

# DetNet

## DetNet Flow Information Model

draft-ietf-detnet-flow-information-model-06

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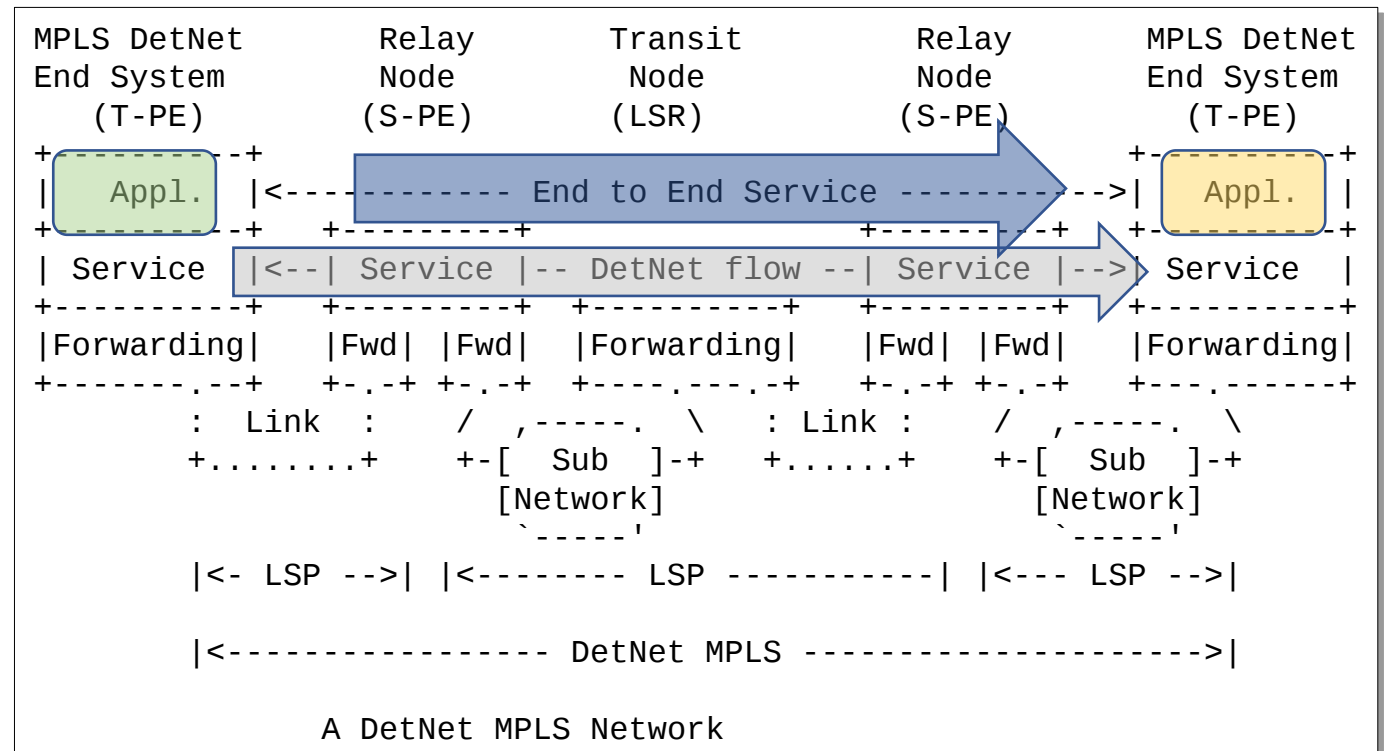
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DetNet WG

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# Agenda

- Model related reminders
- Updates in the draft
- Next steps



# Information/Data models for DetNet

## Service / Flow / Configuration

Reminder of target

- DetNet: three models are distinguished:

- **Flow information model:**

describes characteristics of data flows. It includes in detail all relevant aspects of a flow that are needed to support the flow properly by the network between the source and the destination(s).

- **Service information model:**

describes characteristics of services being provided for data flows over a network. It can be treated as a network operator independent information model.

