

Use Cases-Standalone Service ID in Routing Network

draft-huang-rtgwg-us-standalone-sid-00

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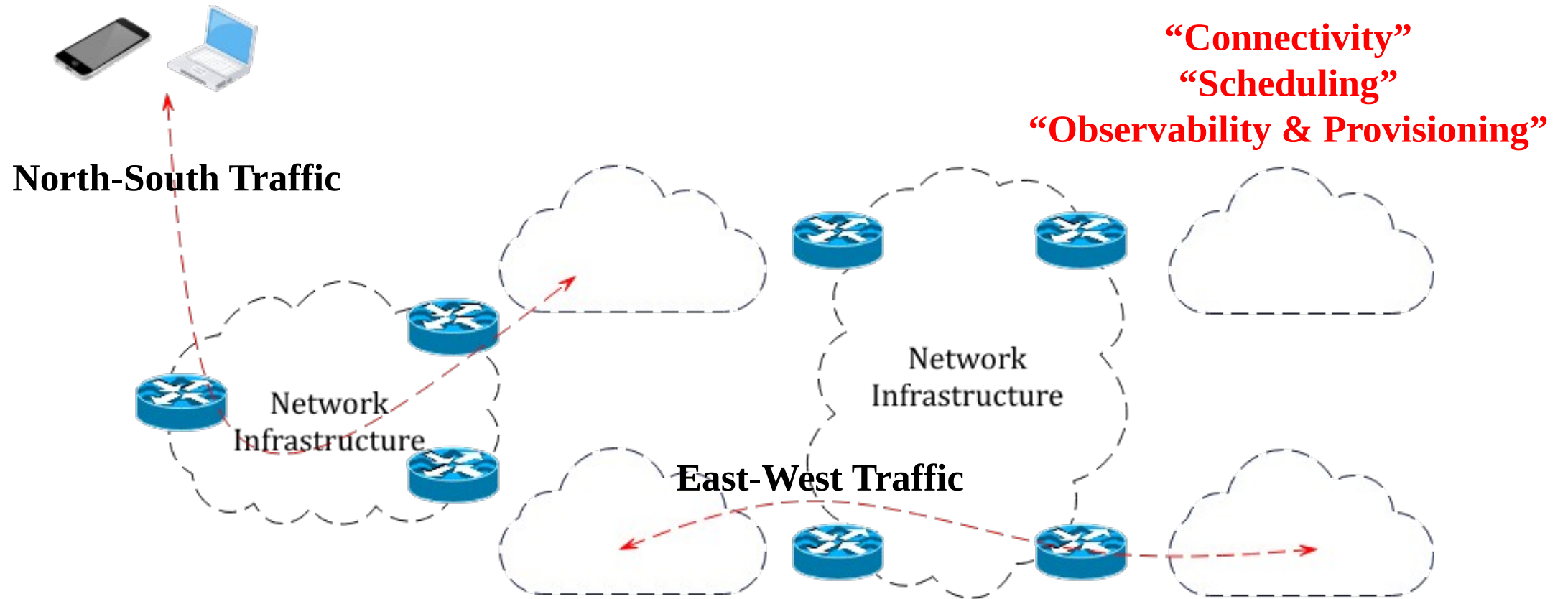
Yan Zhang, China Unicom

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What's updated from IETF 118

