Distributed Mobility Management (DMM) WG

Forwarding Path & Signaling Management (FPSM)

draft-ietf-dmm-fpc-cpdp-07.txt

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What is this work about..?

• Enable the separation of a mobility network‘s Control-Plane function from its Data-Plane function

• Enable distributed deployment of Control- and Data-Plane functions by abstracted Data-plane model and protocol messages

• Support multi-tenancy on a single real deployed D-plane network and multiple domains within a tenant
Executive Summary of Update Since IETF97

• 2 revisions before IETF98
• Addressed comments (clarification, terms, editorial)
• C. Perkins added as co-author
• Aligment of data model with core specification
• Resolved Yang conflicts

• Few open items to resolve and to clarify
  • Model and operational details
Model Principles – Overview

- **Configuration of Data-Plane Topology**
  - Pre-configured

- **Configuration/Creation of Forwarding Policy** (e.g. filters, QoS and traffic steering, etc)
  - Pre-configured, or created on demand
  - Per context or shareable

- **Creation of Context**, which represents a mobility session (tunnel endpoints, meters)

- **Creation of virtual Port (vPort)**, which groups instances of Policy and binds the group to Context
v06/07 Updates
1. Add *Domain-reference* to Topology model

- Regarding discussions about netslice, a Domain of FPC model could refer to a set of partitioned resources for the domain, such as nodes, links with certain bandwidth, etc.

- They call it a “slice”. But we may not need to know what it is called.

- The important thing is that it could be a way to indicate a set of concrete or abstracted partitioned resources which could be dedicated to the Domain.

- Adding just one reference to *Domain* but it looks very handy and powerful to relate mobile overlay with underlay networks.
Domain-reference Points a Set of Data-Plane Resources (a.k.a network-slice)

**Abstracted Data-Plane on FPC-Agent**

- **Domain 1a**
  - DPN-Group(MAG)
  - DPN-Group(LMA)

- **Domain 2a**
  - DPN-Group(SGW)
  - DPN-Group(PGW)

- **Domain Na**
  - DPN-Group(SGSN)
  - DPN-Group(GGSN)

**Set of Data-Plane Resources**

- **5G slice 1** (smartphones)
  - CP/UP
  - Smartphones

- **5G slice 2** (autonomous driving)
  - CP/UP
  - Vertical AP
  - Autonomous devices

- **5G slice 3** (massive IoT)
  - UP
  - Massive IoT devices

Source: NGMN white-paper
2. Add some text to Node-reference

• When a DPN need to be a software instance on a NFV-like platform,
  • FPC agent may send message or command to instantiate DPN on the platform prior to configuring it.

• Text has been added to version 07 for this purpose.
Node reference points both real or virtual DPN

Abstracted D-Plane on a FPC-Agent

Real Deployed D-plane NW of an Operator
3. Miscellaneous

• Add some NSH and Segment Routing (SR/SRv6) drafts as references to next-hop attribute in Mobility model.

• s/envelope protocol/interface protocol/.

• Remove text which limit instantiation in attribute applicability section, since agent need to instantiate DPN on a NFVI prior to context.

• Text describing multi-tenancy in architecture section has been improved.

• Clarified that all FPC model should be configurable in architecture section.

• Clarified that pre-configuration could save number of over-the-wire exchange in attribute application section.

• Clarified the case where a client directly sets runtime attributes and its risk, on IM section of context and attribute application section.
Remaining Discussion Points
1. Change Port to Vport

• As we agreed on Charlie's suggestion, now Port is changed to Vport

• The original intention of Port is that it should be policies from which the agent renders configurations to each DPN.

• But Vport was intended to slightly change the original semantics with the concept of which it is per DPN configurations for Contexts

• For now text describing Vport has been kept as for previous for v06.

**Goal:** Find another name that expresses the above more clearly.
2. Next-hop and tunnel attribute

• Currently it is treated from tunnel information between DPNs. The next-hop attribute is used to point next-hop of outside of mobility tunnel.

• However the tunnel to destination DPN in general could be also a next-hop. Clarify if tunnel information can be merged as part of next-hop attribute.

• That would allow emerging technologies like SFC, SR/SRv6 and also MIPv6 to be mobility data-plane.
3. Agent’s features and capabilities discovery

• It was in the context of how a client finds the agent whether it is single or multiple DPN agent.

• But it looks quite obvious when the mobile apps of the client defines multiple DPNs on the agent. Text has been dropped.

• However, we may need to define generic way for discovery of features and capabilities on agent.
4. Monitor event reference

• As Charlie suggested that there could be references which already define events to be monitored in other SDOs.

• Proposed exampled from 3GPP
  • TS 32.106, Telecommunication management; Configuration Management (CM)
  • TS 32.111, Part 2: Alarm Integration Reference Point (IRP)

• More references to be added.

• Details of Monitor operation may be in a separate document
  • Compatibility/Alignment of multiple FPC documents to be ensured
FPC Implementation Update
FpcAgent has been an ODL Project

![FpcAgent Project Proposal](https://wiki.opendaylight.org/view/Project_Proposals:FpcAgent)

This is a proposal for FpcAgent as an ODL Project. The project proposal includes details about the project's name, repo name, description, and scope. The proposal is located on the OpenDaylight wiki at [https://wiki.opendaylight.org/view/Project_Proposals:FpcAgent](https://wiki.opendaylight.org/view/Project_Proposals:FpcAgent).

![FpcAgent Repository](https://github.com/opendaylight/fpc)

The FpcAgent repository is available on GitHub at [https://github.com/opendaylight/fpc](https://github.com/opendaylight/fpc).
Next

• More reviews needed
• Resolve and clarify remaining open items
• Target WG last call before IETF99?