Network Slices Network Slicing Gap Analysis

IETF *revision of v0.01*

*Abstract of the contribution:*

*This document discusses IETF work needed for Network slicing*

**Gap Analysis for Network Slicing**

**Table of Contents**

[1. Introduction (Liang) 2](#_Toc481503129)

[2. Terminology 2](#_Toc481503130)

[3. Overall Requirements for Network Slicing (Satoru, Pedro) 2](#_Toc481503131)

[4. End-to-End Network Slicing (Cristina) 3](#_Toc481503132)

[4.1. Related Work in ANIMA 3](#_Toc481503133)

[4.2. Related Work in PCE 3](#_Toc481503134)

[4.3. Related Work in TEAS 3](#_Toc481503135)

[5. NS Service Model/NS-Domain Abstraction (Kiran) 3](#_Toc481503136)

[6. Network Slicing Resource Specification (Sue, Jie) 4](#_Toc481503137)

[6.1. Related Work in DMM 4](#_Toc481503138)

[6.2. Related Work in SUPA 4](#_Toc481503139)

[6.3. Related Work in I2RS 4](#_Toc481503140)

[7. OAM Operation with Customized Granularity (Med, Christian) 4](#_Toc481503141)

[7.1. Related Work in OPSAWG 5](#_Toc481503142)

[8. Gap Summary (ALL) 5](#_Toc481503143)

[9. Security Considerations 5](#_Toc481503144)

[10. IANA Considerations 5](#_Toc481503145)

[11. Acknowledgments 5](#_Toc481503146)

[12. References (ALL) 5](#_Toc481503147)

[12.1. Normative References 5](#_Toc481503148)

[12.2. Informative References 5](#_Toc481503149)

# Introduction (Liang)

* Please Provide Necessary References

# Terminology

* Network Segment: includes fixed Access Network (AN), Radio Access Network (RAN), Transmission Network (TN), Core Network (CN), Edge Network (EN), central cloud network, edge cloud network, etc.
* Domain: domain of TN by default

# Overall Requirements for Network Slicing (Satoru, Pedro)

* Describe the following 4 key requirements

Req.1 E2E network Slicing;

Req.2 NS Service Model/NS Domain-Abstraction

Req.3 NS Resource Specification;

Req.4 OAM Operations with Customized Granularity;

* Suggest to logically organize these requirements, rather than simply list

e.g., cross-domain resource negotiation (Req. 1) → abstract the network resources (Req. 2) → Specify the network resources to customer & customer specify the NS requirement to network (Req. 3) → OAM during use (Req. 4)

**OR**

e.g., customer specify the NS requirement to network (Req. 3) → perform cross-domain negotiation/inter-operation to construct an E2E network slice (Req. 1) → NS domain-abstraction to customer so that customer could look at the slice as a complete network (req. 2) -→ OAM during use (Req. 4)

* Please Provide Necessary References

# End-to-End Network Slicing (Cristina)

1. **Explain the meaning of this requirement:** Inter-operation/negotiation between domains/network segments, including the resource negotiation and other cross-domain inter-operations in the lifecycle management.
2. **Descript this requirement:** an End-to-end network slice involves multiple network segments/domains. These domains/network segments may belong to different operators/regions/administrative domains… have to negotiate resources, some configuration info…
3. **Point out the related work (or existing work)** in **IETF**—each related work will be analyzed in a separate subsection; If there are some related works in **other SDOs**, briefly analyze them; If there is **no related work**, clearly point out the gap and the interfaces/protocols needed to be standardized.

* Be careful to distinguish the 'resource specification' and 'resource negotiation'. Avoid using the term "SLA", "east-west", "orchestrator"...
* Please Provide Necessary References

## Related Work in ANIMA

* supports the inter-operation/negotiation among devices within a single domain
* Gaps:

## Related Work in PCE

* Layer 3, path computation
* Gaps:

## Related Work in TEAS

* ACTN
* Gaps:

# NS Service Model/NS-Domain Abstraction (Kiran)

1. **Explain the meaning of this requirement:**
2. **Descript this requirement:** Each domain has its own abstraction method, whilst an E2E network
3. **Point out the related work (or existing work)** in **IETF**—each related work will be analyzed in a separate subsection; If there are some related works in **other SDOs**, briefly analyze them; If there are **no related works**, clearly point out the gap and the interfaces/protocols needed to be standardized.

* Avoid using the term “SLA”, “east-west”…
* Please Provide Necessary References

# Network Slicing Resource Specification (Sue, Jie)

1. **Explain the meaning of this requirement:**
2. **Descript this requirement:** Exposit the network capability to customers, tenants, applications, other domains, other network segments, etc. & Specify the network slicing resource requirements from customers, tenant, applications, other domains, other network segments, etc., to network.
3. **Point out the related work (or existing work)** in **IETF**—each related work will be analyzed in a separate subsection; If there are some related works in **other SDOs**, briefly analyze them; If there are **no related works**, clearly point out the gap and the interfaces/protocols needed to be standardized.

* Avoid using the term “SLA”, “east-west”…
* Please Provide Necessary References

## Related Work in DMM

* FPC Model
* Gaps:

## Related Work in SUPA

* focus on strategy specification
* Gaps:

## Related Work in I2RS

* focus on routing system
* Gaps:

# OAM Operation with Customized Granularity (Med, Christian)

1. **Explain the meaning of this requirement:**
2. **Descript this requirement:**
3. **Point out the related work (or existing work)** in **IETF**—each related work will be analyzed in a separate subsection; If there are some related works in **other SDOs**, briefly analyze them; If there are **no related works**, clearly point out the gap and the interfaces/protocols needed to be standardized.

* Avoid using the term “SLA”, “east-west”…
* Please Provide Necessary References

## Related Work in OPSAWG

* Analysis:
* Gaps:

# Gap Summary (ALL)

|  |  |
| --- | --- |
| **Requirements** | **Gaps** |
| End-to-End Network Slicing |  |
| NS Service Model / NS-Domain Abstraction |  |
| Network Slicing Resource Specification |  |
| OAM Operation with Customized Granularity |  |

# Security Considerations

This document analyzes the standardization work on network slicing in different WGs. As no solution proposed in this document, no security concern raised.

# IANA Considerations

There is no IANA action required by this document.

# Acknowledgments

# References (ALL)

## Normative References

## Informative References

.