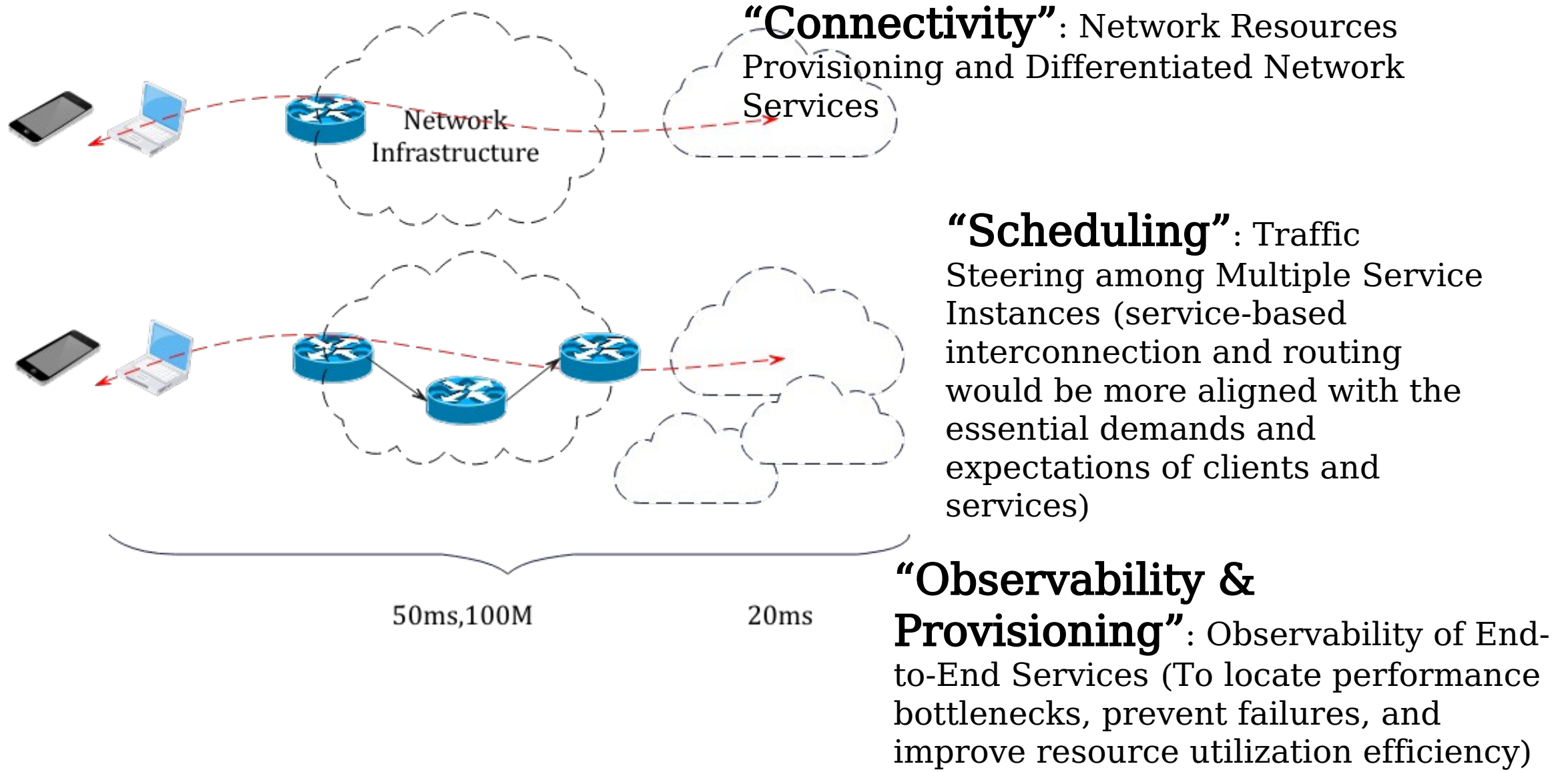
- Rolled back from the solution proposal of service ID for addressing and networking in IETF 118
- Focus upon the key use cases and requirements we've identified and investigated

