SRv6 In-situ Active Measurement

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Updates since -00

- Positioned as a generic framework for SRv6 active measurement
- Support other active OAM protocols in addition to IOAM
- New coauthor Gyan Mishra

Motivation

- Active Measurement in SRv6
  - Traffic steering property of the source routing is ideal for active measurements
    - Support arbitrary path specified by SRH
    - Initiate and terminate probes at any SR node in the network
  - Measurements can reflect the user packet experience
    - Forwarding is determined by SRH only

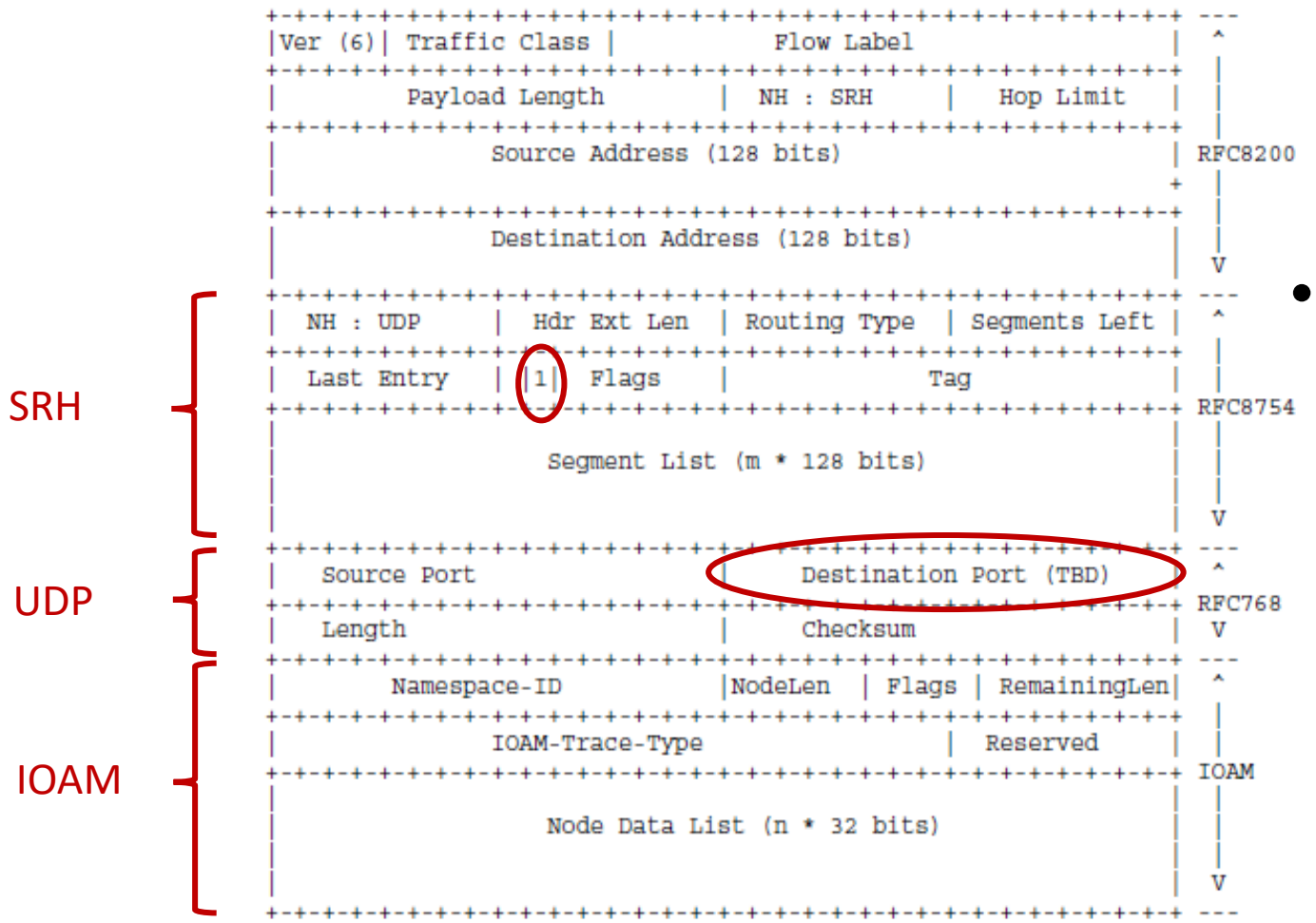
- Possible applications
  - Network wide visibility: for network health monitoring and troubleshooting
  - Alternative path probing: for protection, traffic engineering, or multipath load balancing
  - Symmetric and asymmetric round-trip measurement

A Generic SRv6 Active Measurement Framework

- Use UDP payload to encapsulate the OAM protocol header/data
  - UDP destination port number to differentiate OAM protocols
- Use a ‘T’-flag in SRH flag field to indicate this is an active probe packet
  - Without such a flag, the packet may mistakenly be considered as a normal user packet by the SR nodes

- IOAM trace as a use case detailed in this draft
- WG doc “draft-ietf-spring-stamp-srpm” supports STAMP as a use case
  - Suggest to augment with the ‘T’-flag
- Other possible use cases
  - IOAM DEX, Alternate Marking, etc.

SRv6 Active Measurement with IOAM



- Benefits:
  - IOAM has been standardized
  - Support flexible and extensible data
  - No limit on segment hops

Network Operation

- The first node of the SR path generates the probe packet
- Each SR node on path, if capable of processing the T-bit, processes the probe packet; otherwise, it simply forwards it.
- The last node of the SR path terminates the probe packet and exports the IOAM data

Applications

- An easy way to support IOAM for SRv6 without the drawbacks
- Used as an active method to measure the alternative paths for traffic engineering
- Conduct round trip measurement by setting the last segment node to be the same as the first segment node.
- Gain global visibility on all segment nodes in an SRv6 network by planning a few link-disjoint SR paths (see [tian-bupt-inwt-mechanism-policy] for detail)

Next Steps

- Request for WG adoption
- Consider to include new use cases