IETF Network Slice use cases and attributes for Northbound Interface of controller

draft-contreras-teas-slice-nbi-03

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Motivation

- **Background:** The definition of IETF Network Slice and its associated artifacts (high-level architecture framework, data models, etc) is being developed without a clear view yet of what will be the needs for different use cases

- **Rationale:** Once any mechanism for deploying IETF Network Slices is in the Network, it can be expected to be used for different range of services
  - In a real network, it is more efficient to unify provisioning systems rather tan maintaining separated ones
  - Many of the services delivered today without using the concept of slicing can be expected to be delivered in this new form, looking for synergy and simplicity and taking profit of slice capabilities

- **Purpose:** This draft covers the gap of analysing use cases for identifying SLOs, attributes and methods needed for a IETF Network Slice controller

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|   IETF Network     |
|  Slice Customer    |
|                    |
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          A
          |
          |  IETF Network
          |  Slice Controller
          |  NBI
          |
          V
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|                    |
|   IETF Network     |
|  Slice Controller  |
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```
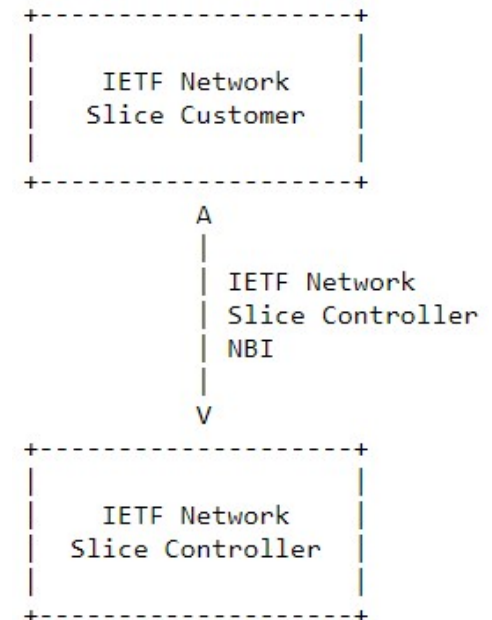
5G Services

- Objective: Support the E2E Network slices as defined for 5G systems
- NBI attributes:
    - SLOs such as DL/UL throughput, slice QoS parameters, deterministic communication, etc.
    - Additional characteristics such as group communication Support, Support for non-IP traffic, area of service, etc.
- NBI procedures:
    - Defined in 3GPP specs for slice lifecycle as slice instance allocation / de-allocation, modification, status, etc
- Applicability of IETF Network Slice:
    - N3/N9/N6 interfaces for providing different networks depending on applied service types (i.e., eMBB, mMTC, and URLLC)
- Reference: GSMA GST, 3GPP TS28.541

NFV-based Services

- Objective: Support connectivity services for VNFs established across geographically remote NFVI points of presence
- NBI attributes:
    - SLOs such Incoming and outgoing bandwidth, QoS metrics, etc.
    - Additional characteristics such as directionality, protection scheme, etc.
- NBI procedures:
    - Lifecycle, capacity, fault and performance management of Multi-Site Connectivity Service (MSCS)
- Applicability of IETF Network Slice:
    - Inter-NFVI-PoP communications for the support of services with different SLOs
- Reference: ETSI NFV IFA 032, ETSI NFV SOL 017

RAN Sharing

- Objective: Provisioning of connectivity between cell sites and interconnection points agreed among operators
- NBI attributes:
  - SLOs such as maximum and guaranteed bit rate, bounded latency, packet loss rate, etc.
  - Additional characteristics such as secure connection, IP addressing, etc.
- NBI procedures:
  - Provisioning of connectivity services, collection of performance and fault data, etc.
- Applicability of IETF Network Slice:
  - Multi-tenancy on mobile front/mid/backhaul
- Reference: MEF white paper on fronthaul/backhaul sharing

Next steps

- Complete the draft with new use cases
  - E.g., evolution of wholesale services, cloud computing-based services, etc
- Elicit common SLOs, attributes and procedures for all the cases
  - Add a new chapter about parameters and procedures to use the NBI

- Collect feedback / comments from the WG
- Follow-up the draft progress in the TEAS NS DT, and considering it as an outcome of that effort
- Prepare a new version for IETF#110