Distributed Mobility Management (DMM) WG

DMM Work Item: Forwarding Path & Signaling Management (FPSM)

FPSM work team

IETF91, Honolulu

2014-11-13

WI as per charter description

Forwarding path and signaling management: the function that handles mobility management signaling interacts with the DMM network elements for managing the forwarding state associated with a mobile node's IP traffic. These two functions may or may not be collocated. Furthermore, the forwarding state may also be distributed into multiple network elements instead of a single network element (e.g., anchor). Protocol extensions or new protocols will be specified to allow the above mentioned forwarding path and signaling management.

Brief status update

- Two telephone conferences prior to IETF91
- Agreement on scope, operational mode and work to be done
- Identified and described categories for policy-based network control
- In the discussion so far involved:
  Sri Gundavelli, Pierrick Seite, Satoru Matsushima, Danny Moses, Alper Yegin, Georgios Karagiannis, Fred Templin, Charlie Perkins, Marco Liebsch

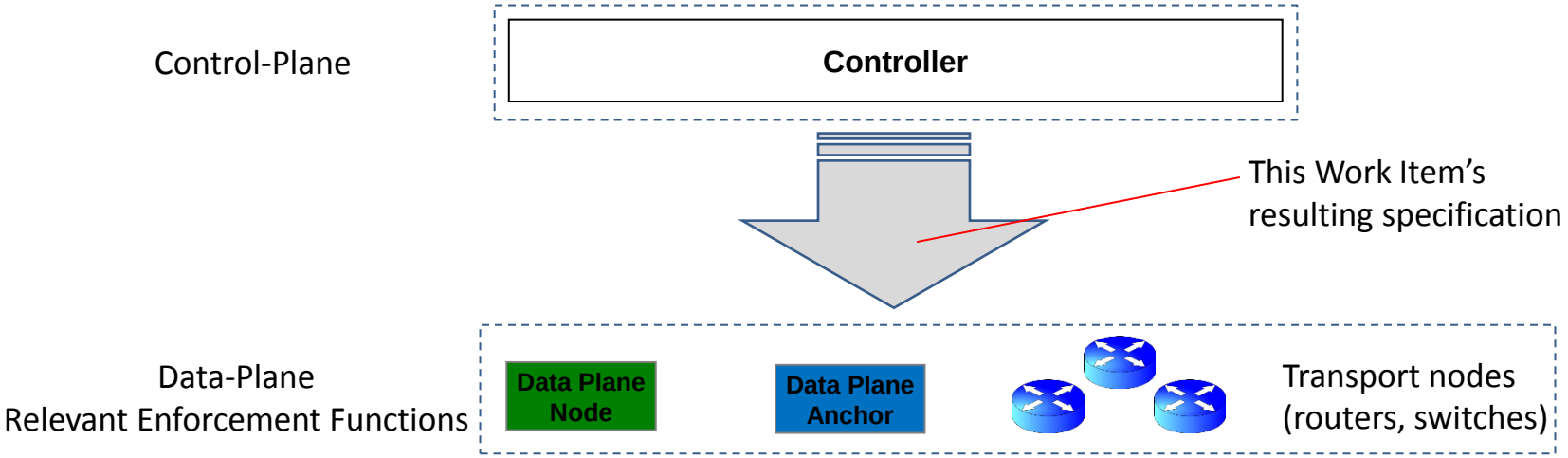
General objectives of this WI

- Elaboration of a policy-based network control solution for distributed mobility management
  - Support of various deployment models; flexible deployment of C-/D-Plane functions
  - Centralized vs decentralized C-Plane / D-Plane, D-Plane associated with network edge or correspondent service
  - Option to adopt virtualization technology
- This work item is about the **specification of the C-/D-Plane reference interface and semantics** without being specific to a particular protocol
  - Generic description of protocol interface preferred
  - Choice of description 'language' currently being discussed
  - Functional scope should support all DMM scenarios which have been discussed so far
- Mapping of generic description to concrete protocol extensions should follow this WI's specification(s)
  - Open Flow, Netconf, ForCES, BGP, ReST, XML, vendor-specific
  - Associated WGs may provide suitable platform for the specification of extensions

