International Telecommunication Union

Provision of Multimedia Service Mobility within the NGN

ITU-D/ITU-T Seminar on Standardization and Development of Next Generation Networks for the Arab Region (29 April – 2 May 2007)

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Considered Scenario

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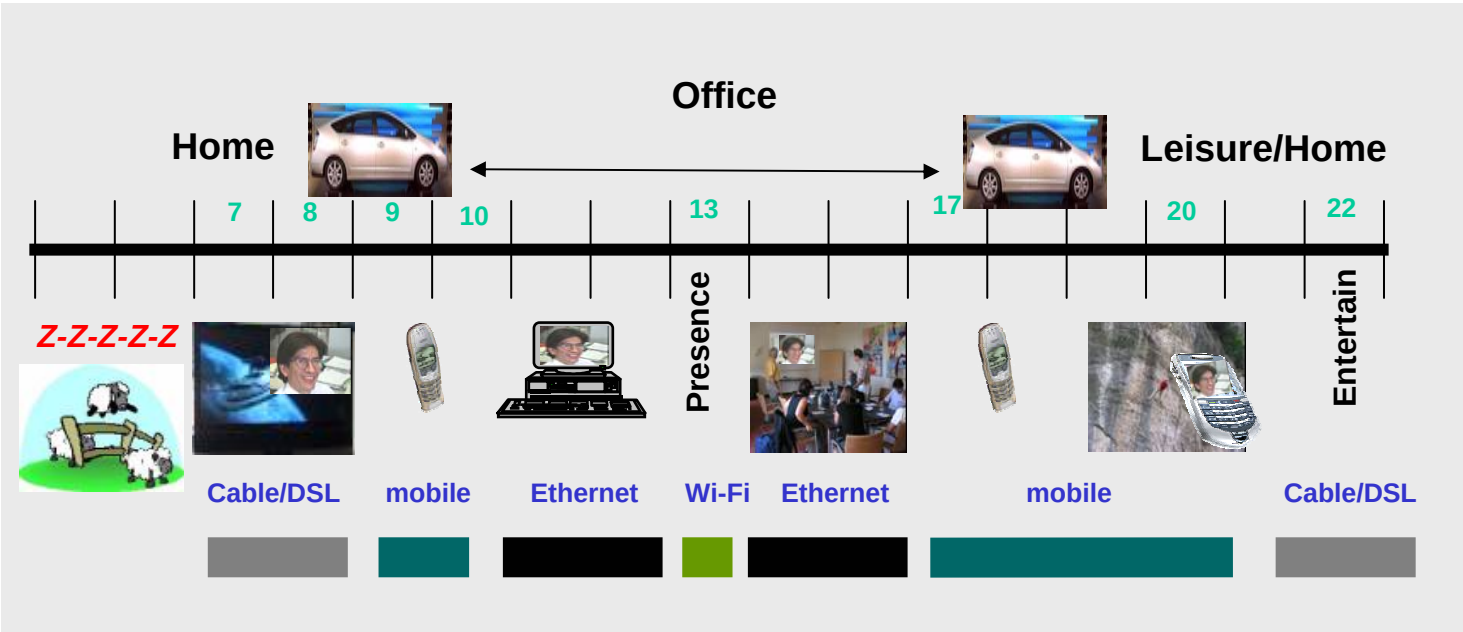
NGN deployment enables (continuous) service usage within different personal context involving different types of access and devices



