DetNet Flow Information Model

draft-zha-detnet-flow-info-model-01

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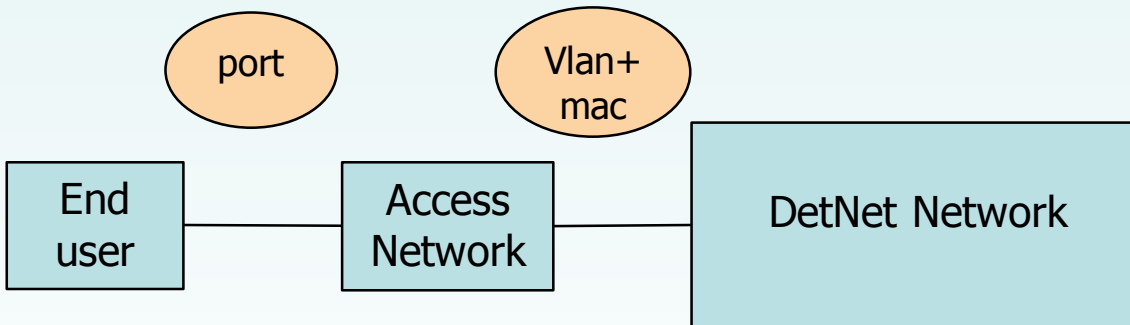
Update Since Berlin

- Add more information on
  - Flow identifier
  - Traffic description

- Some editorial changes

Flow Information

- All about how to describe a flow
  - Define common concepts of a DetNet flow with necessary information

- Used by different network functions or entities
  - **Flow indentifying and filtering**
  - Data plane configuration
  - **Resource reservation**
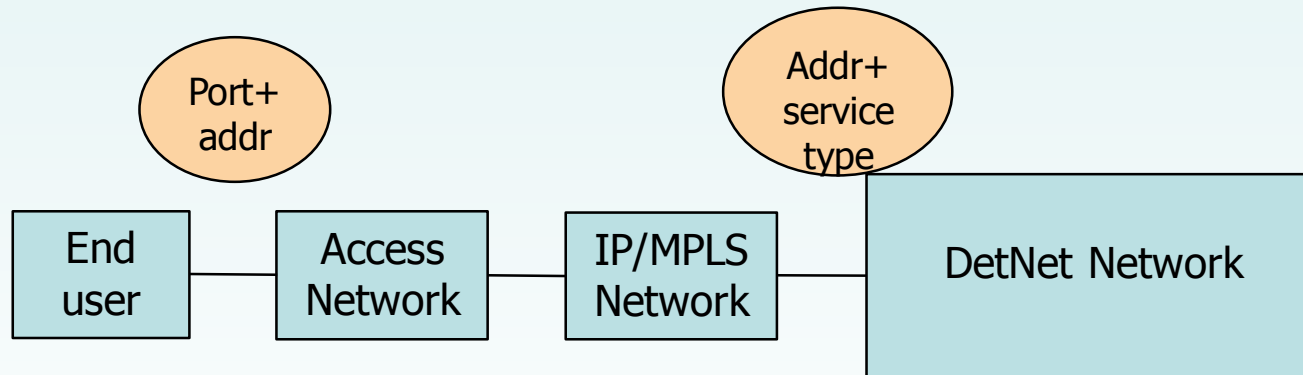 - Control protocols
  - YANG models

