

DetNet problem statement

draft-finn-detnet-problem-statement

Norm Finn, Pascal Thubert

IETF 94 Yokohama

Doc charter

- This effort will establish the deployment environment and deterministic network requirements.
- The working group will document which deployment environments and types of topologies are within (or outside) the scope of the DetNet architecture.

Deployment environment(s)

- Extending beyond the LAN
- Applies to RAN, SmartGrid, Pro-Audio, ...
- Extent of the network TBD (multiple admin, WAN...)
- Enable a fully scheduled operation orchestrated by a central controller
- May support a more distributed operation with probably lesser capabilities

Requirements

DetNet should thus produce the complete SDN architecture with describes at a high level the interaction and data models to:

- report the topology and device capabilities to the central controller;
- request a path setup for a new flow with particular characteristics over the service interface and control it through its life cycle;
- signal the new path to the devices, modify it to cope with various events such as loss of a link, update it and tear it down;
- expose the status of the path to the end devices (UNI interface)
- provide additional reliability through redundancy, in particular with packet replication and elimination;

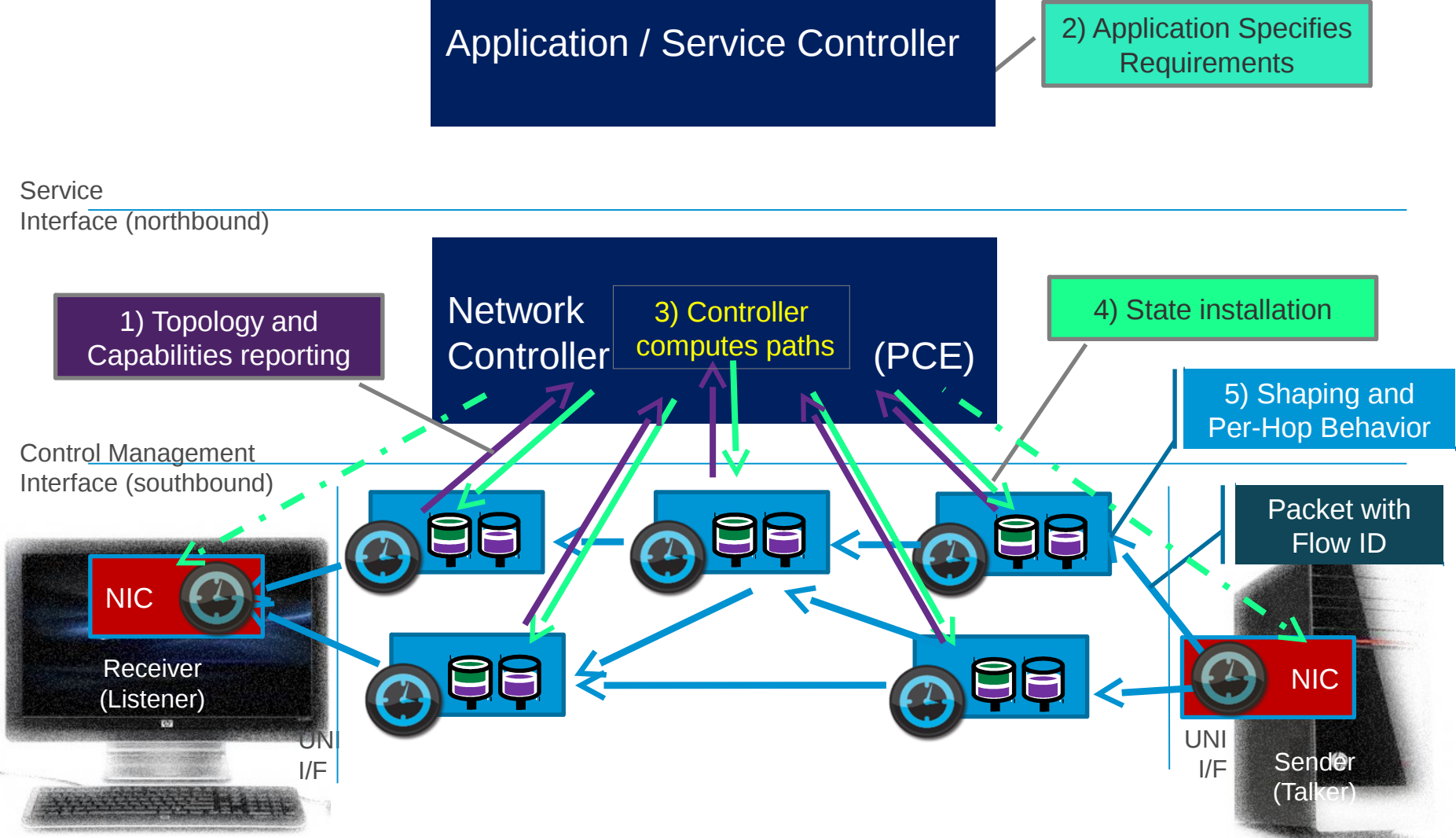
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Out of scope

- Bridging operations
 - Already defined at IEEE 802.1 TSN
- Time Sync
 - Already defined at IEEE (PTP 802.1AS or 1588)
 - Or other groups (TICTOC, NTP)
- Shapers and queue management
 - Already defined at IEEE

DetNet Architecture



In scope

- Interaction Models
 - Centralized architecture (distributed also?)
 - SouthBound flows
 - UNI (LMI++, CIR++ ...)
- Information Models
 - TSpec (flow characterization)
 - Data model for per-flow state (buffers, Qs, timing)
 - Flow identification in packets (FlowID, seq#, time)
 - Data Plane transport (MPLS, IPv6...)
 - Data plane OAMs