examples: video call, video conferencing via fix and/or mobile access

Multimedia Service Architecture

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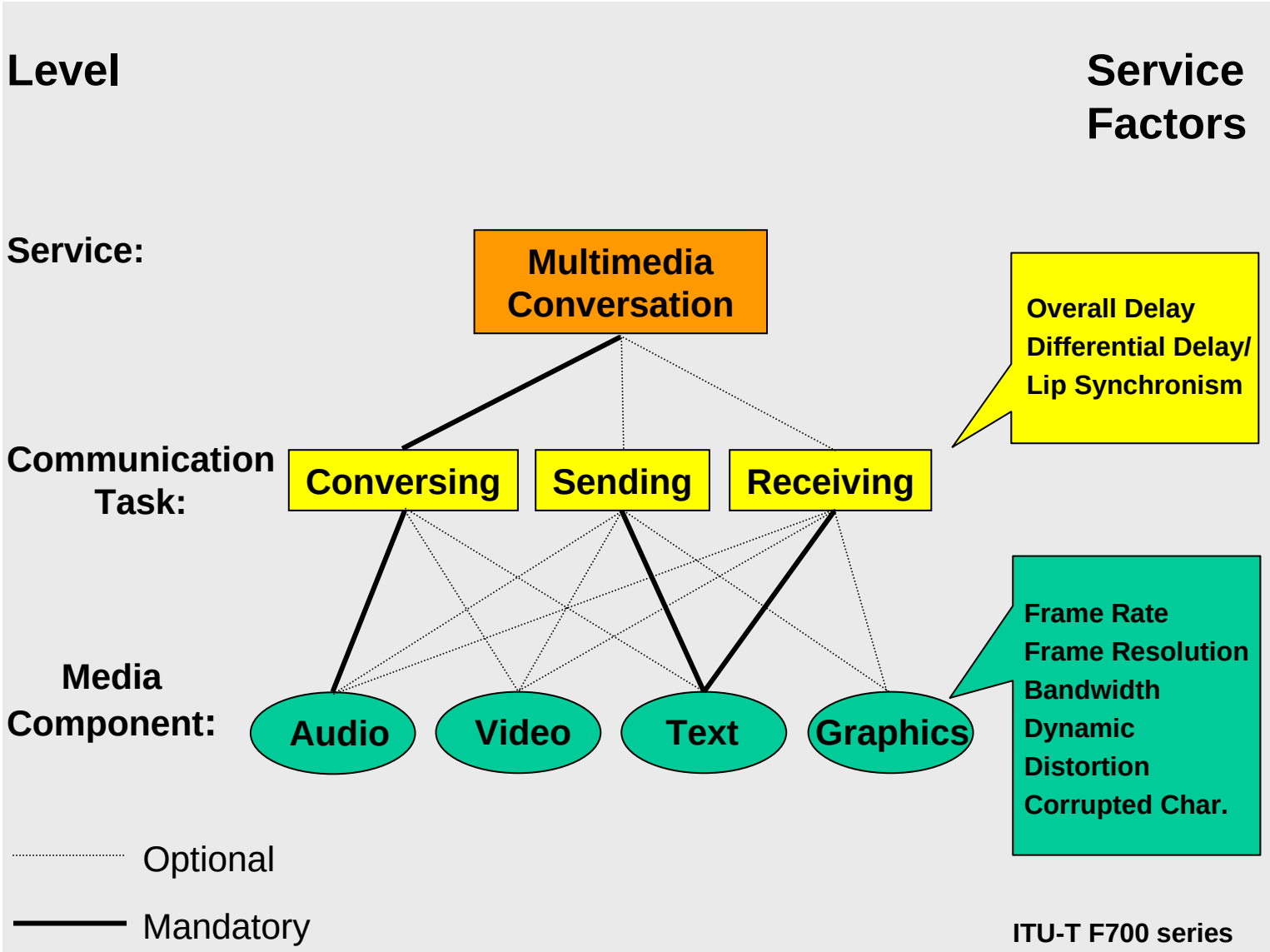

