

Carrier Wi-Fi Calling Deployment Considerations

(draft-pularikkal-opsawg-wifi-calling-02)

Authors:

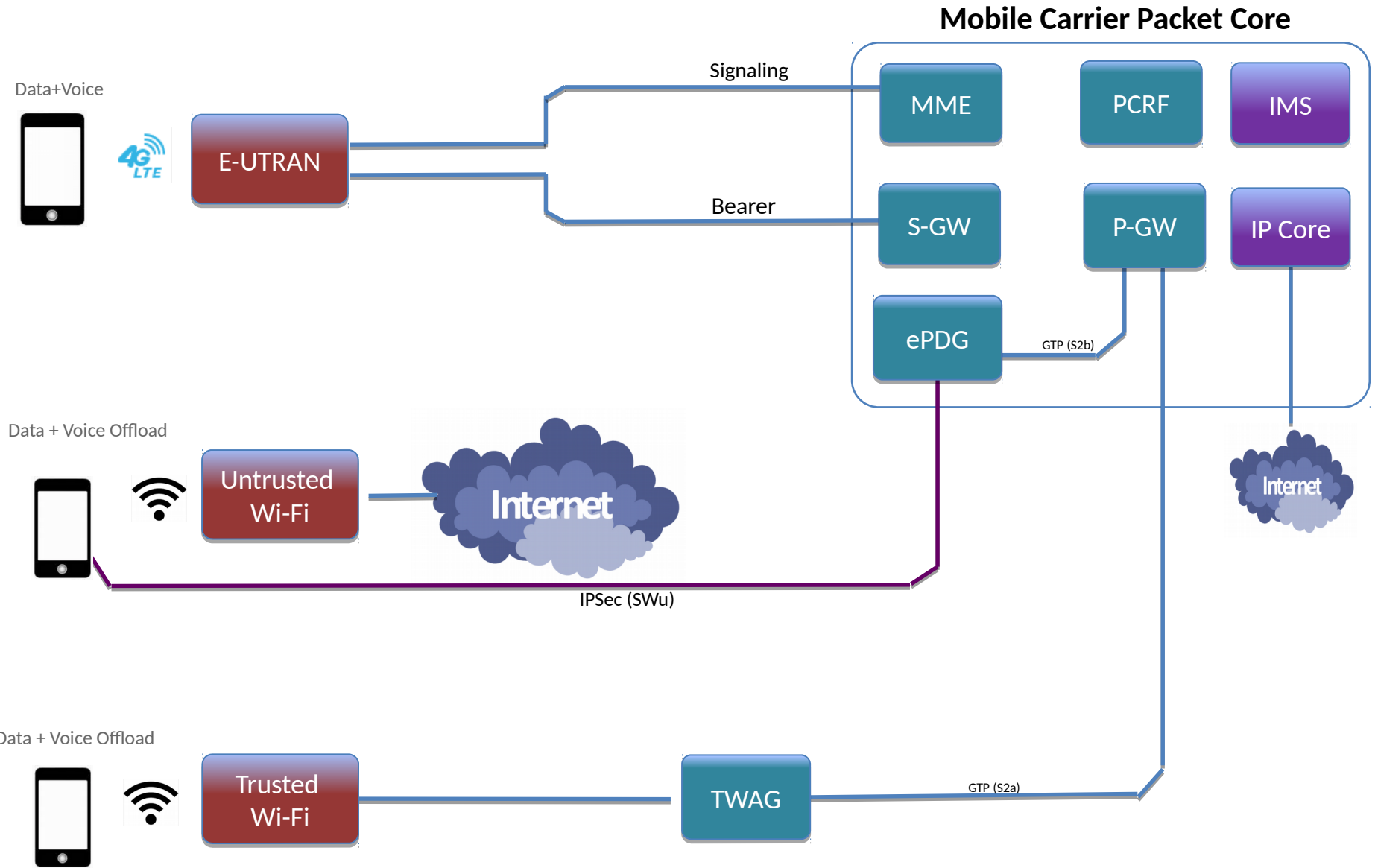
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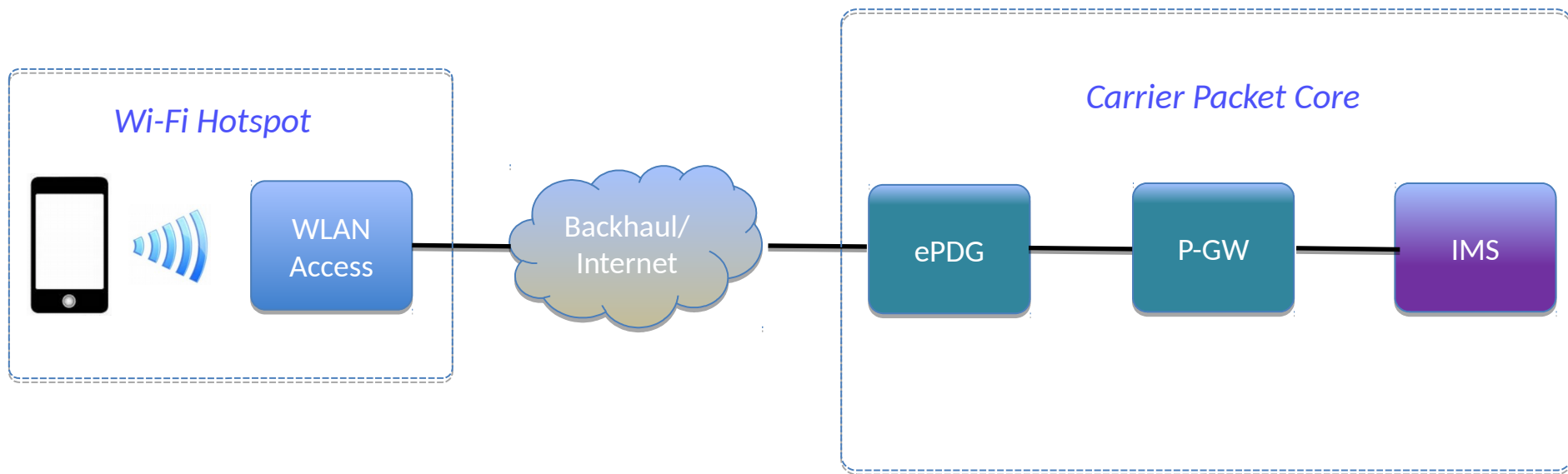
A brief introduction to mobile data and voice offload

