White Paper Review: SGW-LBO solution for MEC Taking services to the Edge

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Multi-Access Edge Computing (MEC) - Motivation

- Demanding services require:
  - High bandwidth
  - Lower latency
  - High reliability
  - Overload often costly backhaul network

- MEC enables:
  - content to be cached and served locally (Facebook, Youtube)
  - Offloading of applications that require low latency or localization

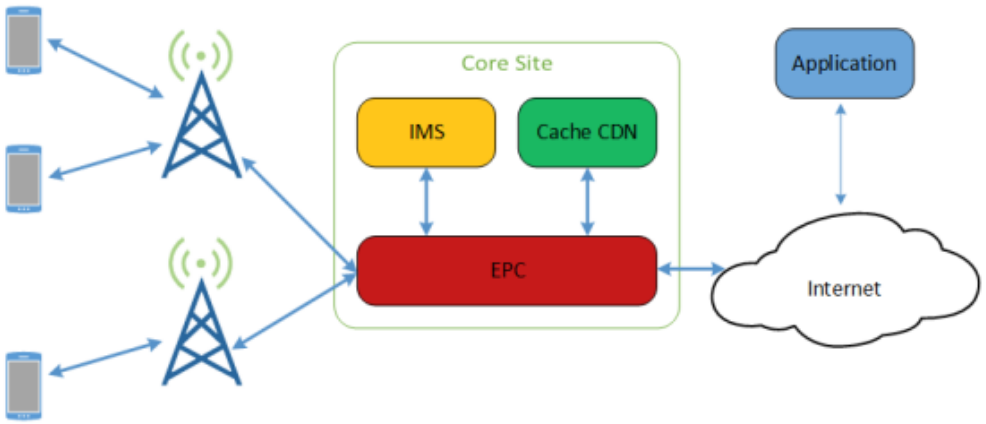

Figure 1. A typical mobile operator's deployment.

Use Cases for MEC

- Immersive video services (AR/VR)
  - Reduce delay sensitivity
  - Reduce transit traffic between the edge and the center

- V2X (Vehicle-to-Vehicle or Vehicle-to-Infrastructure) for connected and autonomous cars
  - Reduce delay sensitivity
  - Reduce transit traffic between the edge and the center

- Connected health
  - Keep traffic local for security and regulation

Current MEC Solutions in Industry

- Distributed Core as a MEC solution
- “Bump in the Wire (BIW)” or “Bump in the Stack”
- SGW-LBO Solution – this paper