Mobility Management Terms

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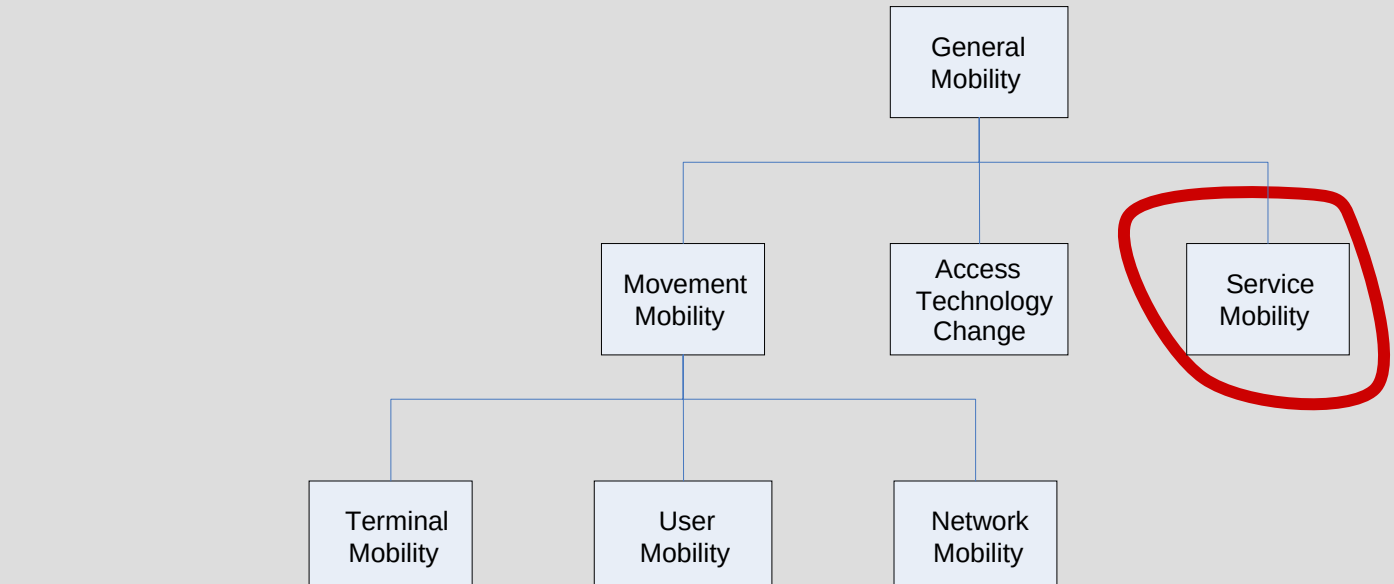

Source: ITU-T

Mobility Management Terms (cont.)

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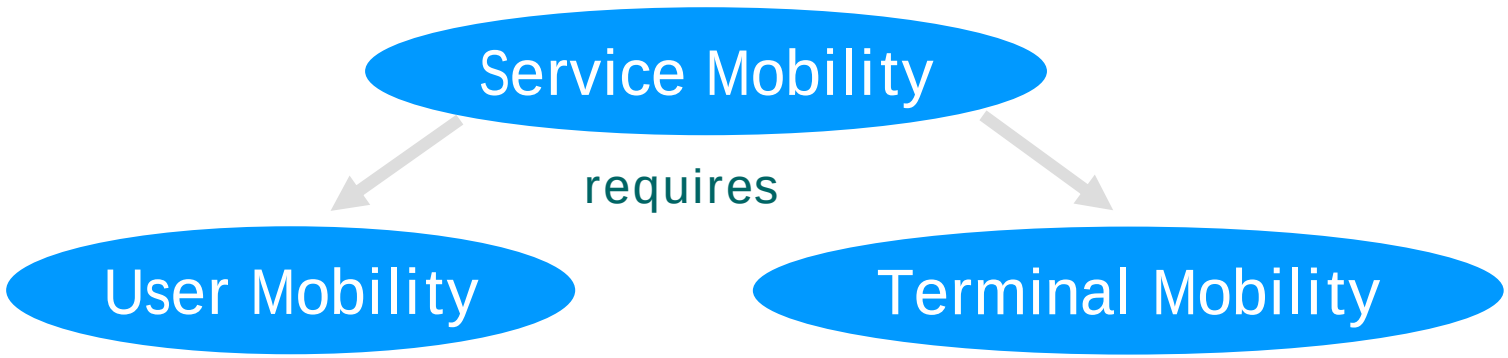
Service mobility (ITU-T Y.2801)

This is the mobility, applied for a specific service, i.e. the ability of a moving object to use the particular (subscribed) service irrespective of the location of the user and the terminal that is used for that purpose.

Note:

Service mobility also implies the possibility to suspend any running service on one device and to pick it up on another one



Mobility Management Terms (cont.)

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Personal mobility (ITU-T Y.2801)

This is the mobility for those scenarios where the user changes the terminal used for network access at different locations. The ability of a user to access telecommunication services at any terminal on the basis of a personal identifier, and the capability of the network to provide those services delineated in the user's service profile.