Data & Voice Offload- Key Solution Domains



What is Carrier Wi-Fi Calling?

A Solution which allows Mobile Operators to seamlessly offload mobile voice signaling and bearer traffic into Wi-Fi networks



What is this draft about?

- This draft provides an Architectural overview of Carrier Wi-Fi calling solutions
- Provides best practice recommendations for fine tuning the network to support Wi-Fi Calling
- Focus is around the following areas of Wi-Fi Calling:
 - Wi-Fi Access Network
 - Packet Core Integration Architectures
 - UE side characteristics

Target Audience

- Carriers who have deployed or planning to deploy Wi-Fi Calling:
 - And want to work with Wi-Fi providers to improve end users experience
- Wi-Fi hotspot providers such as Broadband Operators
 - Who wants to monetize Wi-Fi deployments
- Enterprises planning to enable Wi-Fi calling in their networks
 - In order to improve employee productivity
- Smartphone vendors:
 - To optimize the Wi-Fi calling client implementation

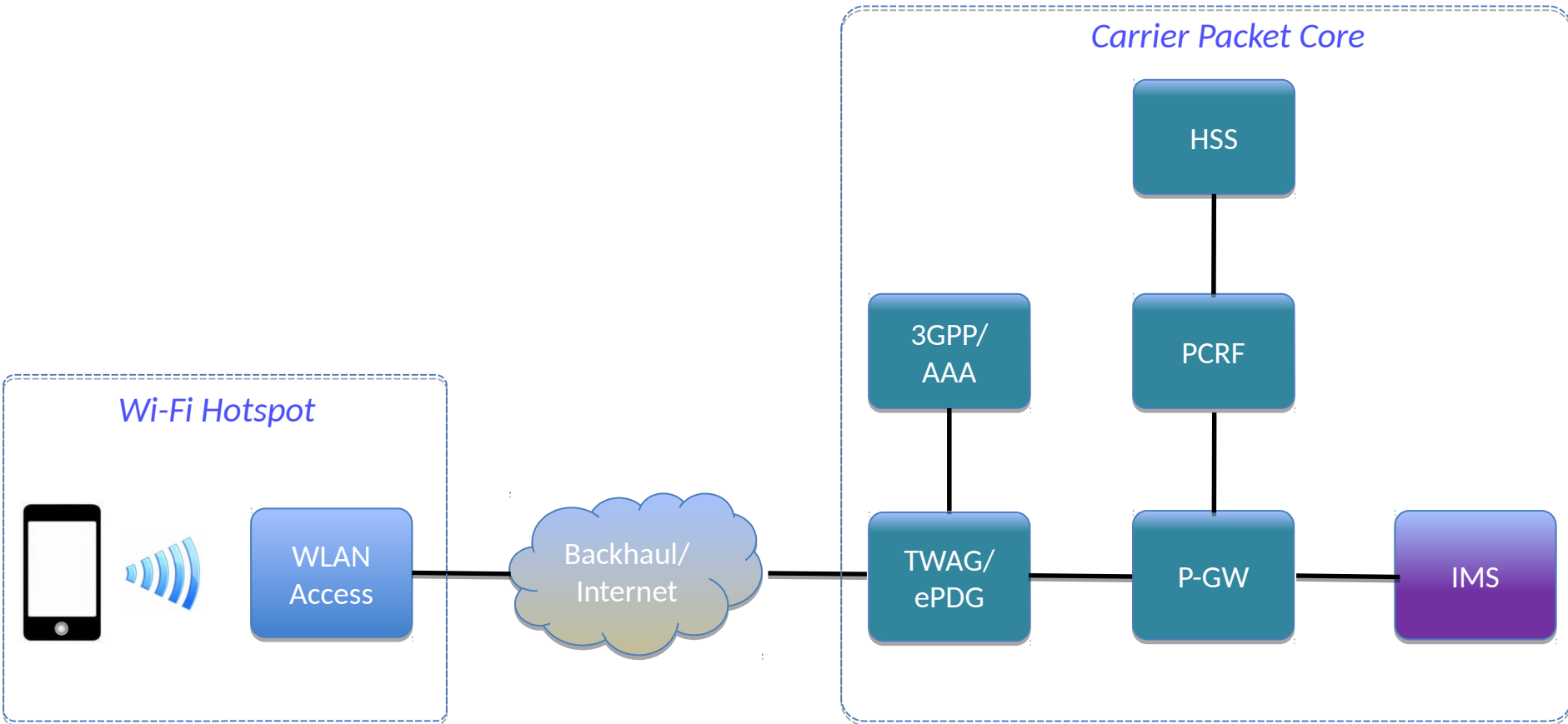
What are the objectives?

- A **field reference** guide for the SP and Carriers who deploy Wi-Fi Calling
- Highlight the impact **Wi-Fi RF network fine tuning** on Wi-Fi calling performance
- Provide recommendations for **QoS Optimization** the Wi-Fi access network
- Provide recommendations for automatic **network discovery**
- Provide recommendations for seamless **user authentication**

Wi-Fi network to Mobile Packet Core Integration

- Possible Architecture options:
 - Untrusted Wi-Fi access model
 - Trusted Wi-Fi access model
 - Hybrid Wi-Fi access model
- Pros & cons of the models covered in the draft

