SDN-Enabled Mobile Packet Core
SDN-Enabled mobile packet core

- SDN-enabled control/user plane separation
- Local breakout decision on a per-flow basis
- Distributed mobility management and service continuity
Mobile edge computing enabled with user/control planes separation

- Relief congestion from core and backhaul
- Enable low latency applications
- ITification: shift investments from core and backhaul to mobile edge
SDN-based User Plane and Control Plane Separation

Legacy EPC
- Apps
- PGW
- S1-MME
- S1-U
- M
- E

SDN EPC user-plane and Service Function Chaining
- Apps
- PGW-C
- SGW-C
- User Plane Anchor
- SDN Controller
- SDN Switch
- ContexNet Node
- Service Function Chaining

SDN EPC/MEC user-plane and SFC
- Apps
- PGW-C
- SGW-C
- User Plane Anchor
- SDN Controller
- SDN Switch
- ContexNet Node
- Service Function Chaining

User Traffic
- S1-MME
- Control/User API
- OpenFlow
vEPC Split Solutions

1. Simple Split
   - Core
     - User Plane
   - Backhaul
   - Edge
     - User Plane
   - RAN
     - Specific APNs are broken locally to Mobile Edge.
     - Requires pre-configuration.

2. Distributed User Plane
   - APN-based Local Breakout
   - Control Plane
     - User Plane
   - Gi-LAN

3. Per-Flow Selection between Central and Distributed Gi-LAN
   - Control Plane
     - User Plane
   - Gi-LAN

Dynamic handling of same APN traffic based on application context
Network Edge Augmented Reality

SDN-based Local Breakout to Video Processing Server

- Low latency video processing in Mobile Edge
- Video traffic doesn’t go through congested backhaul and core
- SDN-based Local Breakout applies on a per-flow basis (e.g., for specific applications)
- In this use case: identify a person in a tradeshow by retrieving his/her contact details, based on face recognition
- Applicable to many other applications requiring real-time video processing (e.g., surveillance, smart city, etc.)

Dictionary of pictures and contact details is built offline and cached in edge servers

Face Recognition and Augmented Reality Server
Multi-Unicast for OTT Live Traffic
SDN-based Local Breakout to Multi-Unicast Proxy

- Multi-Unicast transparently replaces multiple streams with a single stream
- Split to individual streams at the Mobile Edge
- SDN-based Local Breakout applies based on an application-layer (Live Video VNF) decision
Network Edge CDN Cache
SDN-based Local Breakout to Edge Cache

- Stream VoD content from the near proximity of users
- SDN-based Local Breakout based on the CDN Map decision
Context-aware SDN for EPC User-Plane
Data Path Execution

– Context-aware SDN:
  – Data flows based on OpenFlow filter match

– Static SDN:
  – Inter-anchor tunnels
SDN-Enabled mobile packet core

Exploding EPC capacity
Unpredicted quality of experience
Latency-sensitive applications
Desire to develop two-sided business models

SGW/PGW control/user plane separation
Per-flow apportioning of user-plane instances
Distributed mobility management and service continuity
Service function chaining

HPE enabling the Virtual Packet Core
Your partner for the Telco Cloud

Hewlett Packard Enterprise

- IT/Cloud experience
- Telco expertise
- Open solutions

Personalized & on-demand Services

scaleable, always available

Automated Operations

Programmable Infrastructure