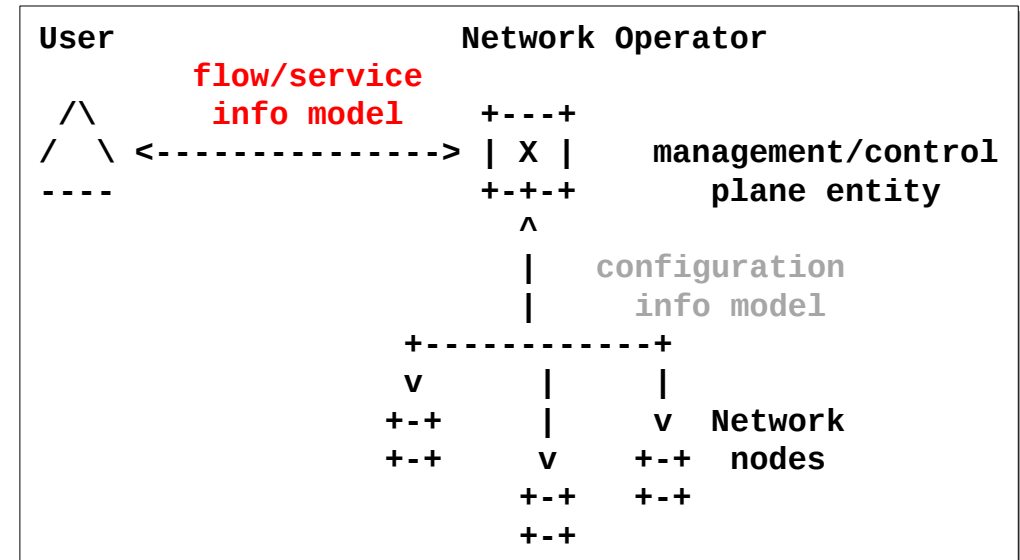
- **Configuration data model:**

describes in detail the settings required on network nodes to serve a data flow properly.

Flow Information Model

Customer Service Model

Network Element YANG Modules



# Updates in the draft

v04 → v05 → v06

- **v05**

- Many editorial updates
  - clarifications,
  - attribute formats,
  - etc.
- Added security considerations
- New co-author: Don Fedyk

- **v06**

- Added attribute: “IPSecSpi” (for flow identification)

# Structure of the Attributes

## App-flow, DetNet flow and DetNet service

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### App-flow

#### Characteristics

- FlowID: unique (manag.) ID
- FlowType: Eth, MPLS, IP
- *DataFlowSpecification*:  
src/dst-addr, label, VLAN, etc.
- *TrafficSpecification*:  
interval, pkt-size, max-packet
- FlowEndPoints: Src, Dst(s)
- FlowRank
- FlowStatus

#### Requirements

- *FlowRequirements*:  
MinBW, PD, PDV, Loss, etc.
- FlowBiDir

Service Requirements similar to  
e.g., 802.1Qcc Attributes like  
UserToNetworkRequirements

### DetNet flow

#### Characteristics

- DnFlowID: unique (manag.) ID
- DnPayloadType: Eth, MPLS, IP
- DnFlowFormat: MPLS, IP
- *DnFlowSpecification*:  
Label, 6-tuple
- *DnTrafficSpecification*:  
interval, pkt-size, max-packet
- DnFlowEndPoints: Ingress, Egress(s)
- DnFlowRank
- DnFlowStatus

#### Requirements

- *DnFlowRequirements*:  
MinBW, MaxLatency, MaxLatencyVariation,  
MaxLoss, MaxConsecutiveLossTolerance,  
MaxMisordering
- DnFlowBiDir

### DN Service

- DnServiceID: unique (manag.) ID
- DnServiceDeliveryType: Eth, MPLS, IP
- DnServiceConnectivity: p2p, p2mp
- DnServiceRank
- *DnServiceDeliveryProfile*:  
MaxBW, MaxLatency, MaxLatencyVariation,  
MaxLoss, MaxConsecutiveLossTolerance,  
MaxMisordering
- DnServiceBiDir
- DnServiceStatus

A DetNet flow contains one or  
more App-flows (N:1 mapping).

A DetNet service supports one or  
more DetNet-flows (M:1 mapping).

# Next Steps

- Any missing attributes?
- Inline with YANG?
  
- Ready for WG last call?

Thanks ...

# Terminology

## Flows and Reference points

### Based on architecture draft:

- **App-flow:**
  - The payload (data) carried over a DetNet service.
- **DetNet flow:** App-flow + DetNet encaps.
  - A DetNet flow is a sequence of packets which conform uniquely to a flow identifier, and to which the DetNet service is to be provided. It includes any DetNet headers added to support the DetNet service and forwarding sub-layers.

Note: In some scenarios App-flow and DetNet flow look similar on the wire (e.g., IP App-flow over a DetNet IP network).

Note: DetNet flow can be treated as an application level flow (App-flow) e.g., at DetNet flow aggregation or in a sub-network that interconnects DetNet nodes.

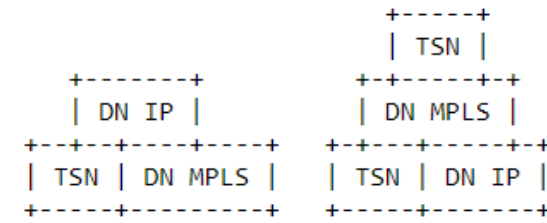


Figure 1: DetNet Service Examples as per Data Plane Framework

### New terms:

- **Source:**
  - Reference point for an App-flow, where the flow starts.
- **Destination:**
  - Reference point for an App-flow, where the flow terminates.
- **DN Ingress**
  - Reference point for DetNet flow, where it starts. Networking technology specific encapsulation may be added here to the served App-flow(s).
- **DN Egress:**
  - Reference point for DetNet flow, where it terminates. Networking technology specific encapsulation may be removed here from the served App-flow(s).