Apps and service diversity, coordination among micro-services

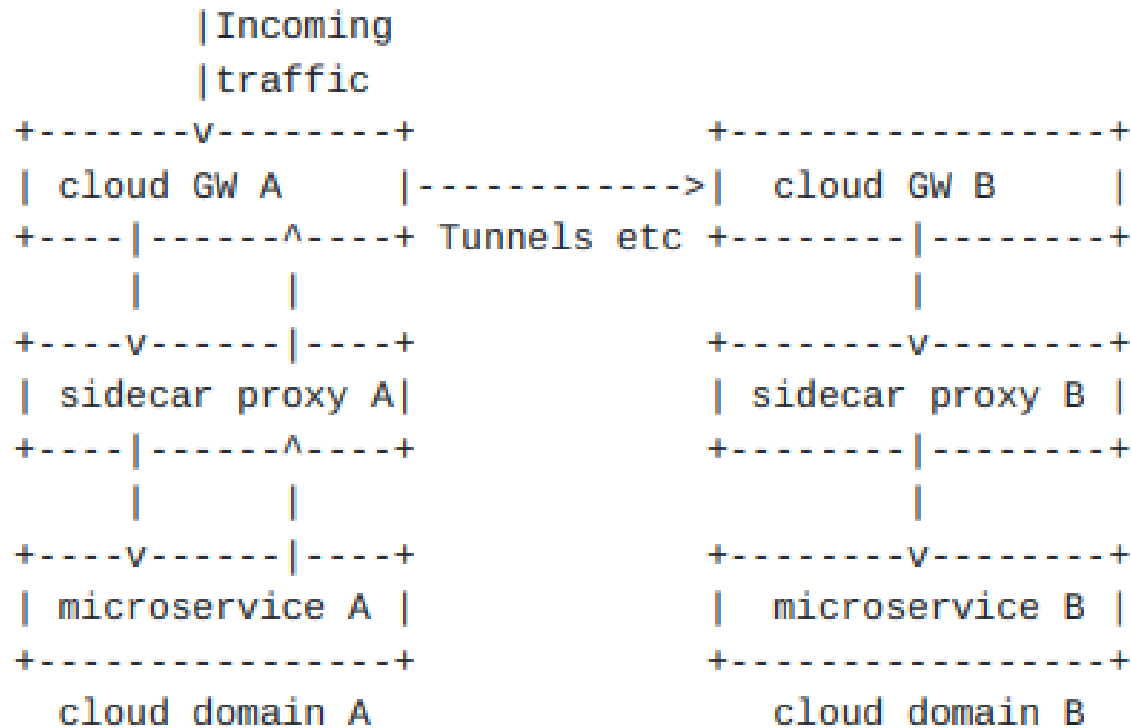


Identify and guarantee SLAs of multi-tasking flows, scheduling and orchestrating forwarding path for transient life cycle of computing tasks.

Gaps of south-north traffic scenario



Gateways and proxies in the way of east-west traffic



Additional processing delay at the gateways for each hop service-to-service communication

---> **Large end-to-end delay**

Interfaces are needed to establish appropriate mapping between different technologies in two adjacent domains

---> **High management complexity**

Figure 1: Inter-service communication within multi-domains

- a proxy intercept traffic and conduct processing
- application semantics are considered
- consists of three TCP segments

Cross registries and isolations from service interconnections

Network APIs, “Traffic Lanes”, ...

(Configured in ServiceEntry)

Service B:

Cloud 1 Gateway

Cloud 2

Cloud 2 Gateway

(Configured in VirtualService)

Match TAG I:

Cloud 1 Gateway

Match TAG II:

Cloud 2 Gateway

+-----+ /

| | /

| | /

| -- +-----+

| () ---> |Gateway| -----> |Gateway| ---> ()

| -- +-----+

| Service A |

| |

+-----+

Cloud 1

+-----+ -- |

Cloud 1 Gateway +-----> |Gateway| -----> () |

+-----+ -- |

Cloud 2 Gateway / | Service B |

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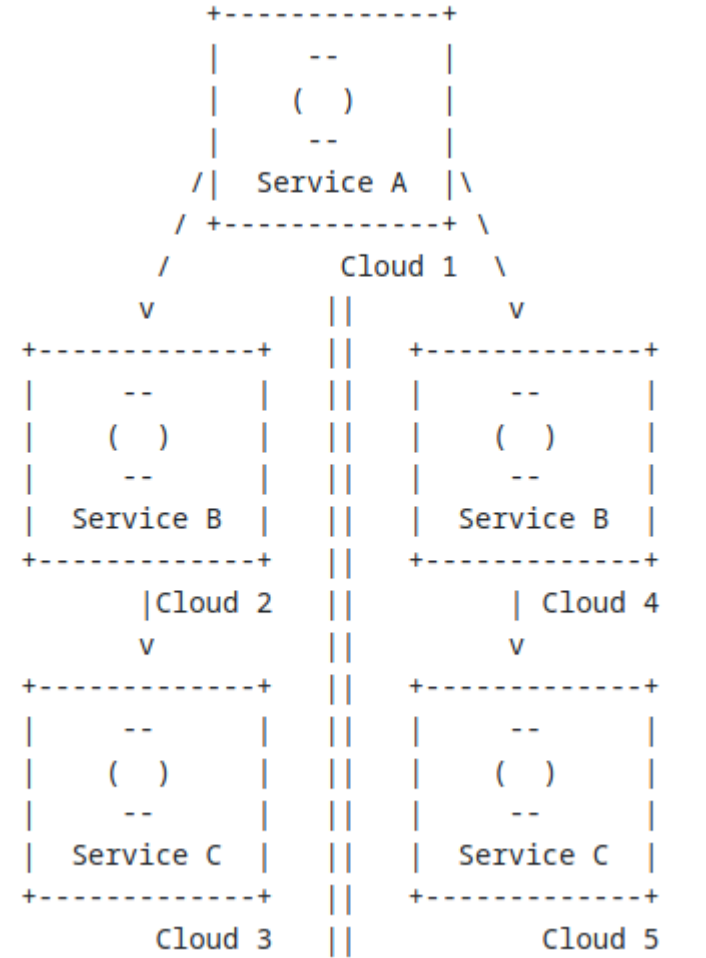
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| Service B |

