Network Slicing Provision Models

draft-homma-slice-provision-models

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Background

• Diversity of devices and services with communication

• Network softwarization powered by NFV and SDN

• 5G is coming
Network Slicing on 5G Context

- ITU and 3GPP defined 3 axis on 5G use cases
  - eMBB: enhanced Mobile Broadband
  - mMTC: massive Machine Type Communication
  - URLLC: Ultra-Reliable and Low Latency Communication

- Network slice appears on such context but we want to aim more general (incl. fixed, datacenter, etc.) and wider applicable range.

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Problems

• The definition is ambiguous
  • Just VPN? Or VNFs and service chaining?
  • From where to where? Only within 5G core network?

• Who will use slices? And what are their purposes?
  • Will operators use them for enriching their service plans?
  • Provide dedicated logical network to tenants?
Scope of this Work

• Provide appropriate use of resources for tenants
  □ Network Slice provisioning models
  □ Enable tenants to select and use any resources (incl. functionality) depending on their own services and requirements
Purposes on this I-D

• Defining:
  • Resource types structuring network slices (not only network but also cloud)
  • Stakeholders and their roles in NSaaS (Network Slice as a Service)
    -> Be fundamental reference for individual I-Ds related to slicing

• Clarifying capabilities required by tenants
  • How do we provide resources to tenants: exposure, functionality
Resource types

• Three types of resources:
  • Network(WAN): Connectivity (e.g., link, node), DP protocol, etc.
  • Computing(NFVI): CPU, Memory, Storage, etc.
  • Functionalities: VAS functions (e.g., FW, DPI), optional control functions, etc.

• Both virtual and physical
Basic Structure of Network Slicing

• NSSI (Network Slice Subnet Instance) is established with resources controlled in each domain

• E2E-NSI (Network Slice Instance) is structured by connecting NSSIs with high-level orchestrator

• NSI may be multilevel structure
Creation Patterns

• Ready Made: NS provider creates catalogs in advance and a tenant select one which is closed to its demand

• Custom Made: NS provider design a catalog depending on requirements from tenant

• Semi-Custom Made: NS provider creates outlines of catalogs and input several parameters depending on requests from tenants
Provision Models

- **SaaS-like**: tenant requests its demands on connectivity, applications running on cloud, and their location.

- **PaaS-like**: tenant indicates nodes and links with their attribution.

- **IaaS-like**: tenant controls underlay equipment directly.
Next Steps

• Need more review and opinions, especially from vertical customers

• Mapping provision models and controllable resources

• (YANG) Information/Data models
Thank you!

Questions?