

Motivation for Management of Network Slicing and IETF work from Operator's View Point

Shunsuke Homma (NTT)

IETF101 COMS BoF

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Questions and Objectives from ADs/Chairs

- I. Clarify the problem space
- II. What is the problem space?/ In particular, it is the focus of the problem: *the* thing that you want to achieve in an operational network.
- III. What are operators relevant COMS Use Cases? What group of problems are important from operators viewpoints?
- IV. What impact would be produced by NS solutions from operators viewpoints?

Agenda

- Background & Motivation for Network Slicing
- Expectation for IETF
- Issues and Challenges on Network Slicing
- COMS Work Scope
- Conclusion

Background and Motivation (1/2)

- IoT devices or OTT services are exponentially diversifying
⇒ Adapting networks to them, in short, “**service-oriented**” and “**management-oriented**” network operation, would be urgently required
- Prospect to expand business opportunities with communication services
⇒ Enables other industrial companies to use networks as a part of their own services

Examples: connected car with high reliable network, online game with ultra-low latency, video streaming with guaranteed bandwidth

Background and Motivation (2/2)

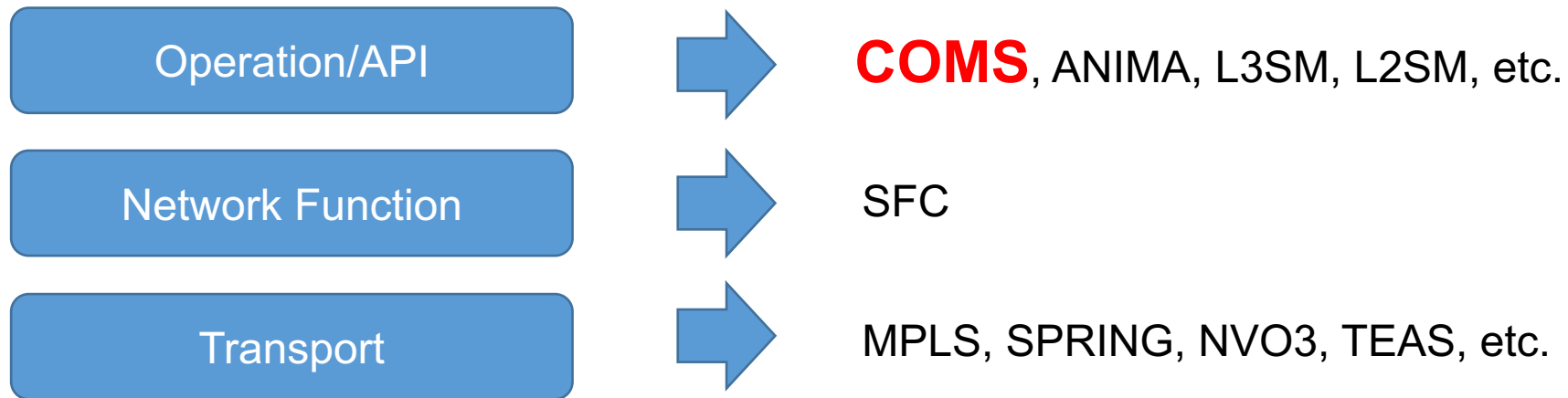
- High-level requirements for network slicing from an operator's viewpoint:
 - ✓ Guaranteeing service level from end to end across multiple (administrative) domains
 - ✓ Flexible customizability
 - ✓ Inexpensive and prompt service/network deployment (by virtualizing technologies)
 - ✓ Efficient Interplay between Management and Data Planes

[Ref.] Other Requirements for Network Slicing

- High-Scalability
 - Separating to 100~ slices (the order will vary depending on the use cases)
 - Handling million ordered customers
- High-Reliability
 - Immediate fault detection
 - Redundant mechanisms
 - Isolation
- Automation of Network Operation
 - Automated life-cycle management of network slices (Deploy, Change, Delete)
 - Optimization resources (Auto-scaling/migration)
 - Auto-healing
- Standard and Open Source

Expectation for IETF

- Operators need practical (workable) solutions
 - For network slicing, considering of whole network system architecture would be mandatory
- ⇒ Some existing IETF technologies would be usable
- ⇒ COMS will cover shortage within existing management technologies in terms of network slicing



