Service Function Chaining Metadata Type 1 and Type 2

draft-sarikaya-sfc-metadatat1t2-01

Behcet Sarikaya(sarikaya@ieee.org)
Mohamed Boucadair (mohamed.boucadair@orange.com)
Dirk von Hugo(Dirk.von-Hugo@telekom.de)

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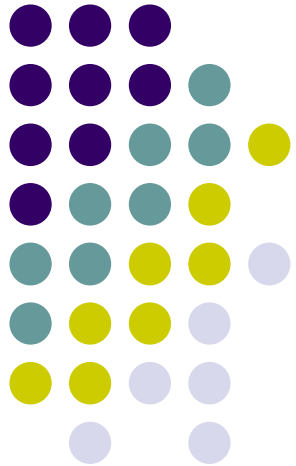
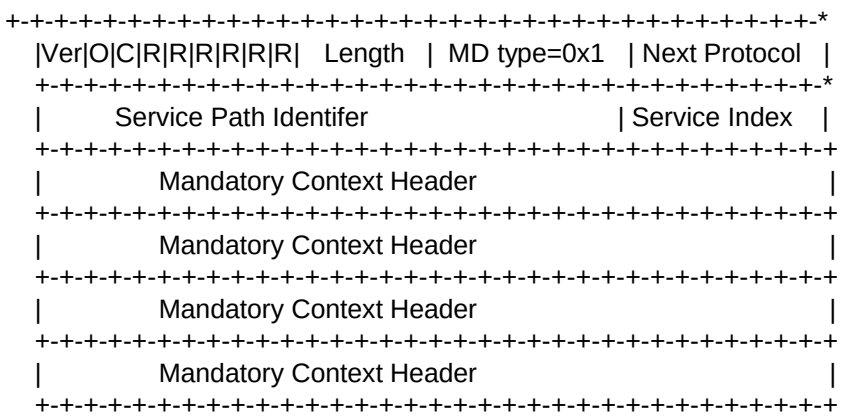


SFC Network Service Header

- Current Definitions – Metadata Type 1



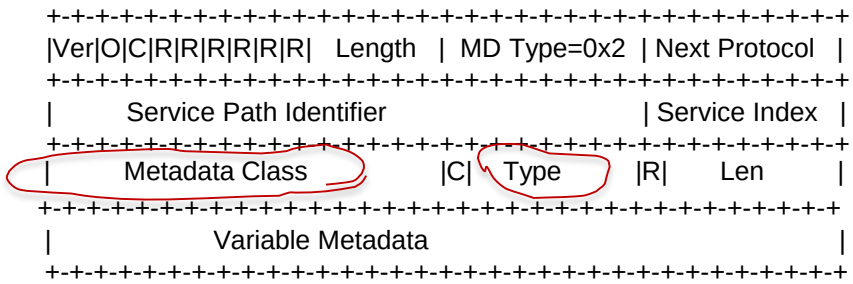
Base header

Service Path header

Context header

New Format?

- Metadata Type 2



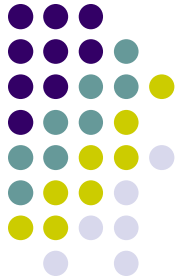
Metadata Class too long, Type too short?

- Draft-ietf-sfc-nsh-10

The Problem

- Many use cases (Mobility, Data Center, OAM)
- Other use cases: extreme low-latency service, ultra high reliability applications
- Many drafts defining Type 1 and Type 2 metadata for these use cases
- Format/syntax of metadata
- Semantics of metadata, post processing instructions
- How to standardize metadata needed by diverse set of SFC use cases while ensuring backward compatibility?

