FMC BoF IETF 85

Requirements in Fixed Mobile Convergence
draft-schott-fmc-requirements-04

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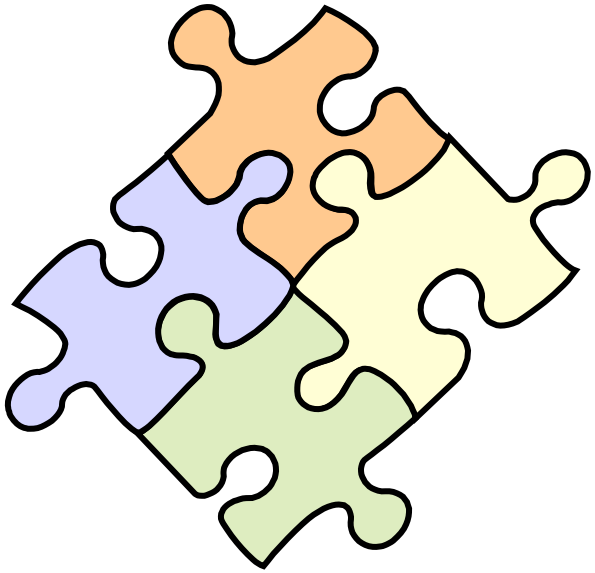
Motivation for Us #1

- From the service provider perspective **Fixed Mobile Interworking** it is the ability to deliver any service with any device at any time and anywhere.

Converged Services

Converged User Management & Terminals



Converged Business Models

Converged Network & Infrastructure

Motivation for Us #2

Fixed Mobile Interworking in context of Multi Access Connectivity to IP networks and services.:

- Ubiquitous consumption of data and efficient resource usage call for integrated access to fixed and mobile networks
- Most smartphones today allow for multiple options to access the network e.g. via WiFi and cellular technology
- Seamless service provisioning via Fixed Mobile Interworking/Integrated infrastructure demands for bunch of new features supporting highly heterogeneous access technologies on potentially different administrative domains with different AAA entities, mobility anchors (such as)
  - Proper access technology selection
  - UE identity handling (user mobility)
  - Subscriber/Group identity handling (service mobility)
  - UE mobility across domains
  - Link quality information for service adaptation and connectivity policy
  - …

Why Standardization is needed?

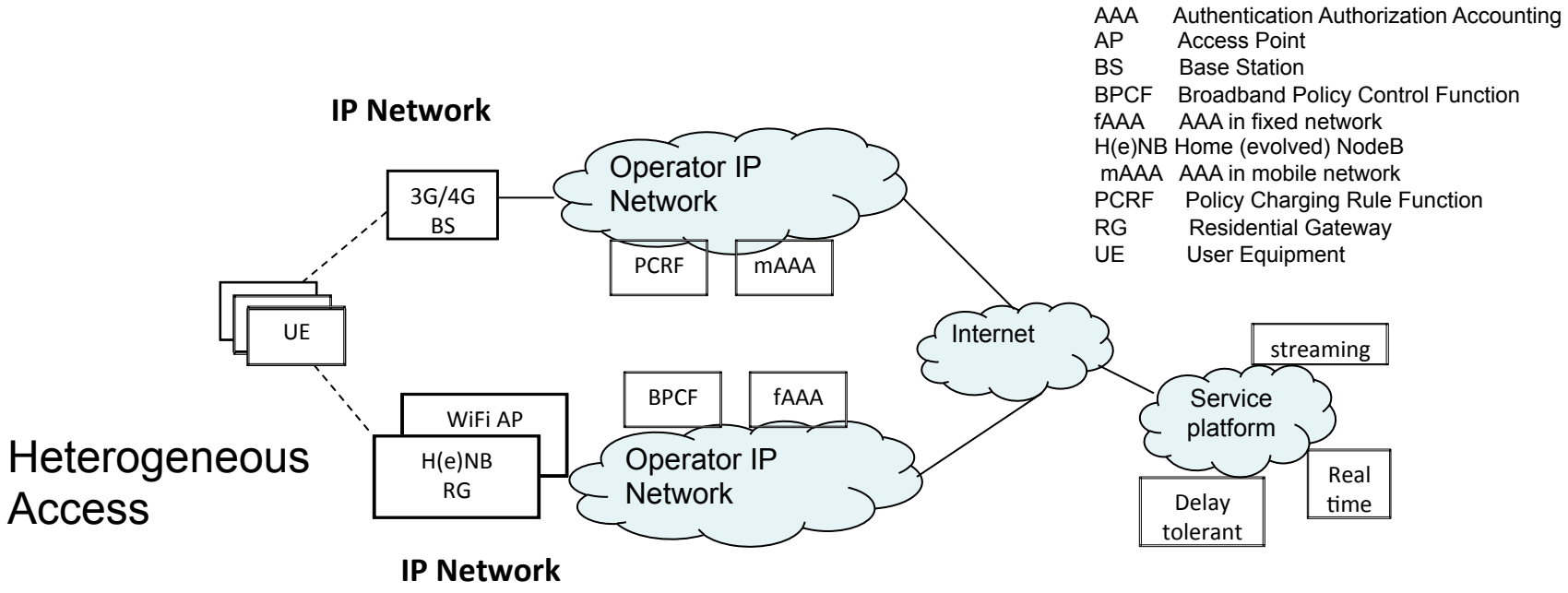
Current Status of ID Handling:

