Instantiation of IETF Network Slices in service providers networks

draft-barguil-teas-network-slices-instantation-02

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Scope of the of the work

- Motivation

  "This document describes the architecture, communication process, models, used between the Network Slice Controller and a network controller for a IETF network slice creation".

- Intention of the work
  - How to use existing IETF "machinery" to operate IETF Network Slices in Service Provider Networks
  - Evaluate existing Yang models (RFCs, WGs, individual drafts), identify where they apply in the network slicing architecture and find gaps vs the IETF network slice requirements.

- NOT our Intention
  - Defining new YANG models
  - Redefining architecture, terminology, or adding new requirements

- Reference documents:
  - Requirements: Even there is not a formal IETF requirements document, the requirements are being obtained from framework and NBI drafts (draft-ietf-teas-ietf-network-slices and contreras-teas-slice-nbi).
  - The **Network Slice Architecture** is being worked in [draft-ietf-teas-ietf-network-slices-03] Framework for IETF Network Slices
  - The slice **attributres and functionalities** expected from use cases are being documented in [draft-contreras-teas-slice-nbi-05] IETF Network Slice Use Cases and Attributes for Northbound Interface of IETF Network Slice Controllers
  - The IETF has produced **several YANG data models** to support the Network Automation:
    - Service Models: Capture the customer requirements (i.e. LXSM, …)
    - Network Models: Capture the Network requirements to deliver a service. (i.e. LXNM)
    - TE Models and Service Mapping: Maps the TE data models and the service/network models.
    - ACLs and Routing Policies
  - Existing architectures and frameworks for Network Automation and SDN:
    - [RFC 8969] A Framework for Automating Service and Network Management with YANG
    - [RFC 8453] Framework for Abstraction and Control of TE Networks (ACTN)

Updates from -00 version

- Editorial Updates:
  - Updated structure of the document including new sections, naming alignment and ordering to increase readability and consistency:

- Sections renamed:
  - IETF Network Slice Requirements and Data Models
  - Section renamed: IETF Network Slice Procedure
  - Network Controller Operation
  - Operational considerations.
  - Network Slice Procedure

- **New section:** Reference Architecture and Components
  - Explains how IETF Network Slice Controller (NSC) can be implemented in operator's network based on [**I-D.ietf-teas-ietf-network-slice-definition].**

Updates from -00 version

Update in the IETF Network Slice Requirements and Data Models including additional operational requirements:

NFV-based services
Incoming and outgoing bandwidth
QoS metrics
Directionality
MTU
Protection scheme
Connectivity mode

Network sharing
Maximum and Guaranteed Bit Rate
Bounded latency
Packet loss rate
L2/L3 reachability
Recovery time
Secure connection

- **New section:** Operational Considerations
    - Outlines the compliance and operational aspects of Network Controller models with IETF Network slice requirements.
        - Availability
        - Downlink throughput / Uplink throughput.
        - Protection scheme
        - Delay
        - Packet loss rate

Next Steps

- Continue to work on implementation options and, security and operational considerations.

- Collect additional deployment requirements for the gap analysis.

- Provide feedback to architecture and solution works.

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

- Question for WG
  - Is this an I-D that is useful activity for the WG, and should we continue?