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:

<table>
<thead>
<tr>
<th>Ver</th>
<th>OptLen</th>
<th>O</th>
<th>C</th>
<th>Rsvd.</th>
<th>Protocol Type=NSHEthertype.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Virtual Network Identifier (VNI)</th>
<th>Reserved</th>
</tr>
</thead>
</table>

SFL Geneve Option:

<table>
<thead>
<tr>
<th>SFL Option Class</th>
<th>Type</th>
<th>R</th>
<th>R</th>
<th>R</th>
<th>Length</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Variable Option Data</th>
</tr>
</thead>
</table>

NSH encapsulation

<table>
<thead>
<tr>
<th>Base Header</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Service Path Header</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Context Header(s)</th>
</tr>
</thead>
</table>

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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
Acknowledgement

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Thank you
Next steps

• Seeking comments?

Thank you