Flow Identifier

- First step for DetNet service provisioning
  - Differentiates via user

- Layer 2 flow identification

Flow Identifier

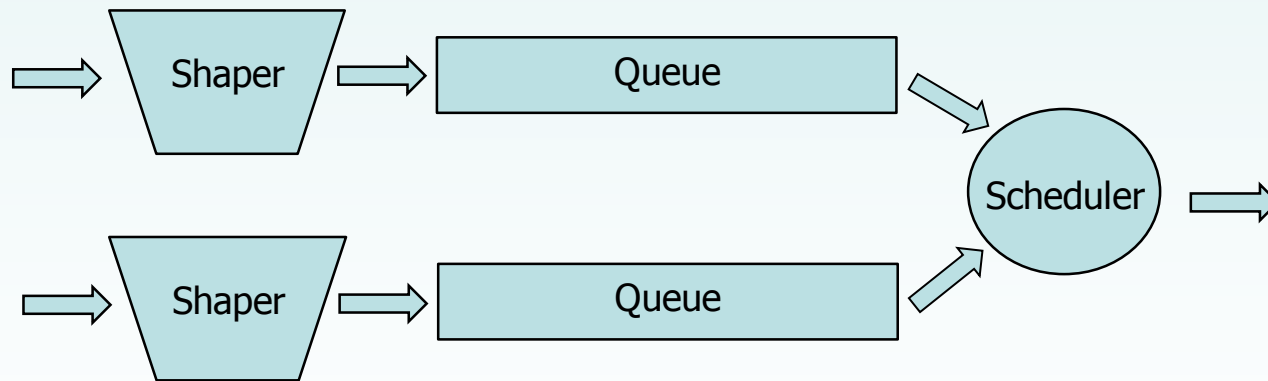- Differentiates via user+ applications

- Layer 3 flow identification

Traffic Description

- To reserve proper amount of resource

- Is bandwidth reservation enough?

- More description on traffic, more deterministy on service

```
+--------------+--------------+--------------+
| Name         | Elements     | Elements     |
+--------------+--------------+--------------+
|Priority      |              |              |
+--------------+--------------+--------------+
|MTU           |              |              |
+--------------+--------------+--------------+
|Bandwidth     |              |              |
+--------------+--------------+--------------+
|BurstList-    |              |              |
|Periodic      |              |              |
+--------------+--------------+--------------+
|PeriodValue   |              |              |
+--------------+--------------+--------------+
|BurstList-    |              |              |
|Length        |              |              |
+--------------+--------------+--------------+
|              |BurstListID   |              |
|              +--------------+--------------+
|              |BurstLegnth   |              |
|              +--------------+--------------+
|              |              |BurstID       |
|              |              +--------------+
|BurstList     |              |MaxFrames     |
|              |              +--------------+
|              |Burst         |MaxFrameSize  |
|              |              +--------------+
|              |              |StartTime     |
|              |              +--------------+
|              |              |EndTime       |
+--------------+--------------+--------------+
```

Traffic Shaping

- *"The network can't provide a bounded or deterministic latency to an unbounded flow"*

- Shaping helps to limit the traffic from source

Traffic Shaping

- Flowspec in RSVP

- Flowspec structure provides the following QoS parameters to RSVP

  - *TokenRate*

  - *TokenBucketSize*

  - *PeakBandwidth*

  - *Latency*

  - *DelayVariation*

  - *ServiceType*

Traffic Shaping

- Flow description including leaky bucket and token bucket

- Is it enough for DetNet resource reservation?

- Can App use this to tell network the maximum attributes of traffic it is going to send?

```
+---------------+---------------+
| Name          | Elements      |
+---------------+---------------+
|               | Buffer size   |
|               +---------------+
| Leaky Bucket  | Input rate    |
|               +---------------+
|               | Output rate   |
+---------------+---------------+
|               |Initial Buffer |
|               +---------------+
|               | Burst         |
| Token Bucket  +---------------+
|               | Token Rate    |
+---------------+---------------+
```

