SFC Header Mapping for Legacy SF
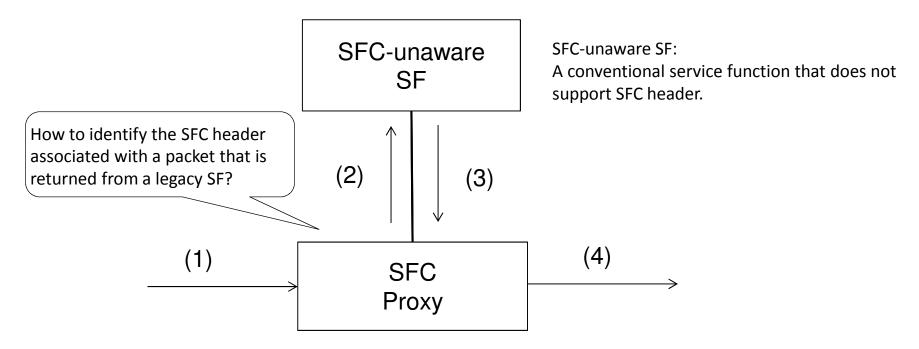
draft-song-sfc-legacy-sf-mapping-04

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Status of this I-D

◆ First presented in IETF 91, Honolulu meeting

> Metadata considerations:
we've addressed this issue in Section 4 "Operation Considerations".

> Background for this work:
It is important to standardize SFC Proxy in order to support legacy SF.

◆ The update compared to v-03

> Be consistent with [I-D.ietf-sfc-architecture].
> Add metadata description.
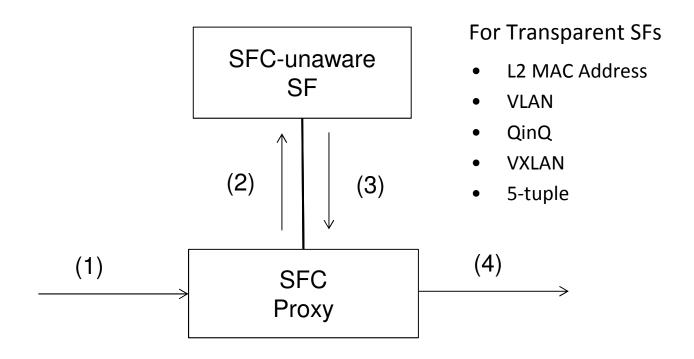> Further clarify SFC Proxy behavior.

Motivation

- SFC architecture explicitly supports "legacy" SFC-unaware SFs
- SFC Proxy is defined in [I-D.ietf-sfc-architecture]
- Options explored in [I-D.song-sfc-legacy-sf-mapping]

SFC-unaware SF

SFC-unaware SF:
A conventional service function that does not support SFC header.

How to identify the SFC header associated with a packet that is returned from a legacy SF?

(2)   (3)

(1)

SFC Proxy

(4)

SFC Proxy: Removes and inserts SFC encapsulation on behalf of an SFC-unaware service function.

For Transparent SF

SFC-unaware
SF

For Transparent SFs

- L2 MAC Address
- VLAN
- QinQ
- VXLAN
- 5-tuple

(2) (3)

(1)

SFC
Proxy

(4)

Transparent SF: A service function that does not change any bit of the original service packet header (Layer 2, layer 3, and layer 4) sent to it, but it may drop or inject packets.

Operation Considerations

	Method	Stored Key-Value	Application Scenario
For Transparent SF	**MAC Address**	(Source MAC Address, SFC header) e.g. assign a source MAC address per packet or path ID	L2 header won't be modified by the SF.
	VLAN	(Direction, VLAN ID, SFC header) e.g. assign a VLAN ID per bidirectional path-pair	L2 header won't be modified by the SF.
	QinQ	(Direction, Outer VLAN ID, SFC header) e.g. assign an outer VLAN ID per bidirectional path-pair	The SF is required |to support QinQ. L2 header won't be modified by the SF.
	VXLAN	(Direction, VNI, SFC header) e.g. assign a VNI per bidirectional path-pair	The SF is required to support VXLAN. VNI is not modified by the SF.
	5-tuple	(5-tuple, SFC header) The SFC proxy maintains the mapping table for 5-tuple and the SFC header. Note: an SFC header for each direction of a TCP flow.	5-tuple is not modified by the SF.

SF Packet Injection

- Several types of SF inject new packets
  - Cache sending data from disk to client
  - Firewall sending RST in response to TCP SYN
- Legacy SF will copy exemplar layers 2/3 for injected packets
- SFC-aware SF should use same Path
  - What about meta-data?

Classes of Metadata

1. Mandatory per-packet (e.g., forwarding info)

2. Optional per-packet

3. Per-transport-flow metadata (e.g., application type)

4. Per-host metadata (e.g., user ID)

→Only some of these can be inferred for injected packets

→Define metadata class in configuration model?

Next Step

- Solicit comments from the WG
  - Define packet injection behavior

- Request WG adoption of draft to standardize SFC-Proxy semantics

Thank You!