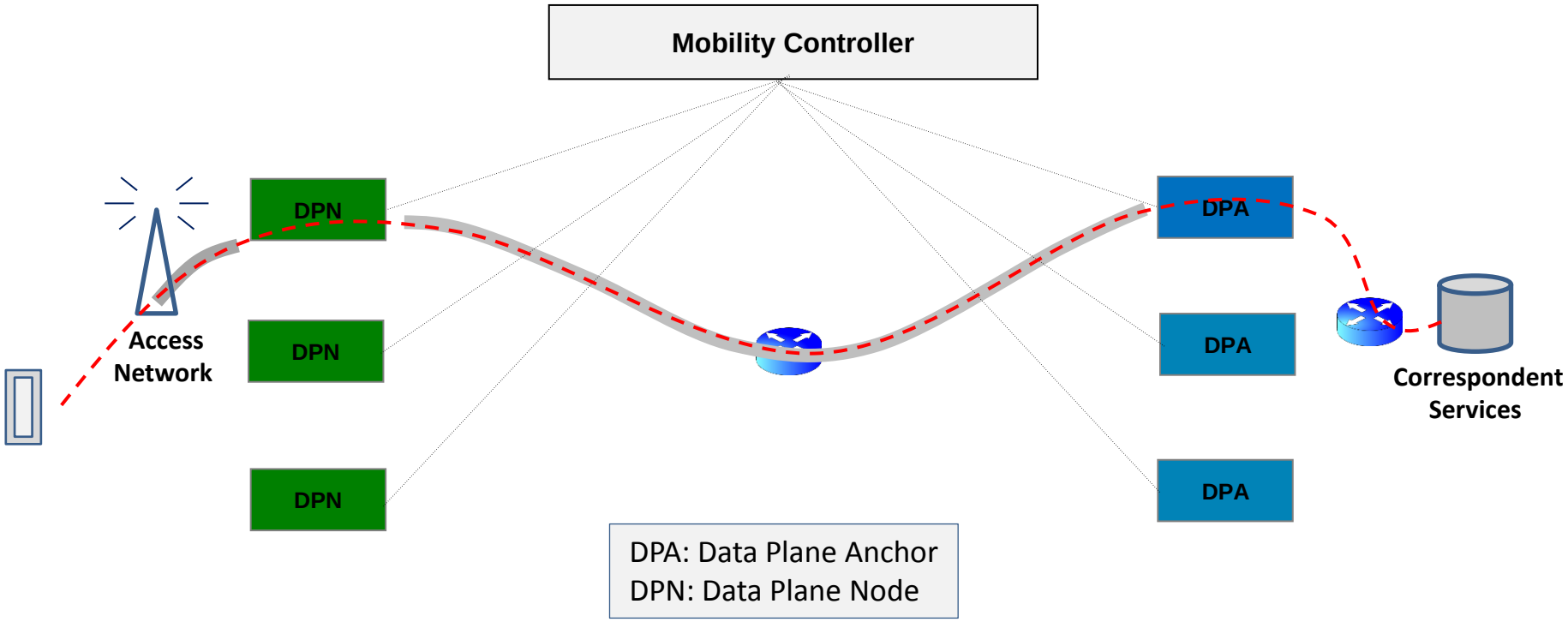
Illustration of WI scope

- Specification is agnostic to the type and the number of controllers
  - Interface between different types of controllers out of scope
  - Type of controllers (examples): LMA-C, MAG-C, OpenFlow-C
  - Controller, which is responsible for a particular D-Plane function, must be unambiguous

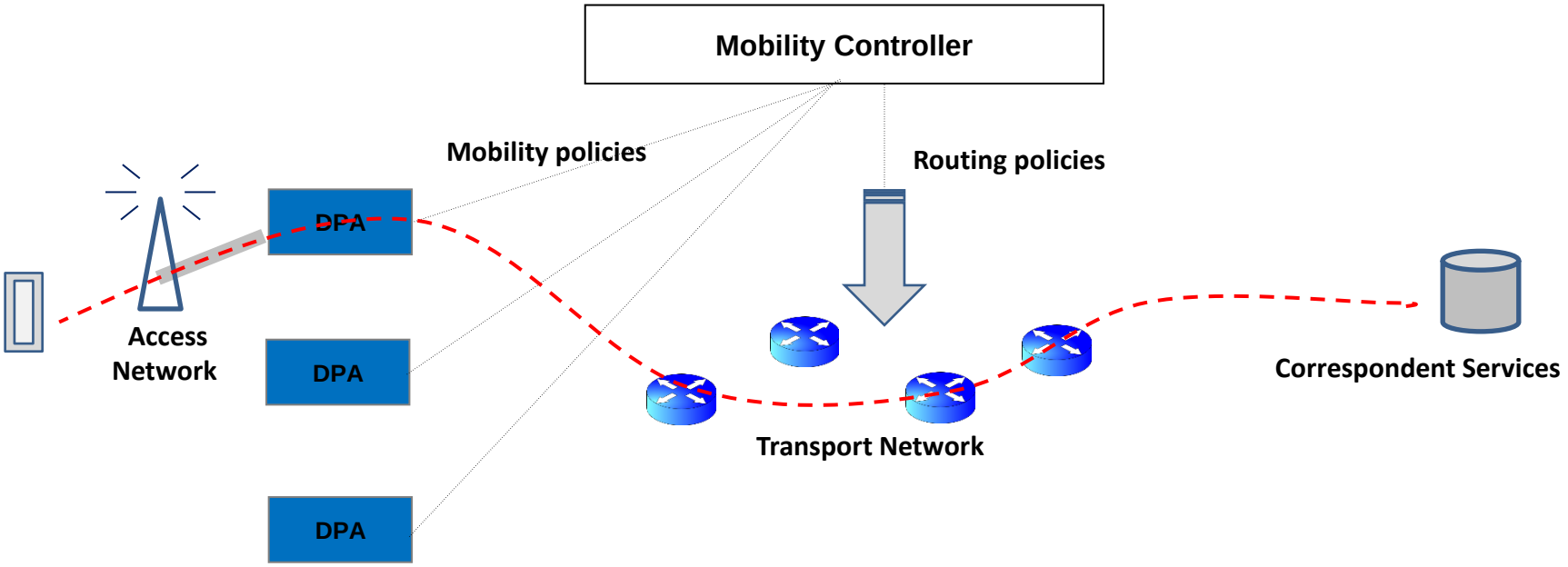
- Data Plane Anchor (DPA) definition:
  Traffic from foreign network must traverse the DPA



