Geneve applicability for service function chaining

draft-boutros-nvo3-geneve-applicability-for-sfc-02

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Geneve applicability for service function chaining

• 2 Control plane Options:
  – One with NSH SPI/SI forwarding tables passed to all SFF(s).
  – One with NSH SPI/SI along with a Geneve option TLV for the service function list forming the SFP passed to only the classifier/ingress SFF.

• Geneve next protocol=NSH Ethertype
  – To carry NSH base, path information and context.

• NSH Protocol = inner packet original protocol.
Geneve applicability for service function chaining

• New Geneve option TLV for the service function list forming the SFP.
  – Encodes list of service function ip addresses.
  – A sub-tlv for HMAC for security following procedures described in [draft-ietf-6man-segment-routing-header]

• Geneve next protocol=NSH Ethertype
  – To carry NSH base, path information and context.
The encapsulation

Geneve Header:

```
+-----------------------------------------------+
|Ver|OptLen|O|C|Rsvd.|Protocol Type=NSHEthertype. |
+-----------------------------------------------+
|Virtual Network Identifier (VNI| Reserved |
+-----------------------------------------------+
```

SFL Geneve Option:

```
+-----------------------------------------------+
|SFL Option Class|       Type       |R|R|R| Length |
+-----------------------------------------------+
| Variable Option Data |
+-----------------------------------------------+
```

NSH encapsulation

```
+-----------------------------------------------+
|         Base Header                            |
+-----------------------------------------------+
|         Service Path Header                    |
+-----------------------------------------------+
|   ~ Context Header(s)                        |
+-----------------------------------------------+
```
Geneve applicability for service function chaining

- Based on a classification set the service function list (SFL) option TLV with IP addresses of the service functions.
- Resolves the service first function ip addr, to the NVE connected to it.

- Use SFL option, to locate it’s SF in the list based on SI in NSH Header, maintain a state for SPI to SFL.
- Deliver inner packet to SF possibly along with metadata encaped w/ NSH if the SF is NSH aware, or using other ether encapsulations.
- For return packets, the NVE node, locate the SFL from the SPI/SFL state maintained, resolves the next service function ip address, to next NVE connected to the service function.

- Deliver Return packets to customer destination
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Thank you
Next steps

• Seeking comments?

Thank you