

IPv6: Bermuda, 6NET and UK Pilot Service

Networkshop 2002
Nottingham, March 27th

Agenda

- UKERNA introduction
 - Rina Samani (UKERNA)
- Bermuda project summary
 - Tim Chown (University of Southampton)
 - The collaboration is still running!
- 6NET project
 - Gunter Van de Velde (Cisco)
- Hitachi and IPv6
 - Paul Hodgson (Hitachi)

Bermuda

- Primarily for early reporting on IPv6 by the project partners
 - Southampton, UCL, Lancaster
- Dodgy acronym...
 - "Bringing Enhanced Routing to Multimedia Users in Distributed Academia"
 - But also from the triangular testbed

IPv6 projects in UK

- Academic projects
 - Bermuda (UCL, Lancaster, Southampton)
 - Various EU 5th Framework projects
 - 6NET (31 partners! UKERNA plus above)
- Trials by commercial providers
 - BT Exact, NTT, UUNet, C&W, ...
- Individual initiatives
 - Some listed on <http://www.ipv6.org.uk/>

Implementations used

- Windows 2000
- *BSD
 - FreeBSD, NetBSD
- Linux
 - RedHat, SuSE
- Solaris 8
- Compaq Tru64
- Hitachi
- Cisco
- *BSD
 - FreeBSD, NetBSD
- Zebra
- Ericsson Telebit

Lessons learnt...

- Routing
 - Ran a native IPv6 triangular testbed
 - 2Mbit/s ATM PVC over JANET MBS
 - Very stable - Hitachi, Cisco, FreeBSD
 - Mixed static and BGP4+ routing
 - Exchanged routes with external peers
 - Internal site routing, including internal hierarchies

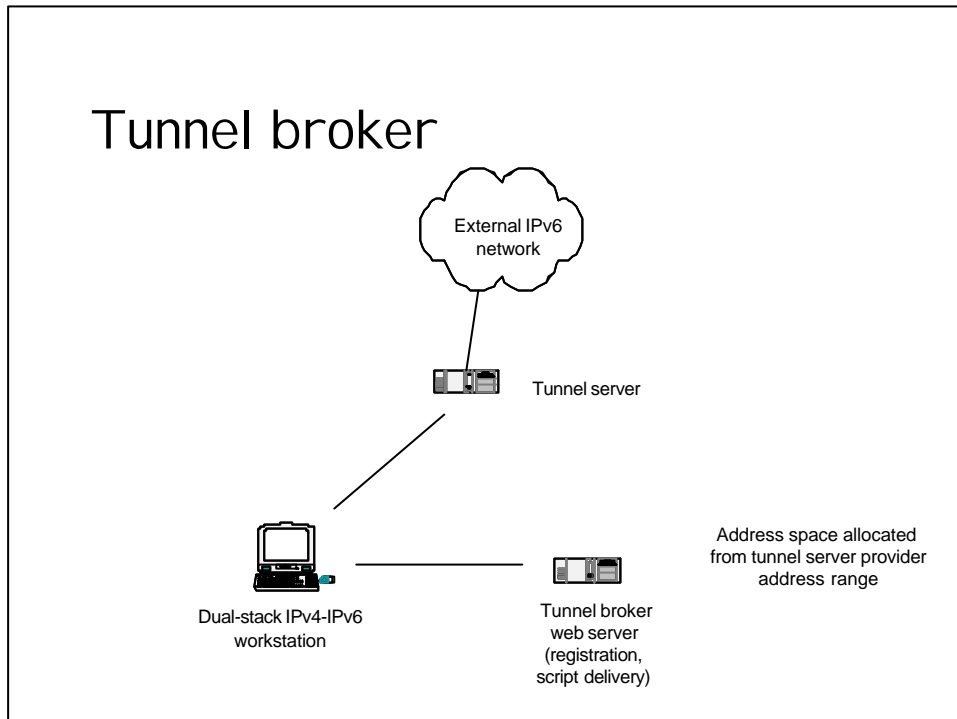
And...

- DNS
 - BIND9 for DNS servers
 - Reverse DNS delegation under ip6.int.
 - Study of A vs A6 vs AAAA issues
 - Using name spaces for IPv4 and IPv6
- Addressing
 - RIPE IPv6 address allocation policies
 - Use of a site /48 allocation

And...

- Transition tools
 - Dual stack systems
 - IPv6-in-IPv4 tunnels
 - Tunnel broker (OpenLDAP data)
 - Running IPv6 only
- Applications
 - Porting in C and Java
 - Using applications, e.g. vic and rat
 - Core applications - Apache, sendmail, BIND9...

Tunnel broker



And also...

- IPv6 on wireless LANs
 - 802.11b is a link layer - IPv6 just works
 - Useful marriage for ad-hoc networking
- Mobile IPv6
 - On a wireless LAN environment
- Network monitoring
 - Looking glass
 - Trout6 (reachability and RTT)

Further work

- Collaboration extended to July 2002
- Expansion of Bermuda testbed
 - Includes Hitachi GR2000, which has also been a very stable enterprise router
 - Extend connectivity to GÉANT IPv6 testbed
- Further reporting
 - IPv6 VPNs, management issues
- Dissemination
 - Learnt a deceptively large amount
 - Taking it now into 6NET with UKERNA...

More info

- JANET Experimental Service
 - <http://www.ja.net/development/ipv6/>
- IPv6 pilot and project info
 - <http://www.ipv6.ac.uk>
 - <http://www.ipv6.ac.uk/bermuda2/>
 - <http://www.6net.org>
- IPv6 email list
 - ipv6-users@jiscmail.ac.uk