

Stateless Address Mapping (SAM)

Mesh Software without e-BGP

draft-despres-software-mesh-sam-01

SAM's place in Softwire

- Hubs and Spokes
 - Software Concentrators
 - Point-to-Point tunnels
 - RFC 4925 → Carriers or Large Enterprises*
- Mesh
 - Border Routers
 - Point-to-Multi-Point tunnels
 - RFC 5565 → Carriers or Large Enterprises*
 - E-BGP/TCP between BRs
 - SAM → Small to Medium Enterprises or ISPs**
 - Stateless DHCP between Provider and Customer BRs

SAM's origin

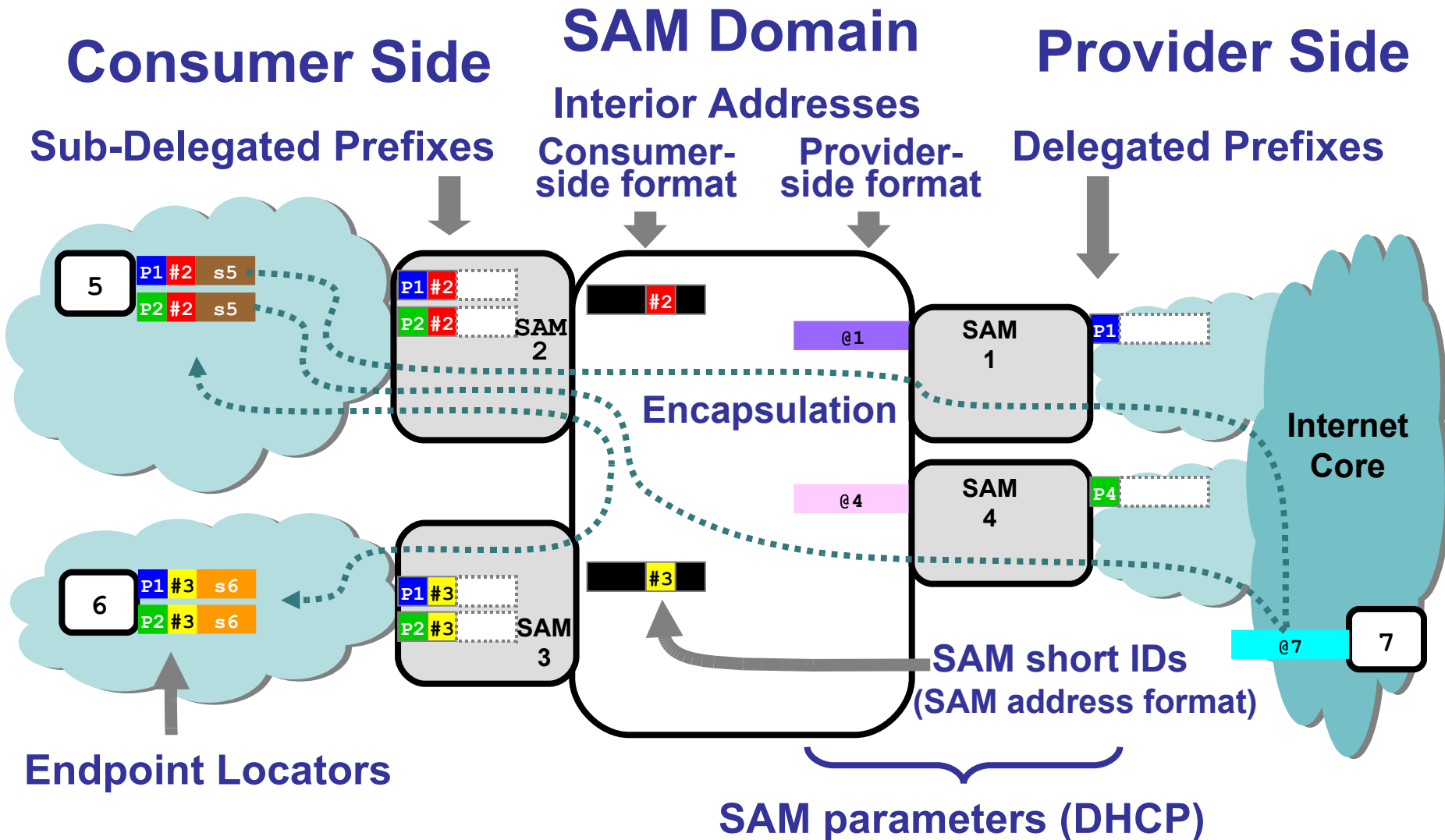
- 6to4 – ISATAP – 6rd => To be generalized
 - More IPvX in IPvY
 - Hierarchical addressing (~CIDR)
 - Port-prefix-extended addresses (A+P)
- Commonalities but significantly \neq scope
 - ENCAPS (1996), GSE (1997), DSTM(1999)
 - LISP(2007), RANGERS (2008), IVIT (2009)

NB: LISP uses a new endpoint-ID space

=> tunnels across the Internet core

SAM => not needed: **incremental deployment**

SAM Model in a Nutshell



Encapsulation Mappings

- Consumer-side dst locator (consumer-side & provider-side SAMs)
 - IF dst-loc = a deleg-prfx || a SAM-int-ID || ...
 - THEN dst-add = SAM-int-add(this SAM-int-ID)
- Provider-side dst locator (consumer-side SAMs)
 - IF dst-loc ≠ any deleg-prfx || ...
 - AND src-loc = a deleg-prfx || this SAM-int-ID
 - THEN dst-add = int-add(the SAM to which this deleg-prfx has been delegated)

Security checks

- Encapsulation

- Provider-side SAM

- Src-loc \neq any deleg-pref || ...