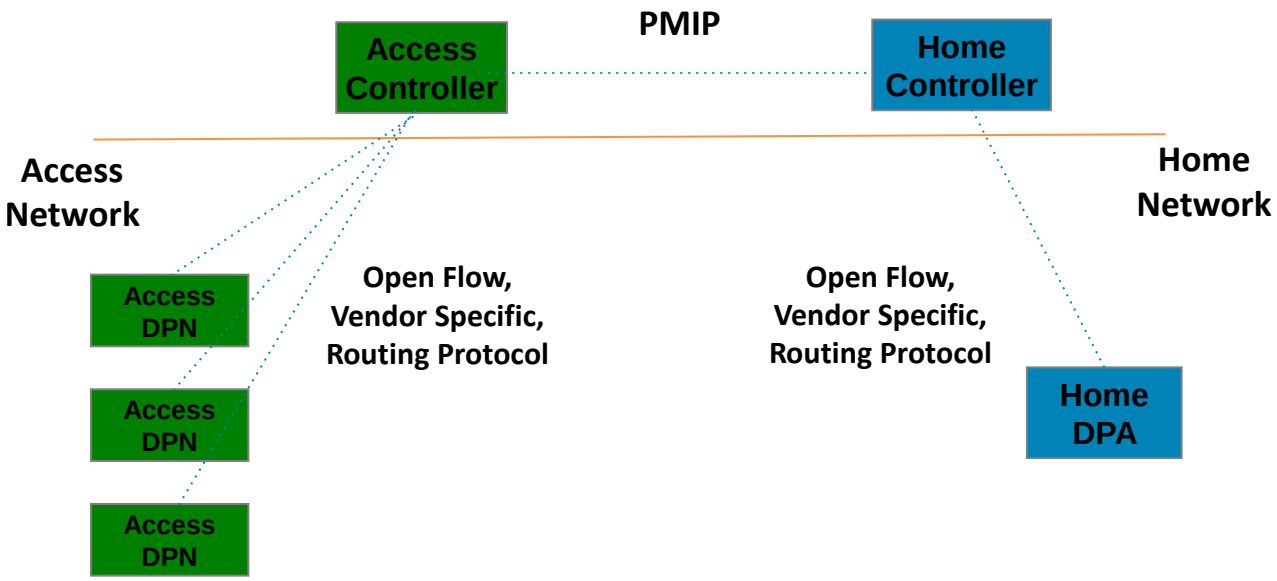
Exemplary deployment case –
Separated **D-Plane Anchor** and **Access Node**



Exemplary deployment case –
Configuration of DPAs and Transport Network nodes



Exemplary deployment case –
Matching a Proxy Mobile IP architecture



Identified categories

Each category has one or multiple functions associated

- **I/F / Tunnel Management**
  - Create, Modify, Tear-Down
  - Different attributes, e.g. I/F Features
- **Forwarding/Route Management**
  - IP Route Management
    - Aggregated routes, next hop configuration / output I/F, host routes (Sroute/Droute)
  - Routing Policy Management
    - Flow routes
    - Traffic/Flow identification
    - Actions
- **QoS Policy Management**
  - Traffic/Flow identification
  - Treatment
- **Queries**
  - Requesting attributes
- **Notifications**
  - Attach, address-in-use
  - Update
  - Maintenance

Next Steps

- ❑ Break down categories into detailed commands/API calls and attributes
- ❑ Agree on (initial) description format
- ❑ Write-up of first documentation