Terminal mobility (ITU-T Y.2801)

This is the mobility for those scenarios where the same terminal equipment is moving or is used at different locations. The ability of a terminal to access telecommunication services from different locations and while in motion, and the capability of the network to identify and locate that terminal.

System Configuration

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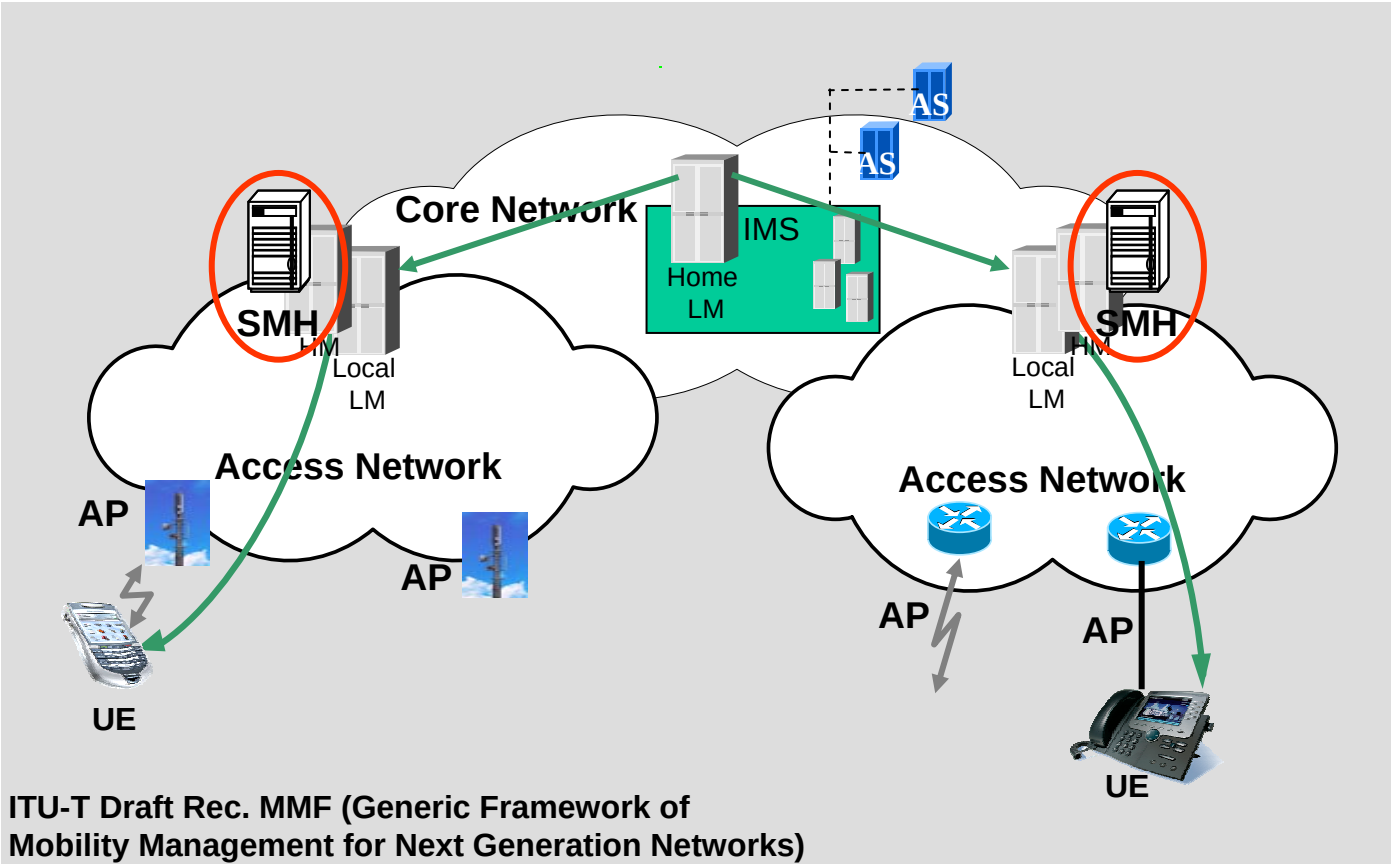
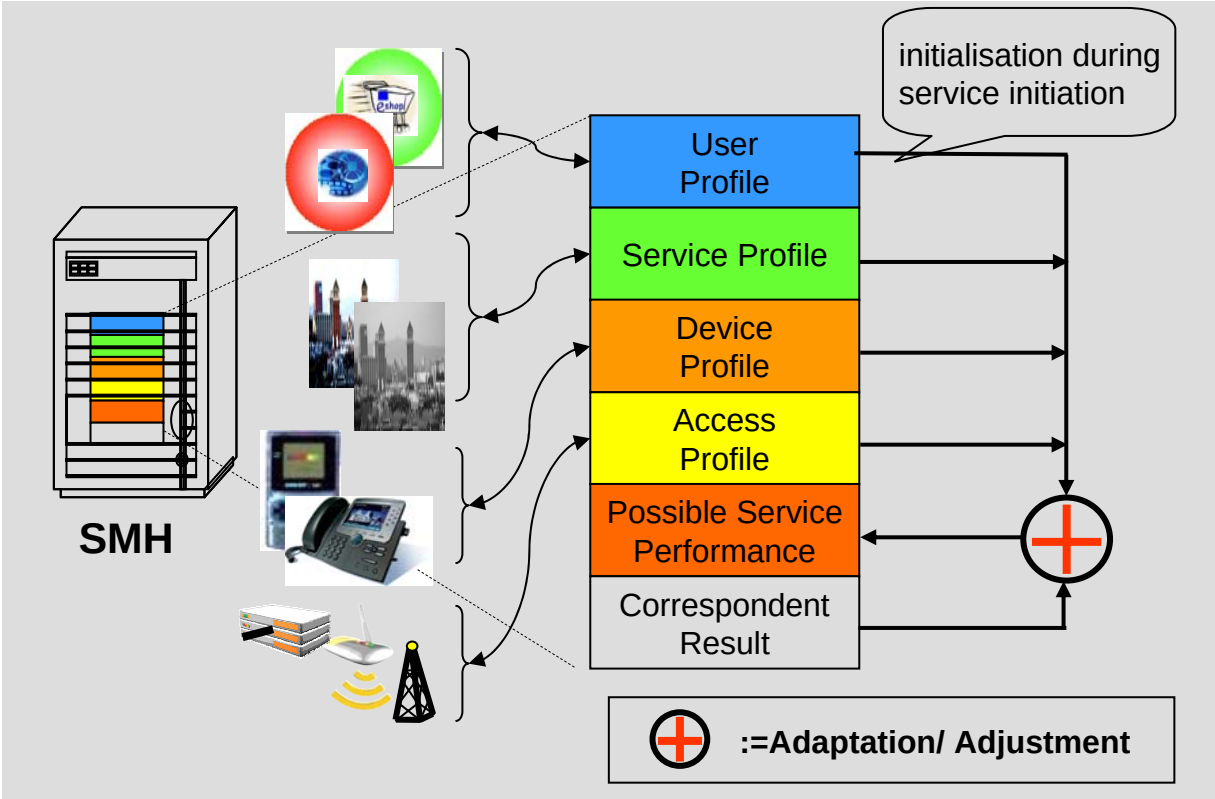


