

Mobile IP in 4G networks

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Problem statement

- Mobile IP is specified in 3GPP protocols, but is not being used very effectively
- PMIP was specified for network-controlled mobility management, but is being displaced by GTP
- Authentication of user devices does not typically rely on Mobile IP
- FMIP was not considered as part of any 3GPP handover solution
- 3GPP perhaps views IETF as “too slow”

Possible elements of solution

- Overall goal: enable easier evolution to IETF solutions
- Enable GTP tunneling from HA
 - Hardware/microcode already optimized for GTP
 - Operators are already familiar with it
 - GTP enables some finer-grained session control
- Enable HA to use EAP-AKA'
- SFF-based handovers for heterogeneous networks
 - Home agent can help, based on existing MSA with UE

WLAN as a “trusted network”

- **LTE requires high hurdles for “untrusted” networks**
 - Typically requires multiple authentications (e.g, via ePDG)
 - Hard (impossible?) to design seamless handovers
- **Trusted networks can support optimized handovers**
 - How does WLAN present itself as a trusted network?
 - One answer: by AAA-based authentication (e.g., 802.1x)
 - Proposal: EAP method using HA instead of AAA

Proposed clarification to the intended role of HA

- Authentication intimately bound up with mobility management
- IETF received no report of compromise for authentication data procedure (AFAIK)
- HA can readily send/receive encrypted data (reverse tunneled) from UE
- HA behind VPN gateway is poor design, performance loss
- S2c available for LTE, but doesn't seem to be getting deployment