

SRv6 In-situ Active Measurement

[draft-song-spring-siam-00](#)

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Background

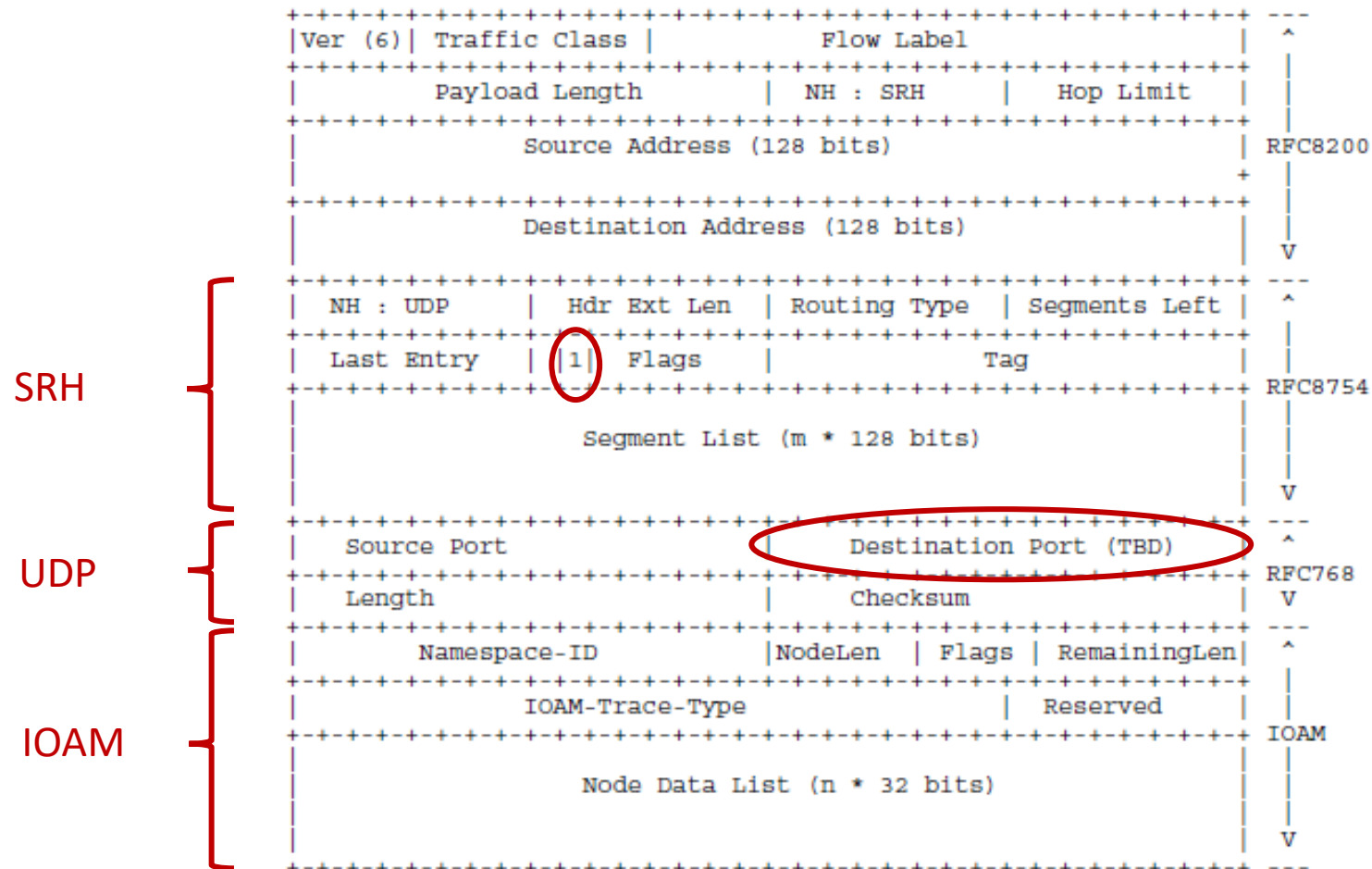
- SRv6 OAM
 - [ietf-6man-spring-srv6-oam] outlines o-flag and some other OAM means
 - Some active approach applicable (e.g., STAMP)
- In-situ Measurement in SRv6
 - IOAM
 - Propose to encapsulate IOAM in SRH TLV (e.g., [ali-spring-ioam-srv6])
 - Size overhead – MTU concerns
 - Processing overhead – forwarding delay and inaccurate measurement
 - Difficult to encapsulate IOAM in other locations ([RFC8200])

Observation

- SRv6 forwarding behavior is determined by the SRH
- Two packets with the same SRH have the same behavior
- Consequently, we can use an artificial packet to collect IOAM data for other user packets, as long as they have the same SRH
 - The artificial packet won't have the encapsulation issues
 - The artificial packet allows slow path processing
 - An active method to achieve the in-situ measurement effect

Proposal

- Use a 'T'-flag in SRH flag field to indicate this is an SRv6 probe packet
- IOAM as UDP payload in SRv6 packet



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, simply forwards it.
- The last node of the SR path terminate the probe packet and export the IOAM data
- The UDP port number can indicate different types of payload options

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 SR paths (see [tian-bupt-inwt-mechanism-policy] for detail)

Next Steps

- Advantages:
 - Simple, no needs for control plane & protocol
 - Solely rely on SR semantics
 - Support multiple useful applications
- Request for comments and suggestions
- Welcome for collaboration and contribution