ITU-T Draft Rec. MMF (Generic Framework of Mobility Management for Next Generation Networks)

Location Manager (LM): Used to provide the location registration and location update (tracking)
Handover Manager (HM): Used to support seamless handover (change of IP address possible)

Service Mobility Handler (SMH): Control of media components, QoS adaptation for each media component, Control of switching of media streams (handover) between AP's in cooperation with HM (separated or co-located to HM)

Service Mobility Handler



Possible Service Performance

Determination of the available service variants under the given constraints of user preferences and contractual agreements, current device and network access restrictions (e.g. available performance, codec's, bandwidth etc.) as well as the communication partner's service performance.

Service Mobility Handler (cont.)

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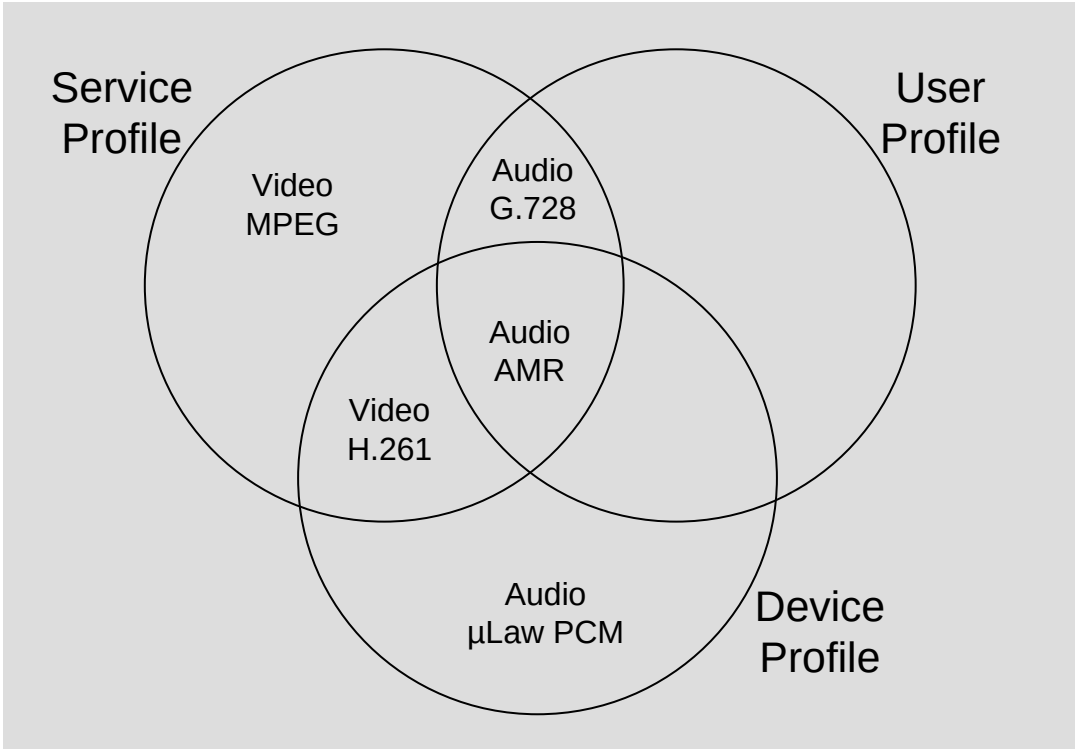
Example: Adaptation/ adjustment audio/video codec's



User Profile: Translation into technical expressions:

- minimum videophone quality => SQCIF – QCIF
- basic videoconferencing quality =>CIF

