Ethernet switch which AARNet will be using to link the intra capital GigaPOPs as well as terminate client Gigabit (or Fast) Ethernet links. While the Catalyst 6509-NEB-A is capable of operating at both layer 2 and 3 in the AARNet configuration we will only require it to operate at layer 2 (with the Procket's providing layer 3 functionality).

The picture to the left is a Cisco 7304 (top) and the Catalyst 6509-NEB-A (bottom) currently being installed in the Pulteney Street Data Centre at the University of Adelaide.

CPE routers

AARNet has chosen [Cisco Systems 7304 routers](#) as the CPE routers for its new network.



The Cisco 7304 model ordered by AARNet includes the NPE-G100 route processor (rather than the NSE100 shown to the left) and so includes 3 Gigabit Ethernet interfaces on the route processor. In the CPE application the router will also include 2 Fast Ethernet interfaces, one of which will be used to provide a dedicated connection to the client site traffic analysis system.

It is also intended to deploy these routers within the GigaPOPs to terminate connections from clients that need a technology other than Packet over SDH or Ethernet and as the primary router at non GigaPOP nodes.

Servers

AARNet will be using Acer R300 and R700 series servers to provide network support functions on the new network.



The R300 is a single RU sized Intel™ Pentium® 4 based system with two internal 146GB disk drives. The R300 will be used on client sites to collect traffic statistics from the CPE device as well as participate in AARNet's active and passive measurement activities. AARNet also intends to use these systems for DNS cache and secondary systems.



The R700 is a dual Intel™ Xeon™ based system with up to seven internal 146GB disk drives. AARNet will be utilising these systems where additional performance is required, such as in systems supporting the AARNet Network Operations Centre (NOC).

AARNet intends to use RedHat Enterprise Linux on all of these systems. More information on each of these systems can be obtained from [Acer's web site](#).

IPv6 Tunnel Server

AARNet uses a [Hexago Migration Broker™](#) to provide an automatic IPv6 tunnel service. The Migration Broker allows users of the service to configure a IPv6 in IPv4 tunnel from the broker via a simple web form and thus provides IPv6 service to locations that cannot for whatever reason obtain native IPv6 service.

The Migration Broker is available for use now via <URL:<http://broker.aarnet.net.au>>. It is currently connected to the existing network (AARNet2) and accesses the IPv6 based Internet via another tunnel broker. This will change when it is moved to AARNet3 and can make use of the native IPv6 service that AARNet3 will offer.

Console Servers



AARNet needs to be able to manage all of its systems remotely and so they need to be connected to a device that will allow the AARNet NOC staff to reach them even when they are inaccessible from the network. The [Cyclades AlterPath™ ACS](#) provides access to the console port of a number of devices, routers, switches and servers at a POP site either via the network, using SSH, or via a modem.

Time Servers



In order to synchronise all of the clocks on the AARNet3 infrastructure AARNet will be deploying three [Tempus Cntp](#) servers from EndRun Technologies across the network. These devices will provide a stratum one clock from the CDMA network to the AARNet3 infrastructure. AARNet does not expect to provide external access to these devices.