Architecture Overview Diagram



Seamless Subscriber Onboarding

- **Wi-Fi Network Auto-discovery via Hotspot 2.0**
 - Enable Hotspot 2.0 in the Wi-Fi access network and on the devices
- **Automatic authentication into Wi-Fi Networks**
 - Use SIM credentials where possible
 - Else leverage EAP-TTLS/ EAP-TLS methods
- **Roaming partnerships**
 - Between Wi-Fi Operators and Mobile Operators
 - Helps for automatic network discovery and authentication

Wi-Fi Network Fine Tuning

- Helps to improve Latency , jitter and packet drop characteristics for voice
- Key optimization options are:
 - Radio Resource Management
 - 802.11r based Fast Roaming
 - 802.11k based neighbor reports
 - 802.11v based assisted roaming and load balancing

QoS Optimization Options for Wi-Fi Calling

- **Wi-Fi Access Network QoS**
 - Wi-Fi Multimedia (WMM) implementation on Radio interface
 - Requires support on both client and access point
- **Core Network QoS**
 - Dependent on the packet core integration trust models
 - If public Internet is in the path QoS implementation will be limited
 - DiffSrv. QoS can be leveraged in IP path
 - 3GPP dedicated bearers can be used in the packet core

Wi-Fi Calling in restrictive networks

- Carrier Wi-Fi Calling solution requires IPsec tunnel establishment
- "Some Networks" won't allow IPsec traffic
 - Due to security policy
 - Or due to only allowing web traffic
- IPsec over TCP encapsulation could be leveraged to address this:
- Solution is covered in the following draft:
 - [draft-ietf-ipsecme-tcp-encaps](#)

Conclusions & Next steps

- Request for more reviews and feedback from community
- Request for adoption call after the reviews