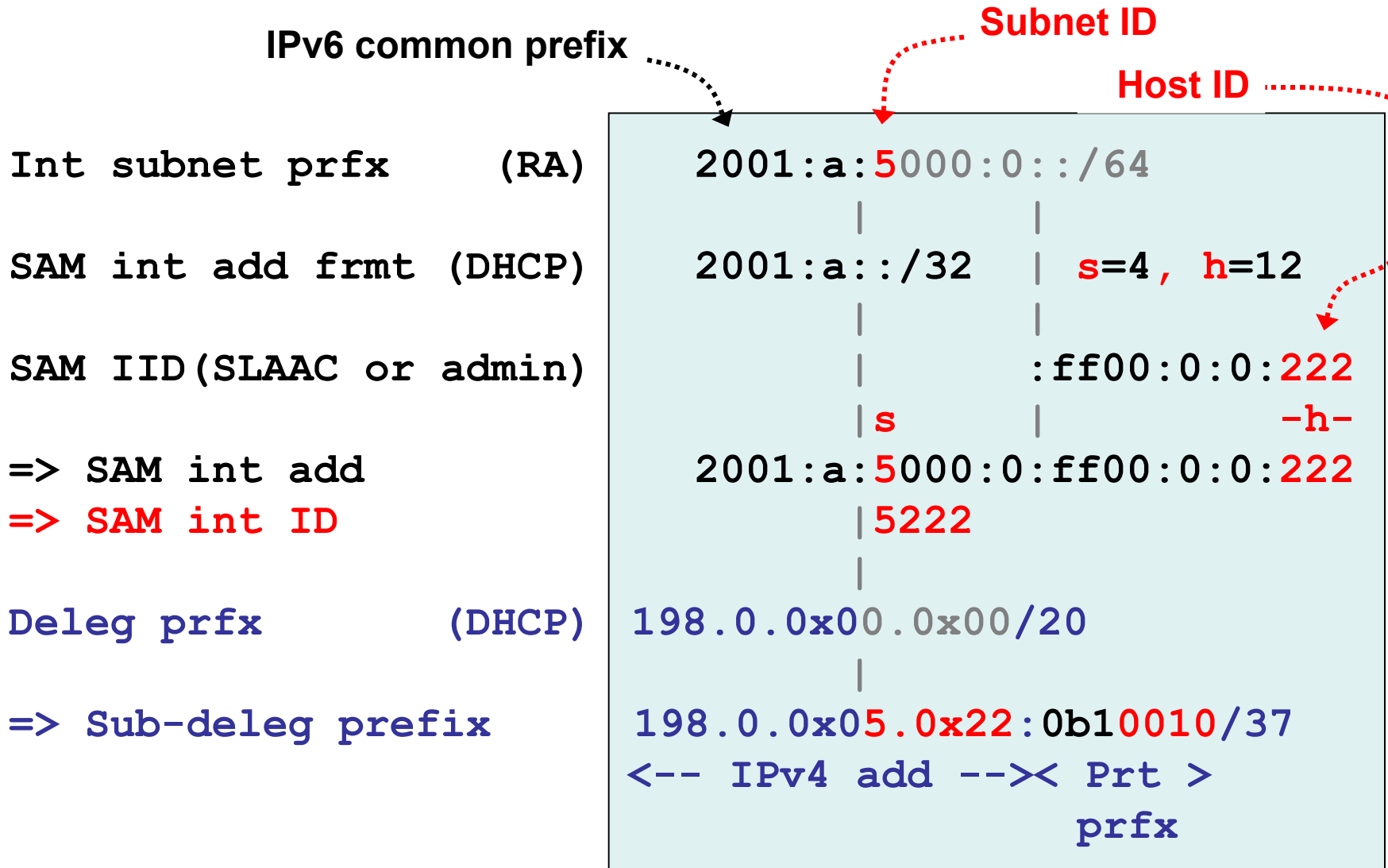
- Consumer-side SAM

- Src-loc = any deleg-pref || this SAM-int-ID || ...

- Decapsulation

- This exterior packet in the reverse direction would be encapsulated in this interior packet with permuted src & dst

Mapping Example - IPv4+P via IPv6



Next Steps ?

- Experiment a subset at Telecom Bretagne
- Process questions and comments
- Document more application scenarios
- Further extend to UDP/IP tunnels?
- Other experiments ? With partners ?
- Target a WG document ?