

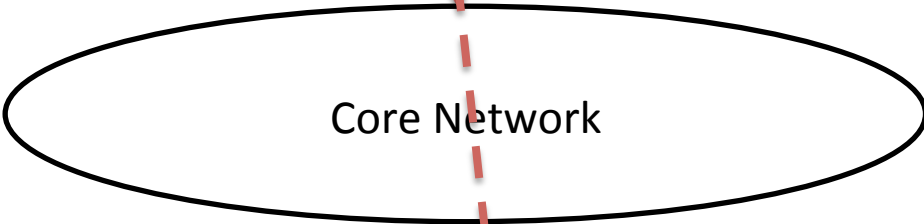
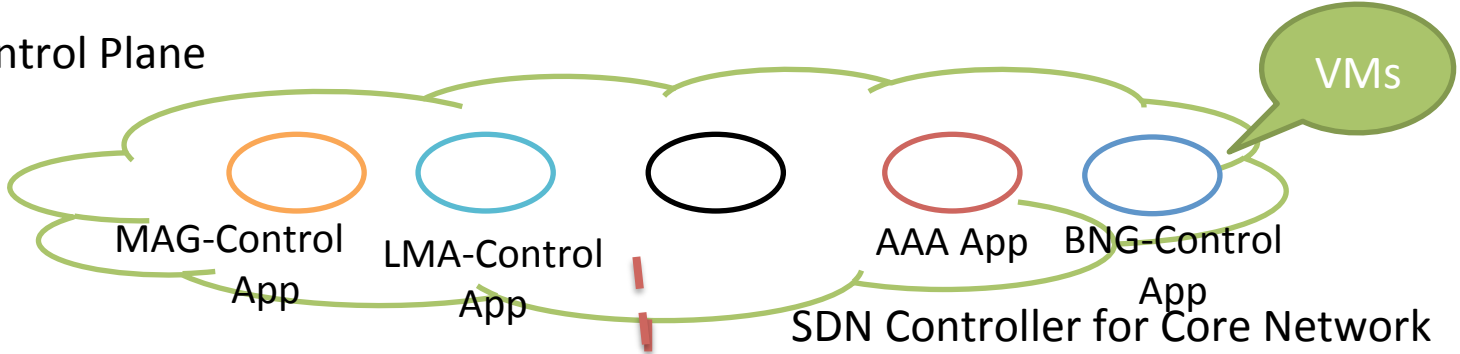
Distributed Mobility Management Protocol for WiFi Users in Fixed Network

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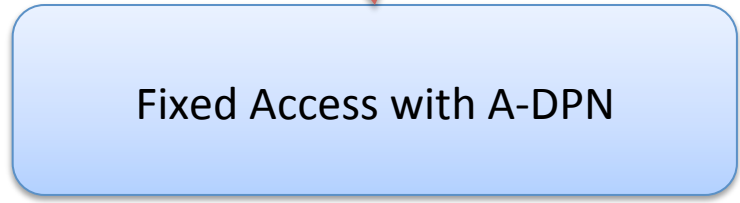
DMM for WiFi

Virtualized Control Plane



SDN Controller for Fixed Access Network

SDN Controller for Backhaul Network



MN Mobility



L2 Mobility



The Scope

- Considering the distributed mobility management of MNs in WiFi network, both Layer 2 mobility and Layer 3 mobility
 - Layer 2 mobility in the fixed access network:
 - Layer 3 above the access network
 - Authentication flows
- Considering the routing issues during mobility
 - Route establishment after handover using host routes
 - Routing Management based on a Yang Data Model

Layer 2 Mobility

- Mobility table kept in SDN controller to select Layer 2 path for the packet;
- Mobility table will be changed when mobility occurs.

Layer 3 Mobility

- FMIP (RFC 5949) signaling is used, reactive or predictive handover can be supported, Signaling occurs between Control Plane VMs in the cloud.
- Route establishment after handover for host routing. MN is assigned a prefix and it keeps this prefix as it moves
- At nA-DPN retrieve the active route for MN, add a host route for the MN, propagate upstream
- At pA-DPN delete the route

Experimental Work

- Layer 2 mobility control. Use ONF's open flow protocol to control switches
- Coding with Java based Opendaylight (ODL) on a small scale network containing 4-5 switches
- Layer 3 mobility. Use RFC 8022 YANG module
- Modify ietf-ipv6-unicast-routing module
- Develop RPC modules to add/delete routes
- Validate YANG module and RPCs

Conclusions

- Applied DMM deployment models work to Wi-Fi access
- Establish relationship of Wi-Fi entities to DMM entities as much as possible, still ongoing
- Establish relationship of YANG RPC work and FPC draft
- Comments welcome 😊

Thank you.