Instantiation of IETF Network Slices in service providers networks

draft-barguil-teas-network-slices-instantation-06

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IETF#116, Yokohama, March 2023
Context

[I-D. barguil-teas-network-slices-instantation]
Scope:
• How NBI Slice YANG model relates to LxSM and LxNM models

[I-D. contreras-teas-slice-controller-models]
Scope:
• How the different slicing models relate each other

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Relationship between models (reminder)

- Based on RFC 8309 models relationship
- Realization of IETF NS service model could be mapped either to a Service model (i.e., LxSM) or to a Network model (i.e., LxNM)
Possible architectural options (reminder)

- **IETF NSC as a module of the Hierarchical SDN controller**
  - High-level operation system
  - IETF Network Slice Request
  - Hierarchical Network Controller/Orchestrator
  - IETF Network Slice Controller
  - Network Controller
  - Network Elements

- **IETF NSC as a stand-alone entity**
  - High-level operation system
  - IETF Network Slice Request
  - IETF Network Slice Controller
  - Network Controller
  - Network Elements

- **IETF NSC as a module of the Network controller**
  - High-level operation system
  - IETF Network Slice Request
  - Network Controller
  - Network Elements

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Updates from -05 version

- Text clean-up and editorial pass through document structure
- Daniel as co-author
- Added the analysis of Relationship between IETF NBI model parameters and L3NM and L2NM
<table>
<thead>
<tr>
<th>L3NM (RFC 9182)</th>
<th>L2NM (RFC 9291)</th>
<th>IETF NSC NBI YANG model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth between CE and PE.</td>
<td>Bandwidth between CE and PE. Different types: per CoS, per VPN network access, per site, etc.</td>
<td>Sum of bandwidth SLO per NSE counting all connections</td>
</tr>
<tr>
<td>MTU (layer 3 service)</td>
<td>MTU (layer 2 service and link MTU)</td>
<td>MTU attribute in SLE</td>
</tr>
<tr>
<td>QoS - QoS classification policy (based on layer 3 and 4 info) - QoS profile (not defined)</td>
<td>QoS - QoS classification policy (based on layer 2 info) - QoS profile (not defined)</td>
<td>QoS Defined in the model as network-access-qos-policy-name to be applied per access-point Defined in the model as incoming/outgoing rate-limits per end-point (or access-point) One-way / Two-way latency SLO One-way / Two-way delay variation SLO One-way / Two-way bandwidth SLO</td>
</tr>
<tr>
<td>Multicast</td>
<td>Broadcast, Unknown, Unicast and Multicast (BUM)</td>
<td>The need of replication can be inferred from ns-connectivity-type. Further details are not available (e.g. source or receiver role)</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>Availability as the ratio of up-time to total_time(up-time+down-time)</td>
</tr>
</tbody>
</table>
Next Steps

• Version -07 will provide further updates
  • Alignment with latest version of [I-D.ietf-teas-ietf-network-slice-nbi-yang]
  • Better describe the implications of not full alignment between parameters in NBI slicing YANG model and the ones in LxSM and LxNM
  • (Text clean up is yet needed)

• Pending from -05
  • Evaluation of a new architectural option where a service model is further mapped/realized to a IETF NS service (e.g., to an OTN slice)

• Collect feedback / comments from the WG to enhance the document.