Distributed Core as a MEC solution

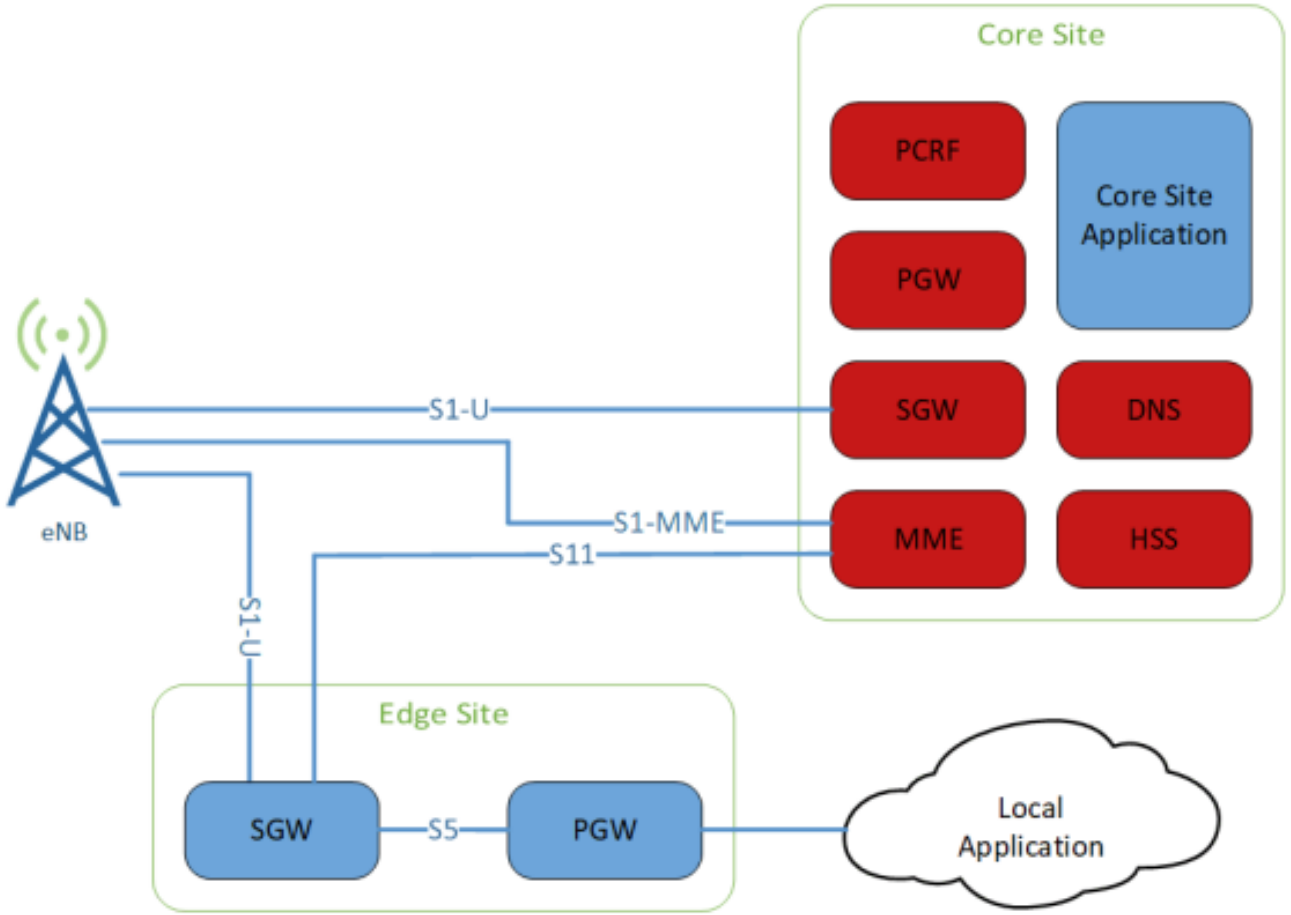

Figure 2. Distributed Core as a MEC solution

“Bump in the Wire (BIW)”

- Introduces a new function that intercepts signalling and data traffic on the S1 interface and steers it to the local MEC applications