Handover Scenarios

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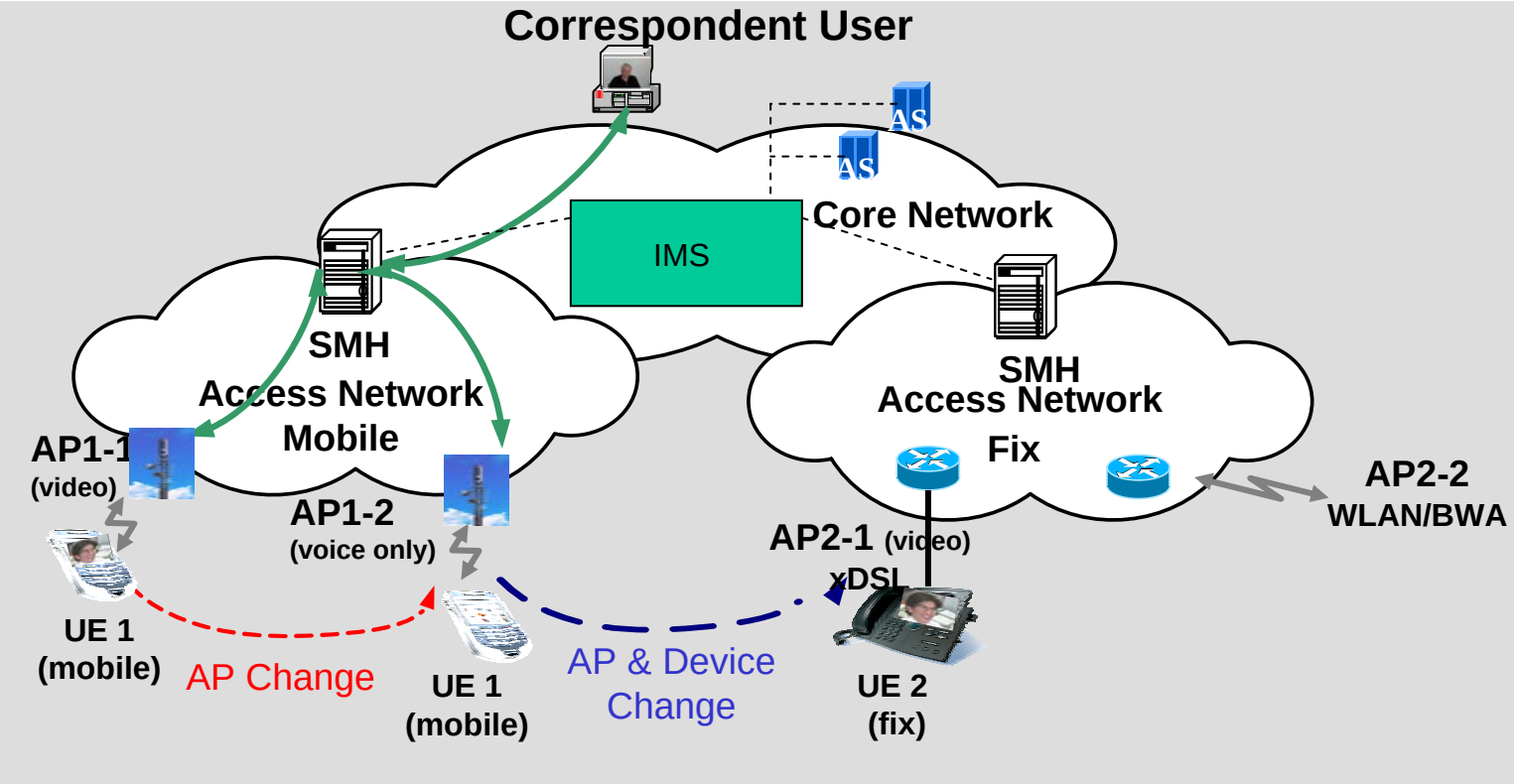

1. Setup of a video call from UE1 via AP1-1
2. Movement of UE1 requires handover to AP1-2 (only voice streams)
3. If the user profile of one of the communication partners mandatory requires video the call has to be terminated. Otherwise the video stream component of the conversation is terminated
4. Handover to AP1-2 is executed
5. The user forces a handover from mobile device UE1 to fix device UE2
6. UE2 connected to AP2-1 enables video stream functionality, thus video call can be resumed between communication partners

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Objectives with regard to NGN

- Recognition that service mobility considerations are for the future, not for legacy services
- application layer controlled service mobility could be also feasible especially in case of best effort scenarios

Service Control

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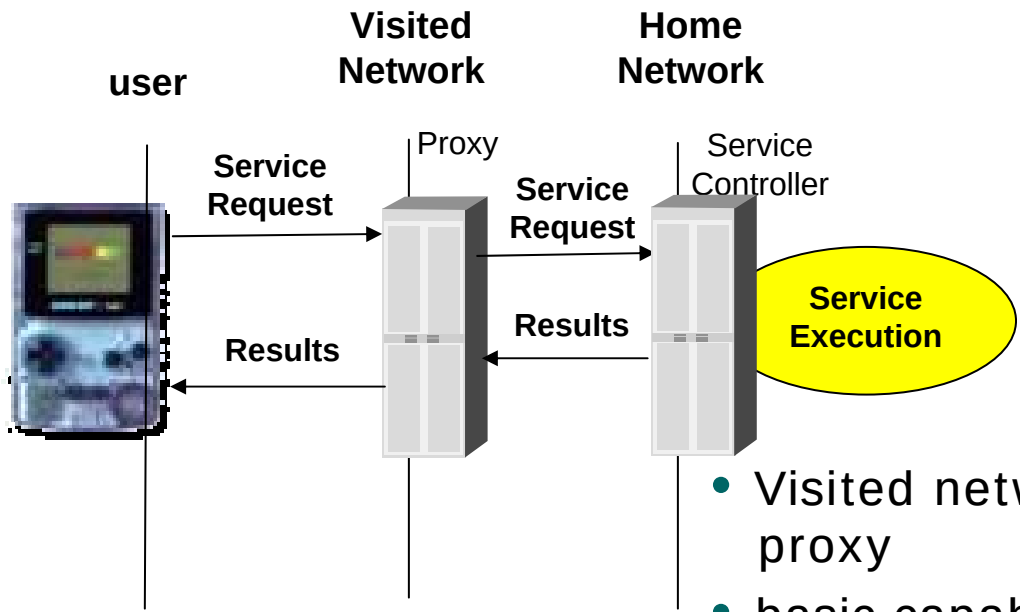
Home centric service control for roamers: services are only accessible via the user's home network