Service Model

- Service needs DetNet flow information

- Mapping of flow attributes from up layer to lower layer
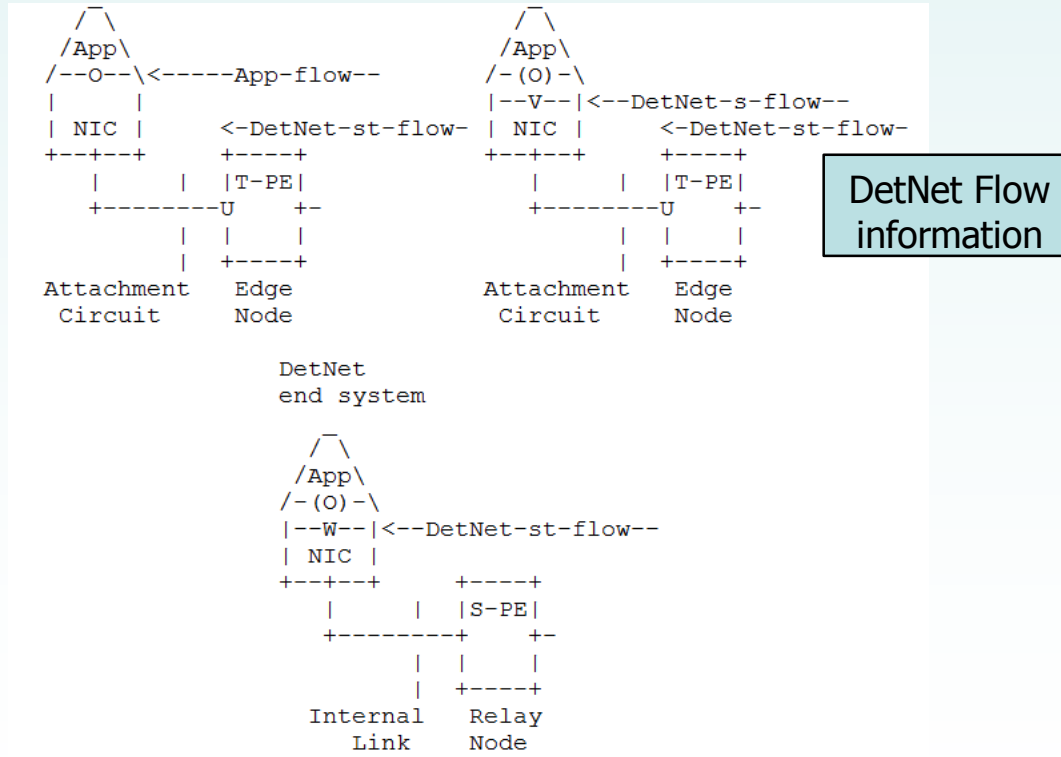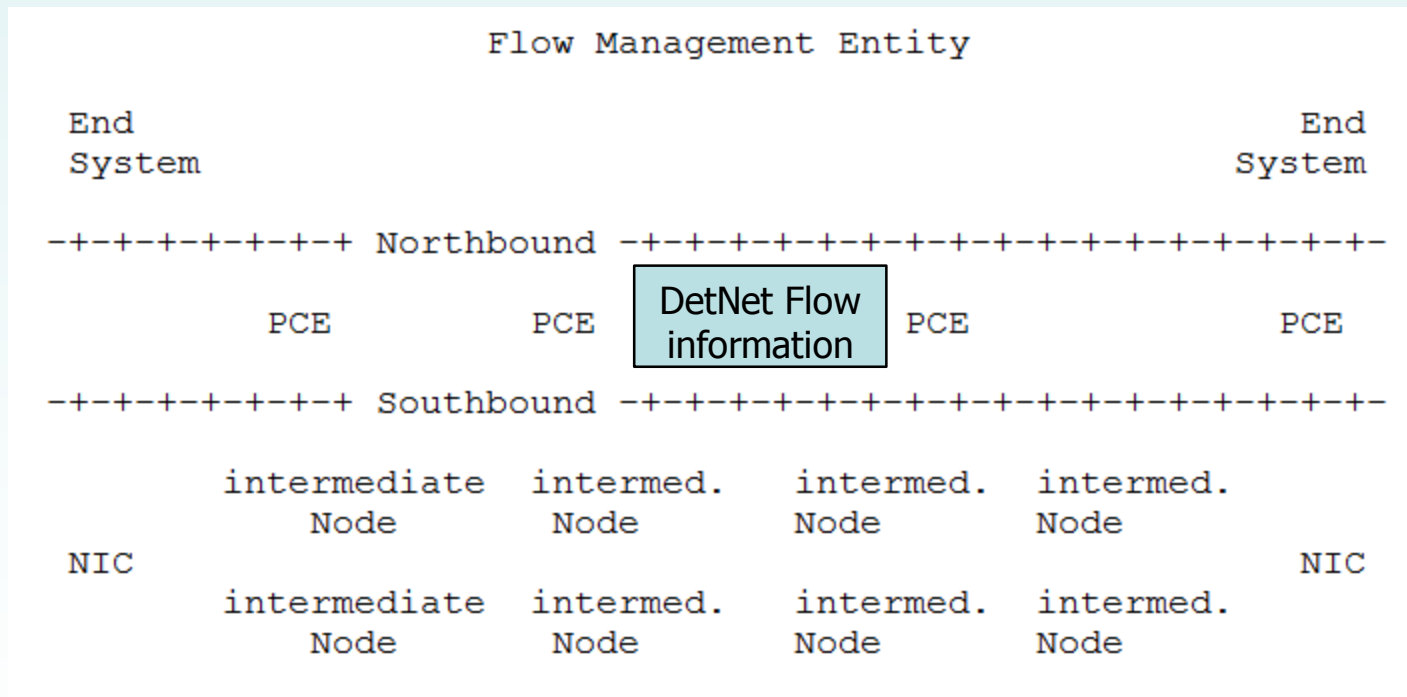

Figure 3: Types of end systems

Control Plane

- Flow information is needed for PCE, NBI, and SBI

Status and Next

- Current status
  - 01 version, has some comments
  - Focus on flow identifier and traffic description, need more information

- Next step
  - More participants
  - More information
  - More applicability

Questions?

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