Preserving the reachability of EID prefixes in case of failures

draft-bonaventure-lisp-preserve-00

Olivier Bonaventure
Pierre Francois
Damien Saucez

http://inl.info.ucl.ac.be
Today’s Internet

- Recovery of e’s reachability ensured by BGP
Under LISP

• **ETR2** "detects the failure"

• unsets reach bit of ETRI /
  Sets SMR bit on next packet sent to ITR1

• ITR1 gets the packet

• “De-activate” ETR1  **OR**

• Do a map request

  • ITR1 sends map-request for e

  • ITR1 gets replies

  • ITR1 updates its cache

• conv. time > RTT
Motivation

• (faster) reachability recovery

• upon failures (frequent, short)

• also with

  • asymmetric traffic

  • unidirectional traffic
Anycast RLocs
Always use anycast RLocs?

- Uses of anycast analyzed in the draft
- Hard when ETRs are
  - in different IGP areas
  - in different ISPs

draft-bonaventure-lisp-preserve-00
Local/Fast “Reroute”

- Let R3 know that ETR2 is an alternate ETR (for e)
- R3 detects the failure
- Upon reception of LISP packets destined to ETR1 (e)
  - R3 “rewrites” the packet
  - destination of LISP packet becomes ETR2
Rewriting procedures

D Bit

- D Bit in LISP header
  - unset by ITR
  - rewriting routers set the D bit
  - not allowed to rewrite a packet with D Bit set

draft-bonaventure-lisp-preserve-00
Rewriting procedures

Rewriting duration

- In theory, should be set to Cache TTL
- default is 24h...
Rewriting vs...

- encap at R3
- MTU concerns
- map and re-encap at R3
- security concerns

draft-bonaventure-lisp-preserve-00
PE failure

- Less of a concern
- handled with a mix of
  - anycast (local) and
  - rewriting interfaces
Conclusions

- LISP reachability recovery is not very fast
- Local, transient, rerouting solutions may be applicable
- draft-bonaventure-lisp-preserve-00 provides preliminary insights on how such local rerouting can be performed