- Subscriber/Group Identity handling (service mobility) & device handling:
  - Multi-SIM
  - Access Identification in fixed networks for plug & play by using specific ID format
  - …
- Characteristic
  - focusing on specific problems & networks, not FMC
  - proprietary
- Goal for a standardized subscriber/group ID:

  to achieve network synergies & seamless services
  - low cost
  - independent of access
  - secure
  - useful for various use cases

Network Architecture Evolution

Control protocols and functional modules to support operator and user chosen policies within network and terminal nodes:



Requirement #1: Group Identification

- The goal of our model is to enforce certain unified policy control for consumer's service by means of grouping the consumer's devices for management.
- This group can be configured in the subscription server of the operator.
- Subscriber ID used for unified service management can be constructed based on the requirements of **Subscriber ID**:
  - is assigned & configured by the ISP or operators
  - determine which traffic policy such as QoS are enforced by the nodes inside the network
  - is combined with the subscriber information
  - may correspond to the device identifiers, such as ISIM, etc.
  - should be kept unchanged in the Carrier Grade Network Address Translation (CGN) devices
- The devices of the consumer and the operator must have the consistent ID for the same management group.
- Use of Subscriber ID should enable access to the network and applications including third-party service without additional authentication.

Group Identification: Technical Issues

- Two different types of identifiers play an important role in this case:
  - Device Identifier:
    - the Device Identifier is used to indicate each individual devices for the customer
    - should be kept unchanged in the Carrier Grade Network Address Translation (CGNs)
    - the device identifier should be unchanged or updated in case of roaming among different Access Points or Home Gateways.
  - Subscriber Identifier:
    - is used to indicate a customer under the same policy, e.g. accounting policy, priority profile, etc.
    - one Subscriber Identifier may correspondent to multiple Device Identifiers

Requirement #2: Requirements for UE Mobility in Fixed IP Network

Mobility Requirement:

- Regarding the requirements for MN (Mobile Node) mobility in fixed IP networks two use cases can be distinguished:
  - mobility between different access technologies e.g. WiFi and 3 GPP
  - mobile node MN mobility in a WiFi scenario
- The following are the requirements for the User Equipment Mobility in Fixed IP Network:
  - Requirement for handover between networks while the session is active according to the network status with the change in the MN attachment.
  - Mechanisms and interfaces between operators or access networks SHOULD be deployed to manage the mobility of the traffic flows of their users.
  - Mobility should be enabled whether or not coverage areas overlap.
  - Differentiated Services (QoS) for the mobile device (MN) should be provided to ensure service guarantee when device is roaming.
  - Connectivity status of the MN should be reported to the fixed IP edge router.

Summary

- Strong requirements on Group/Subscriber Identification.
  - Challenge is to transmit the Group/Subscriber ID to the fixed IP network.
- Strong requirements on support of MN mobility in fixed IP network.
  - Challenge is to transmit MN connectivity status to the fixed IP network.
- Benefit of this solution will be seamless connectivity and service provisioning to the fixed IP network improving resource allocation and QoS provisioning.
- Improve user experience and reduce Capex/Opex for operators.

➢ IETF is strongly encouraged to work on these issues.