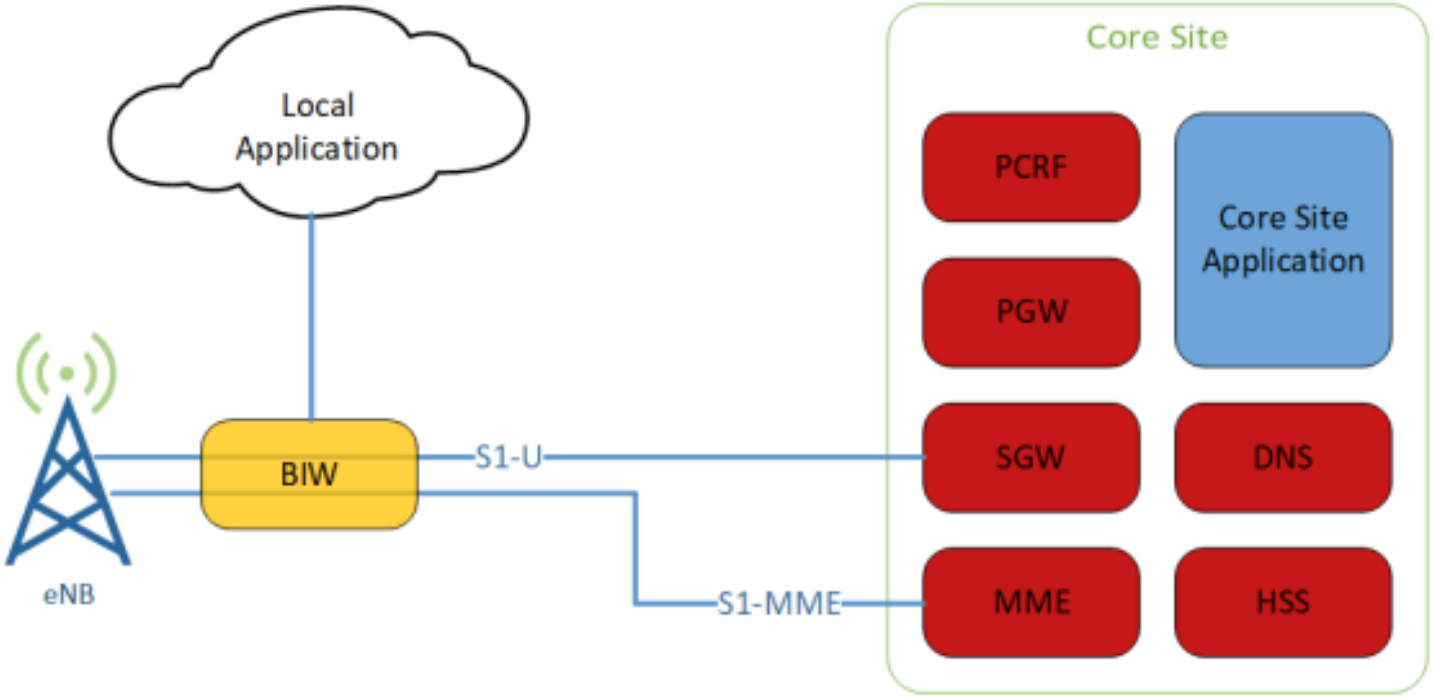

Figure 3. Overview of the “Bump in the Wire” approach

MEC Standardization Efforts

- Policy and configuration management requests for the MEC platform
  - executed by the MEC application or a policy engine
  - network configuration
  - traffic steering
  - QoS enforcement

- The policy engine and/or the application interfaces with the MEC Platform
  - addressed by the ETSI MEC group, which turns to APIs to define such communication

SGW Local Break Out (SGW-LBO)

- In order to allow an operator to steer traffic flexibly based on either users' identifiers/uplink a SGW is inserted into each MEC platform

