Mapping of Address and Port using Translation (MAP-T)

2012-11-06

Main changes since last draft

- Moved NAT64-related (MAP-T) text from draft-ietf-softwire-map-01 into draft-ietf-softwire-map-t-00

- Number of editorial changes/additions to clarify:
  - Forwarding behavior (Section 6)
  - MAP-T use for IPv4-IPv6 communication (9.3)
  - Backwards compatibility with NAT64 (9.2)
  - Hub&spoke set-up (9.1)

Specifications

- MAP-T
  - https://datatracker.ietf.org/doc/draft-ietf-softwire-map-t/
- Shared spec core with MAP-E
  - https://datatracker.ietf.org/doc/draft-ietf-softwire-map/
  - Port mapping algorithm
  - BMR
  - FMR
  - DMR. (MAP-T uses IPv6 prefix, MAP-E an IPv6 address. BR IPv4 address is optional)
- Different
  - Data path. MAP-T uses NAT64 (RFC6145), MAP-E IPinIP (RFC2473)
  - ICMP handling

Discussions and updates

- Which configuration options of RFC 6145 may, should, or must, be chosen.
    - BR and CE MUST use same configuration options
- Handle of the "null-checksum UDP datagrams"
    - Configuration function: add encapsulation header for null-checksum UDP packets (1%)
- MAP-T, which converts fragments that have DF=1 into fragments that have DF=0, is in conflict with RFC 4821.
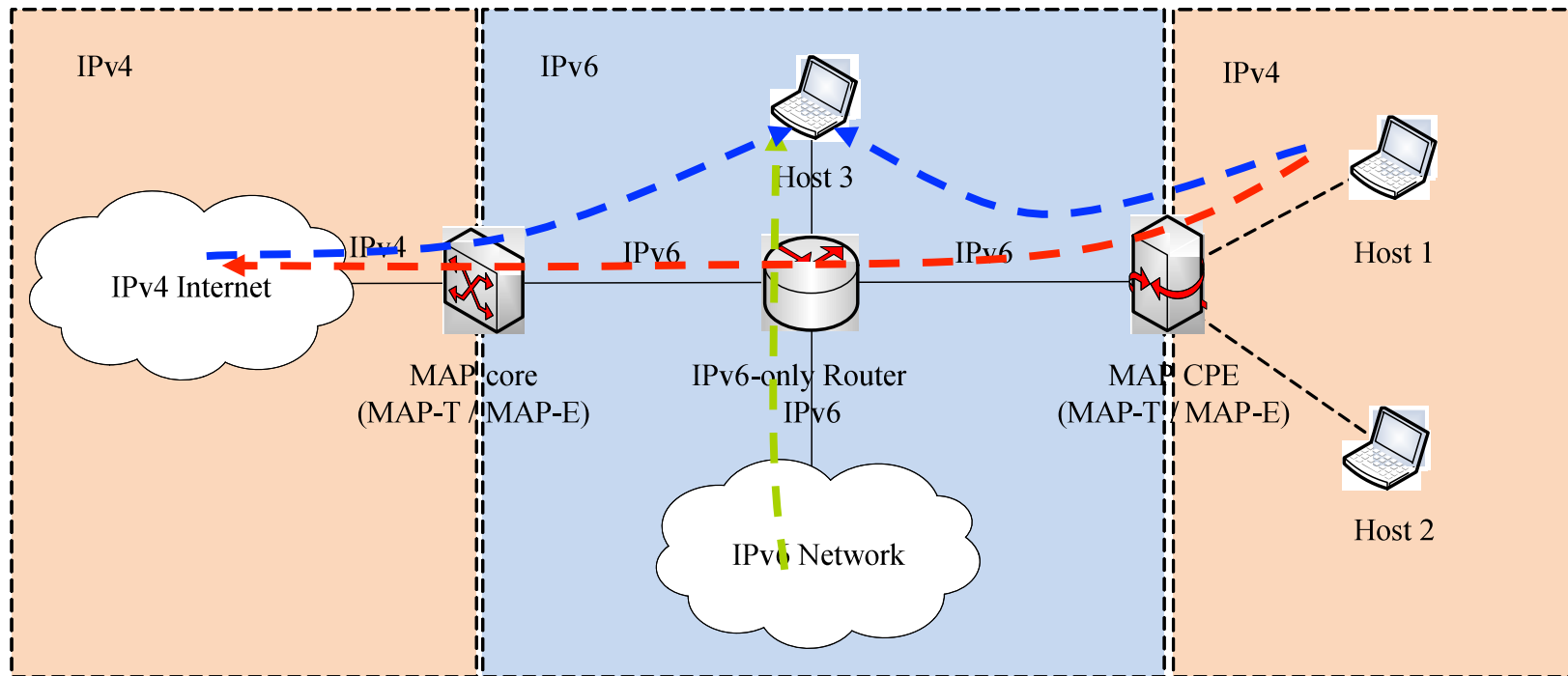   - Configuration function: add encapsulation header for MF=1 and DF=1 packets (0.1%)

Testing

- Interop event at IETF84 and subsequent testing demonstrated MAP-T interoperability between 4 implementations.

- MAP-T CE compatibility with classic NAT64 BR gateways also verified

- Testing with hosts and real internet traffic has so far shown user-experience to be the same as with NAT44
  - No technical show stoppers

Next steps

- Align with MAP-E draft on making core spec and mapping algorithm more readable
  - Technically both drafts are stable
- Address any open questions.

MAP-T use case

More references

- MAP Testing Results
  - https://datatracker.ietf.org/doc/draft-xli-softwire-map-testing/
- Experience from MAP-T Testing
  - https://datatracker.ietf.org/doc/draft-cordeiro-softwire-experience-mapt/
- Uses cases for MAP-T
  - https://datatracker.ietf.org/doc/draft-maglione-softwire-map-t-scenarios/
- Experience from Double Translation and Encapsulation (MAP) Testing
  - https://datatracker.ietf.org/doc/draft-liu-softwire-experience-map/