

GÉANT Ipv6 plans

TF-NGN

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Agenda

- Scheduling and deployment
- Design for GEANT
- Addressing scheme
- Routing policy

Roll out plan

- Configuration of GEANT –February 2003
- First Connections – March 2003
- Operational pilot service – June 2003
- Ipv6 production service – January 2004

V6 design

- One IGP, IS-IS handling v4 and v6 routes
 - With a congruent topology for both protocols
- Separated external and internal BGP peerings for V4 and V6.
- Currently we don't have Route Reflector and we expect the network to support two I-BGP full mesh

IS-IS Design : The Topology

- Only ISIS Level-2 routers
- ISIS Net addresses (12 bytes):

49 . 51e5 .0001 .0620.4010.2001 .00

AFI	Area Id	System ID	n-selector
<small>(private domain)</small>		<small>(loopback 0 of the router)</small>	

- ISIS Metrics = OSPF costs x 10
- Juniper routers : JunOS 5.3-20021009-tWgitM
- Cisco routers : IOS 12.2(11)T on LU, 12.2(8)T5 on IE and 12.0(16)S9 on IL.

Separated BGP peerings

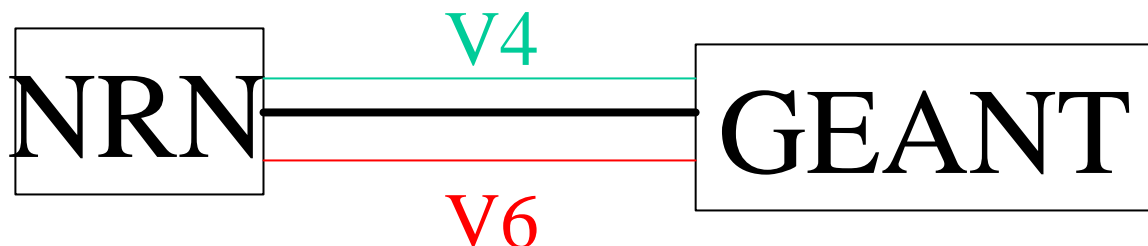
- It's possible to have one BGP (tcp v4) peering announcing V4 and V6 routes.

But

- The Ipv6 next-hop announced is a compatible IPv4 address.
- In any case, it's not the IPv6 address known and configured on the trunk.

Monitoring of the Ipv6 service

- To easily distinguish the IPv4 traffic from the IPv6 traffic we'll propose to change the framing of POS access and move to DLCIs
- Therefore we can establish the e-BGPv4 peering on one DLCI and the e-BGPv6 peering on the second DLCI.



Addressing Plan

- 2001:0798/32 has been allocated by RIPE
 - 2001:0798:0/35 for 6NET
 - **2001:0798:2/35 for GEANT**
 - 2001:0798:4/35=> For delegation of /40 and /48 for projects
 - 8 ranges of /36 reserved for NRNs delegation
 - 2001:0798:E/35 => reserved for Migration

Addressing the core

- **2001:0798:20/40** for the core backbone
- PoPs addressing 2001:0798:20PP/48
- In Each /48 we reserve:
 - 2001:0798:20PP:0FF0/64 for loopback@
 - 2001:0798:20PP:0AA0/64 for Access trunks
 - 16*/64 for Vlans and 16*/64 for GEANT test bed

Core addressing

- Core trunk addressing range
 - 2001:0798:20CC/48
- For each trunk a /64 range is allocated
 - 2001:0798:20CC:P1P2/64
- From this range each link get a /126
 - Link 1 => 2001:0798:20CC:P1P2::/126
 - Link 2 => 2001:0798:20CC:P1P2::4/126
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Routing Policy

- Prefixes from our customers: NRNS
 - From Native Access, accept from /32 up to /35
 - From Tunnels
 - Accept up to /35
 - Specific tag for these routes.
 - Tagging can be agreed with Abilene.
 - Interesting if NRNs follow this recommendation.
- To NRNs GÉANT will announce 2001:798/32

Routing Policy

- Prefix-lists Creation
 - Same philosophy than for IPv4
 - NRNs should announce national research entities
 - At the beginning generate them manually
 - Possibility of automation using RIPE
 - When RPSLng will be available
 - NRNs should update RIPE DB for IPv6

Routing Policy: 6Bone and 6to4

- GÉANT won't encourage the transit of 3FFE::/ IP addresses?
 - Study each one of the NRNs requests
 - Provide a transition phase with a deadline
- GÉANT will accept 2002/16

NRNs connections

- Currently:
- 9 Native: Nordunet, Renater, CARNet, FCCN, GARR, GRNet, Janet, Restena, Surfnet
- 5 Tunnels:
 - DFN: During 2003
 - IUCC: No deadline
 - LITNet: No deadline
 - PSCN: Till Q3 2003
 - Switch: During 2003

Next action points

- The routing policy has to be finalised
 - GEANT and Abilene (to be discussed)
- Deployment
- Monitoring
- DNS
- Definition of the service

Thanks!

References

GEANT V6 task force

- <http://www.join.uni-muenster.de/geantv6/>
- geantv6@dante.org.uk
- <http://www.dante.net/nep/ipv6/index.html>