- Visited network acts as proxy
- basic capabilities required by visited network (bandwidth)
- supported by IMS and to be integrated into the NGN (S-CSCF of home network)

Service Control (cont.)

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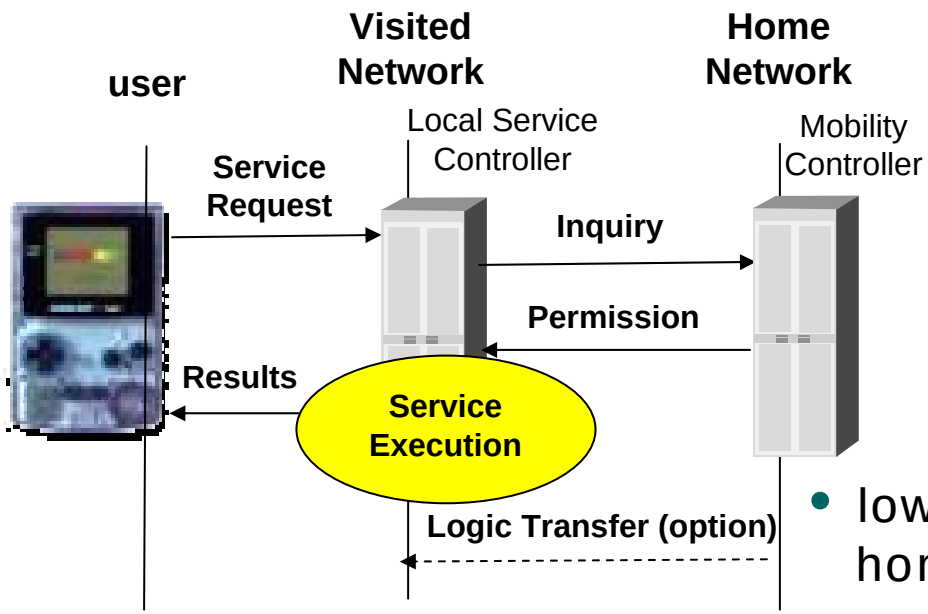
Visited centric service control for roamers: service control is handled by the visited network (break out service)



- lower dependency from home service provider
- logic transfer requires hardware compatibility
- appropriate roaming agreements and SLA's

Service Control (cont.)

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Comparison Home/ Visited Centric Control

	Home Centric	Visited Centric
NGN Support	+	- (availability)
Complexity	O	-
Delays	-	+
RFID Suitability	O	+
Accounting & billing	+	o (prepaid)
Profile Handling	o	o

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Summary

- ITU-T Standardization
  - Draft TP.MMSM (Service Mobility for New Multimedia Service Architecture)
  - Draft Rec. MMF (Framework of Mobility Management for NGN)
  - Draft Rec. LMF (Framework of Location Management for NGN)
  - Draft Rec. HMF (Framework of Handover Management for NGN)
  - Y.2801 (Mobility Management Requirements for NGN)
- 4 closely related co-operating Questions (Q.6/13, Q.2/19,Q5/19, Q.29/16)
- Interest are welcome to contribute to standardization of service mobility

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Thank you !