Addressing architecture at NIIF/HUNGARNET (case study)

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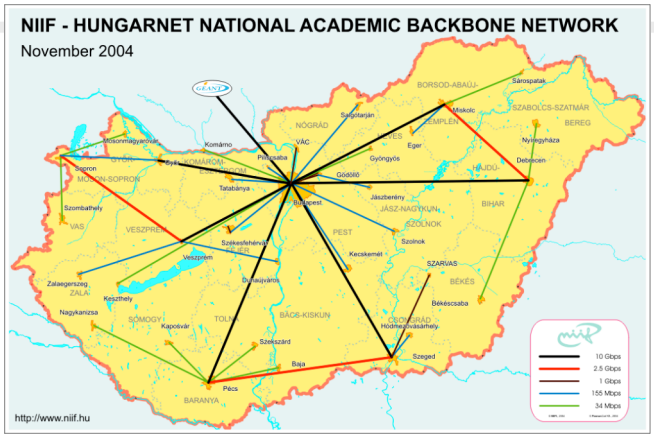
NIIF/HUNGARNET network



IPv6 address space – based on flexible address allocation RFC3531

Location	IPv6 POP addressing:
CNTRL (Central)	2001:0738:0::/36
Gödöllő	2001:0738:58::/44
BME (Budapesti Műszaki és Gazdaságtudományi Egyetem)	2001:0738:2000::/44
KFKI	2001:0738:5000::/44
SZEGED	2001:0738:7000::/44
MISKOLC	2001:0738:6000::/44
PECS	2001:0738:7800::/44

Site addressing

- Each site (including site infrastructure) get /48:
  - each NIIF managed site the 16 bit SLA is allocated based on the following convention: <SLA> = Address segmentation within the POP
  - Where for <SLA>:
    - Range: 0000 till 00FF: Loopback addresses
    - Range: 0100 till 01FF: Intra-pop point-to-points (if it necessary to number it)
    - Range: 0200 till 02FF: connections to HUNGARNET member of institution
    - Range: 0300 till 03FF: external IPv6 connectivity (e.g. local IPv6 peering)
    - Range: 0400 till 04FF: POP Local Ethernets

IPv6 loopback addresses

- loopback address will also be used for operational and management actions on the equipment, and for routing protocols like iBGP, which will use these addresses for terminating the peering-sessions.
- Loopback addresses have typically a prefix mask of /128. This will avoid unnecessary unused addresses although address conservation is not really an issue in IPv6.

Link IPv6 addresses?

- Not necessary!
  - OSPFv3 is working with link-local
  - IS-IS not necessary
- IGP table can quite small! – helps on convergence!
- Customer network is propagated into BGP (even if static routes are used)
  - not with redistribute
  - with network statement