A Unified LISP Mapping Database for L2 and L3 Network Virtualization Overlays

Draft-hertoghs-nvo3-lisp-unfied-control-plane

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Overview

- Complementary to draft-maino-nvo3-lisp-cp
  - draft-maino represents the LISP mapping of the NVO3 reference models, and how the LISP Control Plane works with a couple of data plane options ((LISP+L2-LISP, LISP-GPE, VXLAN-GPE)
  - draft-maino defines how to use LISP for MAC Address lookups in an NVO3 context, and addresses VM Mobility at L2.
  - draft-hertoghs points to draft-maino where required and defines a unified L2/L3 approach, with distributed gateways on all the NVEs and addresses VM mobility at L2 and L3.
  - Draft-hertoghs maps the LISP functionality onto the NVO3 dataplane and control plane requirements drafts.
- **Hence draft-hertoghs should be used as an input into the NVO3 Gap Analysis draft.**

Unified L2/L3 NVE

- Effectively a collocation of an NVO3 distributed gateway and NVE
- An NVE that offers simultaneous support for IP and non-IP traffic, independent of subnets and VN location.
  - IP and MAC TS addresses are registered to support IP.
  - MAC TS addresses are registered to support non-IP (when needed)
  - Forwarding of all IP traffic involves an IP lookup (intra- and inter-subnet/VN traffic), forwarding on non-IP involves a MAC lookup.
  - Registering both IP and MAC addresses for IP aids ARP/IPv6 ND handling as well as rewrites to allow transparency for intrasubnet IP forwarding from a host perspective.
- Why?
  - Optimal forwarding for IP traffic, no traffic tromboning independent of TS location, or intra- versus inter subnet/VN
  - Single lookup for IP traffic independent of destination
  - No need for DC wide broadcast domains to achieve Mobility intra-subnet

Requirements for L2/L3 NVE

- All NVEs participating in an NVI MUST offer a uniform default gateway IP and MAC address across the NVO3 network
- All traffic between TSes MUST traverse across an NVE
- IP traffic MUST always be subject to an IP lookup, regardless of inter- versus intra-subnet/VN relationship of source /destination IP address.

Request to WG

- Add LISP as control plane option, and LISP, VLAN-GPE and LISP-GPE as data plane options for NVO3, into the Gap Analysis draft.
- Add Unified L2/L3 NVE as a concept in the architecture/framework drafts.
- Use draft-hertoghs as input to the Gap Analysis draft.
- (draft-maino and draft-hertoghs, or at least parts of it, will also be progressed further in the LISP WG, potentially to become WG documents).