| |

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Cloud 3



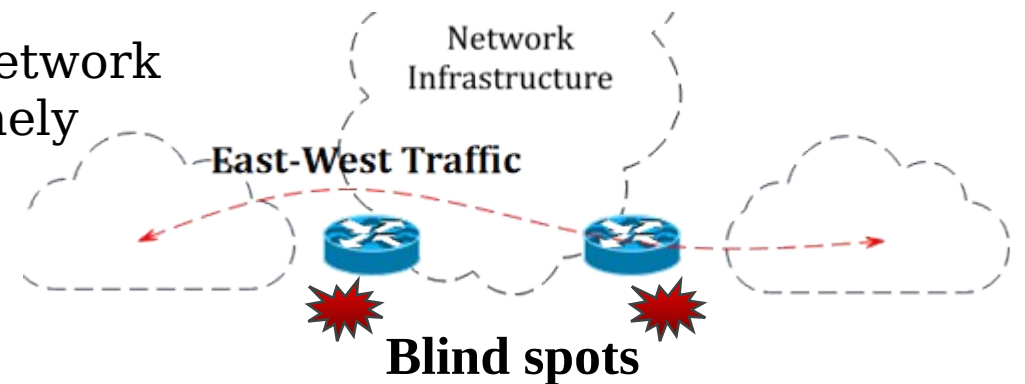
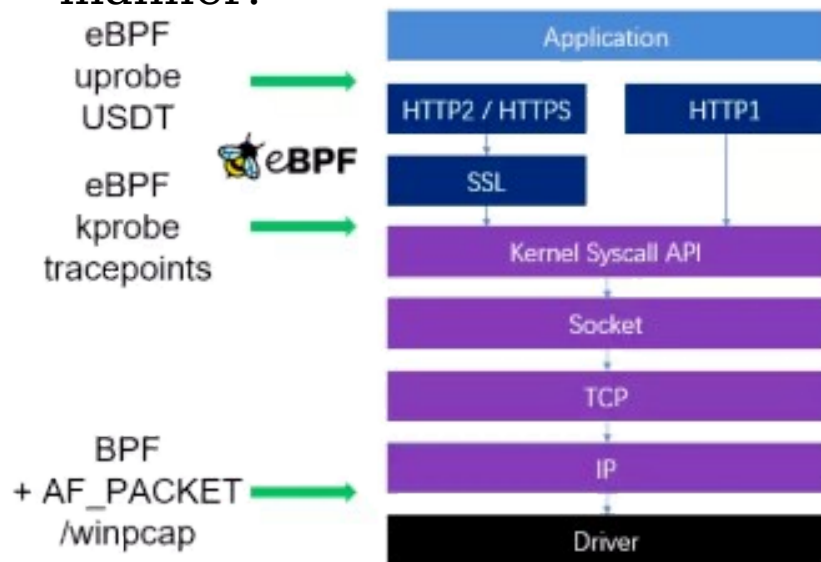
1. The service endpoints are **not aware of the resources and circumstances of network capabilities**, and scheduling strategies tend to be static.

2. **Collaborative logic** across microservices and endpoints is not perceived and maintained by infrastructure.

Blind spots in APM and eBPF

Enhanced Berkeley Packet Filter (eBPF) technologies

- the byte streams collected by the eBPF technologies generally do not contain service semantics, it is difficult to conduct aggregation
- difficult to correlate a failure in the underlay network with the overlay tunnel and take action in a timely manner.



Application Performance Management (APM)

- On service-to-service communication paths, instrumentation is either not allowed or leads to maintenance difficulties such as conflicts of codes
- Fail to obtain measurements regarding the infrastructure such as system calls and network transmissions

Requirements of standalone service ID in routing network

**Location/Device
independant**

**User
independant**

**Interface to the third
parties**

**Interface to the
capabilities**

**Service type and
nothing more**

Terminology: we do not believe “service ID” is the best and it remains open for better suggestions.

Next Steps

- Refine the drafts upon comments and suggestions.
- More comments, suggestions and contributions would be welcome.

Side Meeting this evening

18:30-20:00 P6-7 TUESDAY 19 March
Standalone Service ID in Routing Network

Standalone Service ID in Routing Network: Usecases, Problems and Requirements

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