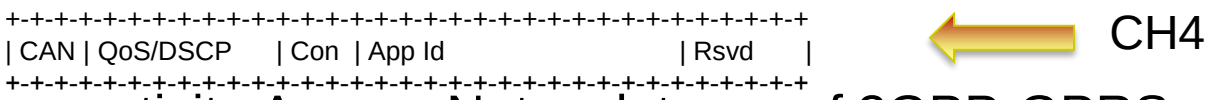
Metadata Type 1 approaches



- I-D.guichard-sfc-nsh-dc-allocation:
  - Use case: I-D.ietf-sfc-dc-use-cases
  - Identifiers: Source Node, Source Interface, Tenant
  - Destination, Source and Opaque Service Classes
  - D-bit for destination class and
  - F-bits for Opaque Service Class types:
    - ServiceTag to identify a particular flow, transaction or application message
    - Application ID

Metadata Type 1 approaches

- I-D.napper-sfc-nsh-broadband-allocation
  - Use case: I-D.ietf-sfc-use-case-mobility
  - Identifiers: Context, Sub/Endpoint
  - Service Information
  - Sub bits for Sub/Endpoint ID types:
    - IMSI, MSISDN, M2M flows or Home Identifier
  - Tag bits for Service Information types

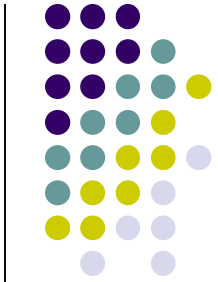


    - Connectivity Access Network types of 3GPP-GPRS, DOCSIS, xDSL, etc.
    - App ID describing flow type, Con access congestion level
  - Also defines an empty TLV as MD Type 2

Metadata Type 1 approaches

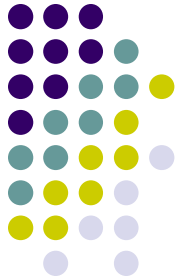
- I-D.wang-sfc-nsh-ns-allocation:
  - Use case: I-D.wang-sfc-ns-use-cases
  - Identifiers: Session, Tenant
  - Destination, Source Classes
  - Destination, Source Score – security score
  - D-bit for destination class
  - Designed for the needs of security services
  - Security context allocation may also be defined as variable number of MD-Type 2 metadata TLVs
  - I-D.meng-sfc-nsh-broadband-allocation defines Type 1 metadata for broadband network use cases
  - Source Node, Source Interface, User, VLAN IDs

Metadata Type 2 aproaches



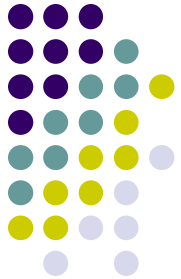
- [I-D.sarikaya-sfc-hostid-serviceheader]
  - Use cases: parental control, traffic offload, extreme low-latency, high reliability applications
  - Identifiers: Host ID, Subscriber ID, Slice and Service IDs,
  - SubT-bits for Subscriber ID, Service ID
- Use cases are defined in the same document
- Post processing normative behavior
- Privacy considerations for host and subscriber IDs

Metadata Type 2 aproaches



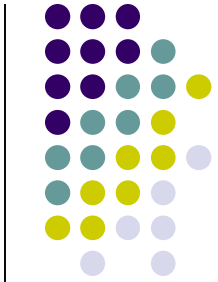
- [I-D.quinn-sfc-nsh-tlv]
  - Identifiers: forwarding context, subscriber/user info, tenant, application ID, content type, ingress network information, flow ID, source and/or destination groups, universal resource identifier (URI)
  - Some have flag bits
- Purpose is to document syntactic structure of the TLVs to set up a registry of Type 2 metadata
- This document does not define the normative behavior for processing the defined TLVs. This is key for interoperability

Other aproaches



- [I-D.penno-sfc-packet]
- Use case: OAM, reverse packet request as MD Type 1
- Service-Path-Invariant, Service-Path-Default, Bidirectional Clonable, Unidirectional Clonable, Service-Function-Mastered metadata
- No structure is defined for these metadata but semantics is defined
- [I-D.penno-sfc-appid]
- Classification Engine ID and Selector ID for Application ID defined in [I-D.quinn-sfc-nsh-tlv]

How should WG proceed?



- Registry approach option
  - Currently Type 2 has a small registry
  - Could also be made for Type 1
- Case-by-case approach option
- Hybrid cases
  - Registry + case-by-case with semantic info
  - Case-by-case + registry of only Type 1
  - Case-by-case + registry of only Type 2
- Informational or standards track?
  - Registry as informational
  - Case-by-case as standards track

How should WG proceed?

- Comments?
- Q&A