<Consideration areas and relevant WGs>

Issues and Challenges for Network Slicing

- Deploying and providing of E2E networks which satisfy requirements of each service (bandwidth, latency, service functions)

⇒ Operation across heterogeneous domains and stitching domains

Relevant drafts:

- ✓ draft-geng-coms-problem-statement-03
- ✓ draft-defoy-coms-subnet-interconnection-03

- Ensuring high compatibility with existing networks

⇒ Overlay architecture, Slice Gateway solution

Relevant draft:

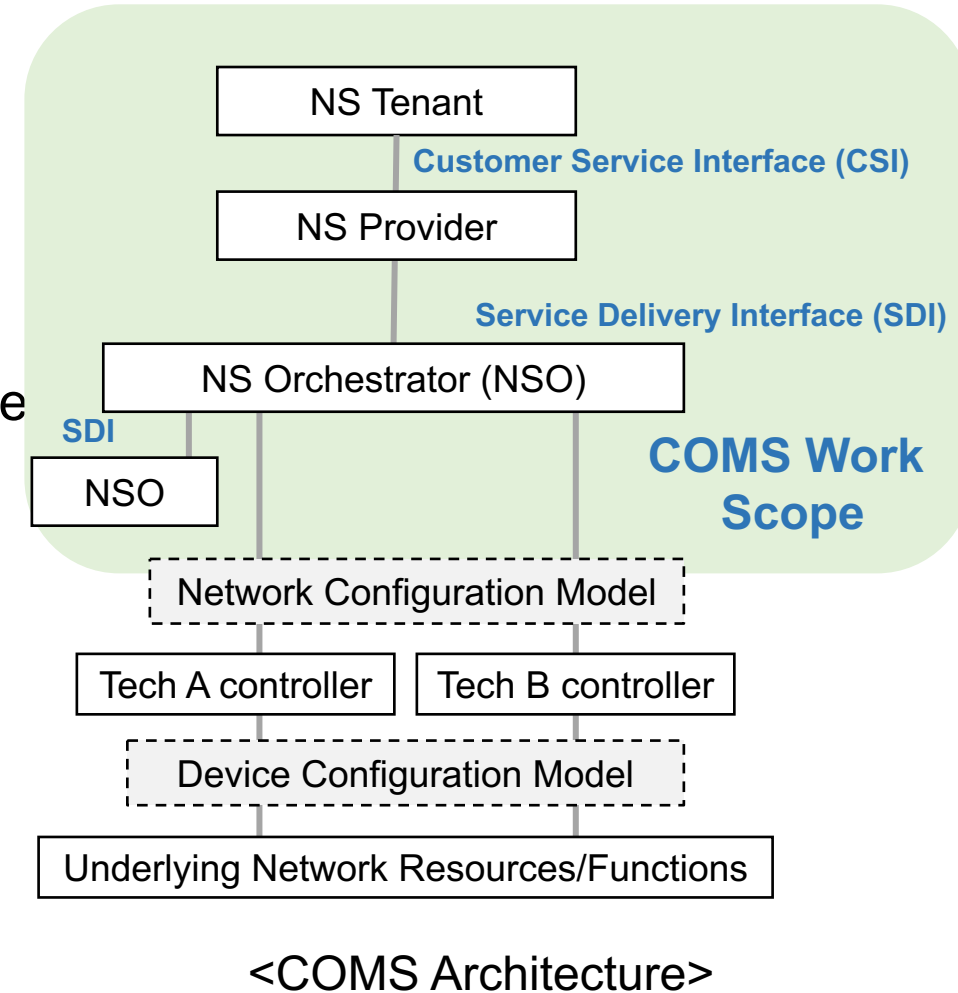
- ✓ draft-homma-coms-slice-gateway-01

- Realizing tenant-friendly network control

⇒ Abstraction of configuration, definition of API to external, etc.

COMS Work Scope

- Realizing operation framework in consideration of concrete management and controlling data plane;
COMS Deliverables:
 - ✓ Information/data modeling
 - ✓ Interfaces for Interworking and Interservicing
 - ✓ Clarification of data plane functionality and how to configure
- Basically refers existing data plane technologies (avoid reinventing the wheel) and expand existing technologies if needed



Conclusion

- Expecting realization of E2E network slices and creation of new business model with them as a network operator.
- Practical and workable group of solutions are needed and IETF is an appropriate and unique SDO place for creating it.