Native IPv6 across IPv4-only CPEs (6rdE)

Part of
draft-despres-softwire-sam-00

Rémi Després  
RD-IPtech
The 6rdE Scenario

- An ISP network is IPv4 capable
- Some of its customers have IPv4-only CPEs (NAT44s)
- This ISP supports 6rdE (1 or N stateless border relays)
- Some hosts behind these NAT44s support 6rdE
- These hosts have native IPv6 addresses
- IPv6 Packets are tunneled through optimized routes
Example of 6rdE scenario

Dual-stack host

PORT FORWARDING:

IPv6 Backbone

ISP network

Private site

DUAL-STACK host

NAT

PORT FORWARDING:

Q
32

M
32

Q
32

N
16

Private site

ISP network

IPv6 Backbone
Example of 6rdE scenario

- The host has to know its $M$ and $N$
- It obtains $D$ among the SAM parameters of the ISP
- It derives its IPv6 address from its $Q$ with $D$, $M$, $N$
Encapsulation family (IPv4 or IPv4+P) & encapsulation Destination are derived from Q and from two mapping-rules:

• Intra-site tunnels {match D.M; skip 16; copy 32}
• Extra-site tunnels{ match D; copy 48; else Ga.Gp}
Parameter acquisition by hosts

• From a parameter server at a well-known address + port ?

• From the DNS ?

• By some other means ?

=> More thoughts needed (keep it simple)
What next?

• Comments on the draft welcome

• Telecom Bretagne SAM experiment
  Scenario of section 3.4 (not 6rdE)

• A presentation in Softwire at IETF 78

• ...