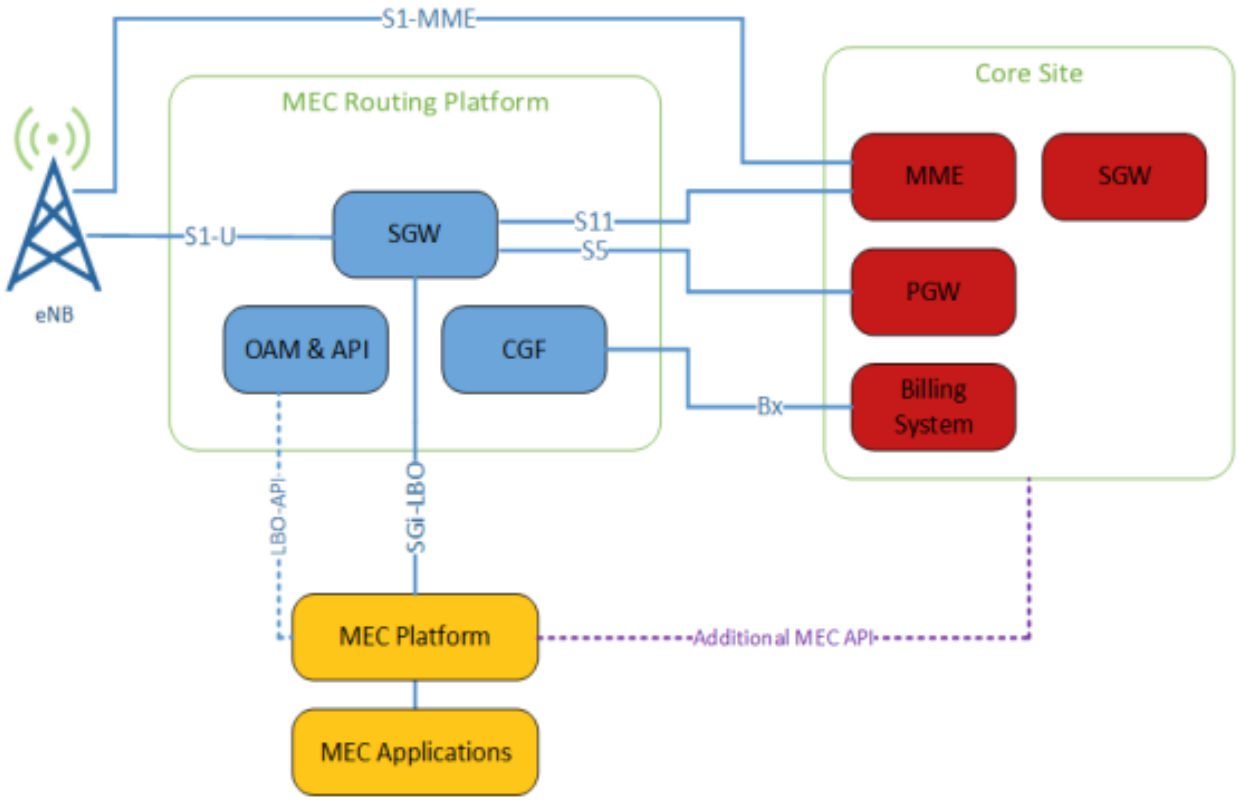

Fig. 4 MEC solution architecture using the SGW-LBO approach

Easier migration to 5G

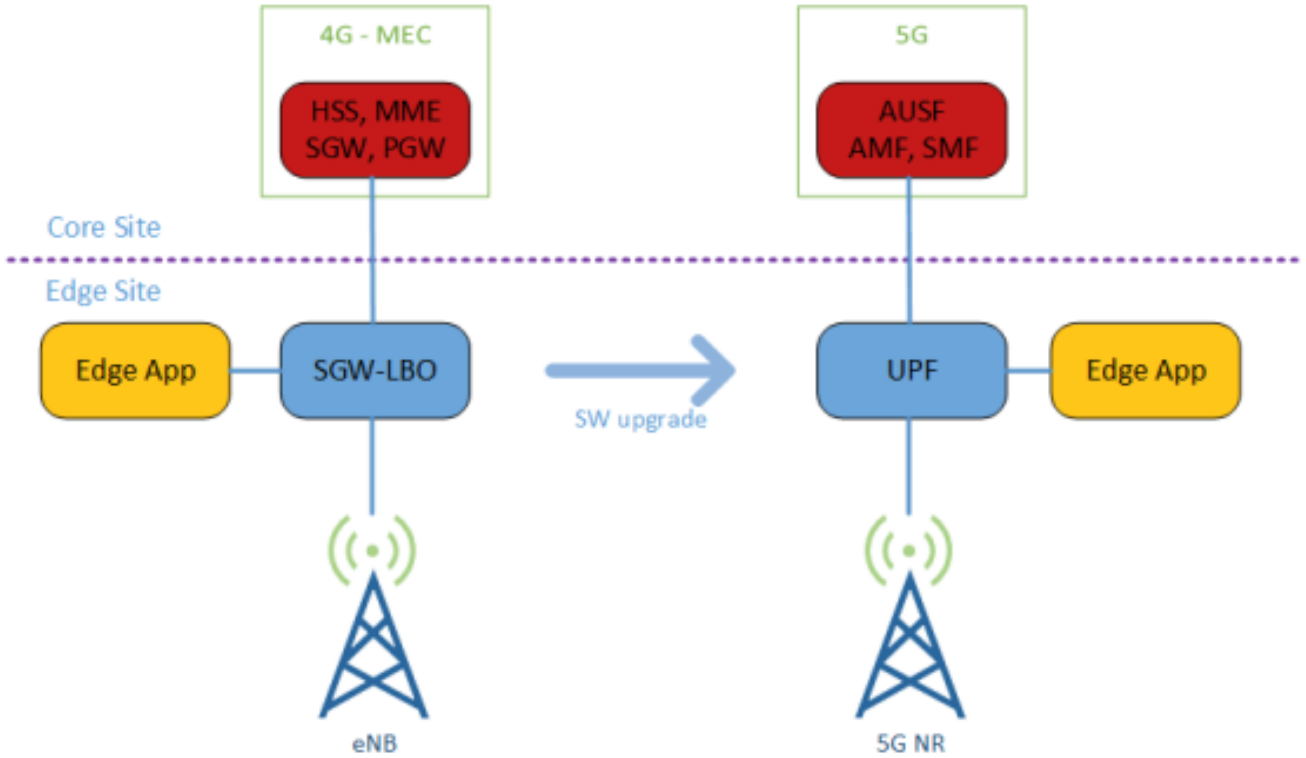

Fig. 5 MEC adoption and evolution to 5G

Benefits for network operators

- Extending traffic plane network functions of the SGW, coupled with highly selective traffic steering functionalities, to the network edge
- Positioning content/application servers (e.g. CDN) close to end customers in radio sites and/or fibre cabinets for small cells
- Enabling push applications (paging)
- Requiring low CPU power (2 vCPU) making for very light-touch deployments
- Applying strict security, encrypting all transport interfaces (to/from eNBs and mobile core)
- Providing transparent support of standard functions such as mobility, paging, lawful intercept, charging
- Integrating easily with existing mobile networks
- Reducing costs potentially down to a fraction of the total cost of ownership of competing approaches
- Simplifying deployment, management and reducing the hardware/software footprint thus making wide-spread deployment economically and technically feasible.