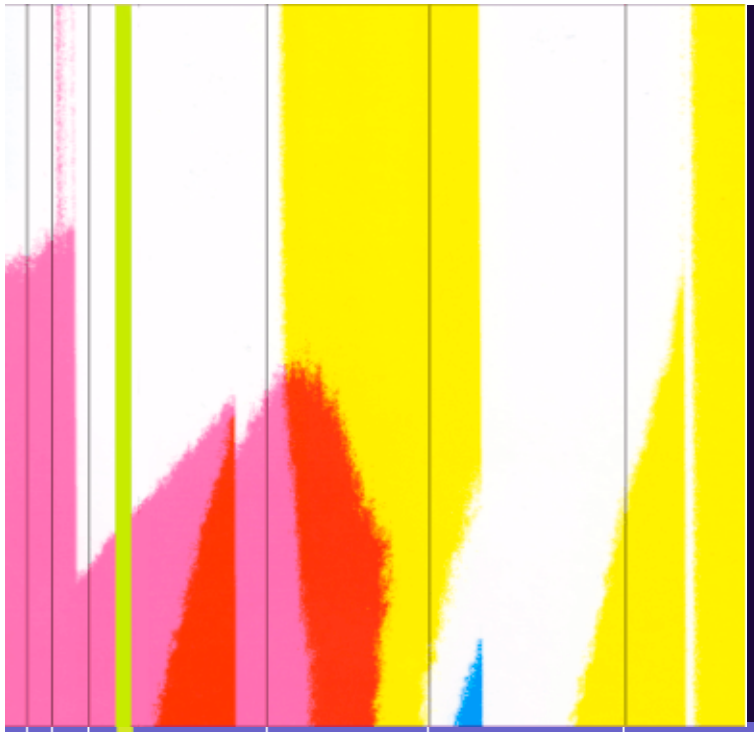

Mobility Management in B3G (Beyond 3G) Networks: Middleware-based Approach

ESSPE'07 - Dubrovnik, Croatia, September 4, 2007

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Overview

- Introduction
- Related work on mobility management in B3G
- Use case scenario
- Requirements for mobility management in B3G
- Propose a mobility management middleware solution
- Conclusion

Introduction

The B3G (Beyond 3G) network concept:

- Future network environment: heterogeneous network, all-IP platform
- Infrastructure based or infrastructure-less
- User device equipped with multi-radio interfaces
- Goal: enable mobile users to roam freely → mobility management

Background on mobility management

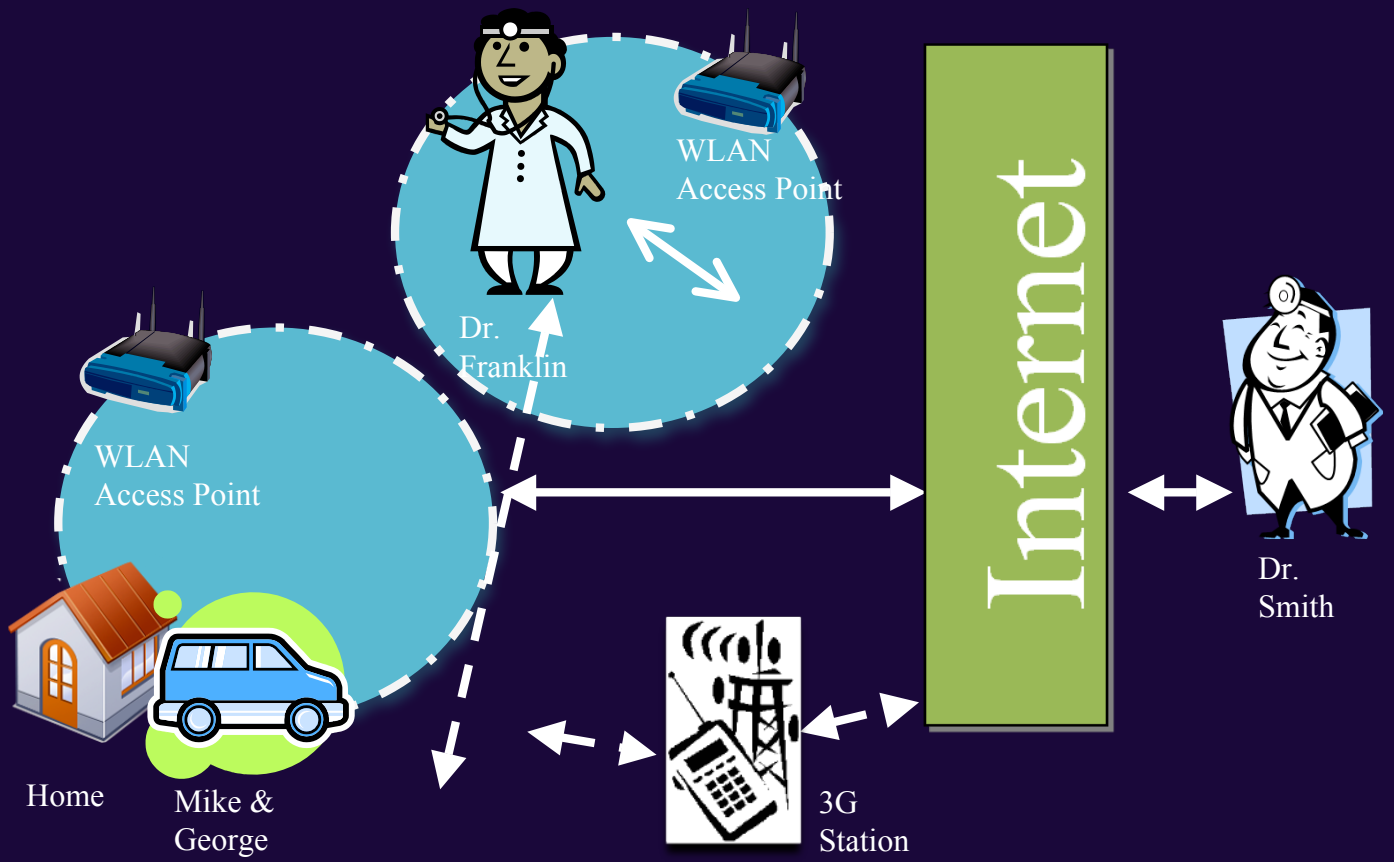
Telecomm based:

- Horizontal and vertical handoffs
- Many approaches: Session Initiation Protocol (SIP) - *application layer*, Mobile IPv4 and Mobile IPv6 - *network layer*, Stream Control Transmission Protocol (SCTP) - *transport layer*
- Rely on central entities or tied to a specific OSI layer

Service oriented:

- Find a service substitute and perform reconfiguration (i.e., Gaia)
- Centralized approaches, B3G is not considered

Use case scenario



Requirements for mobility management in B3G: core types

Provide mobility through network handoffs :

- e.g., WiFi to GPRS
- devices communicate in an ad hoc manner, handoff not rely on any central entities, manage multi-radio connections

Provide mobility through service reconfiguration :

- e.g., transfer diagnose duty from Dr. Smith to Dr. Franklin
- mobile service providers, difficult to sustain connections, service inaccessible on other networks

Requirements for mobility management in B3G: specific types

Provide specific mobility management for streaming applications :

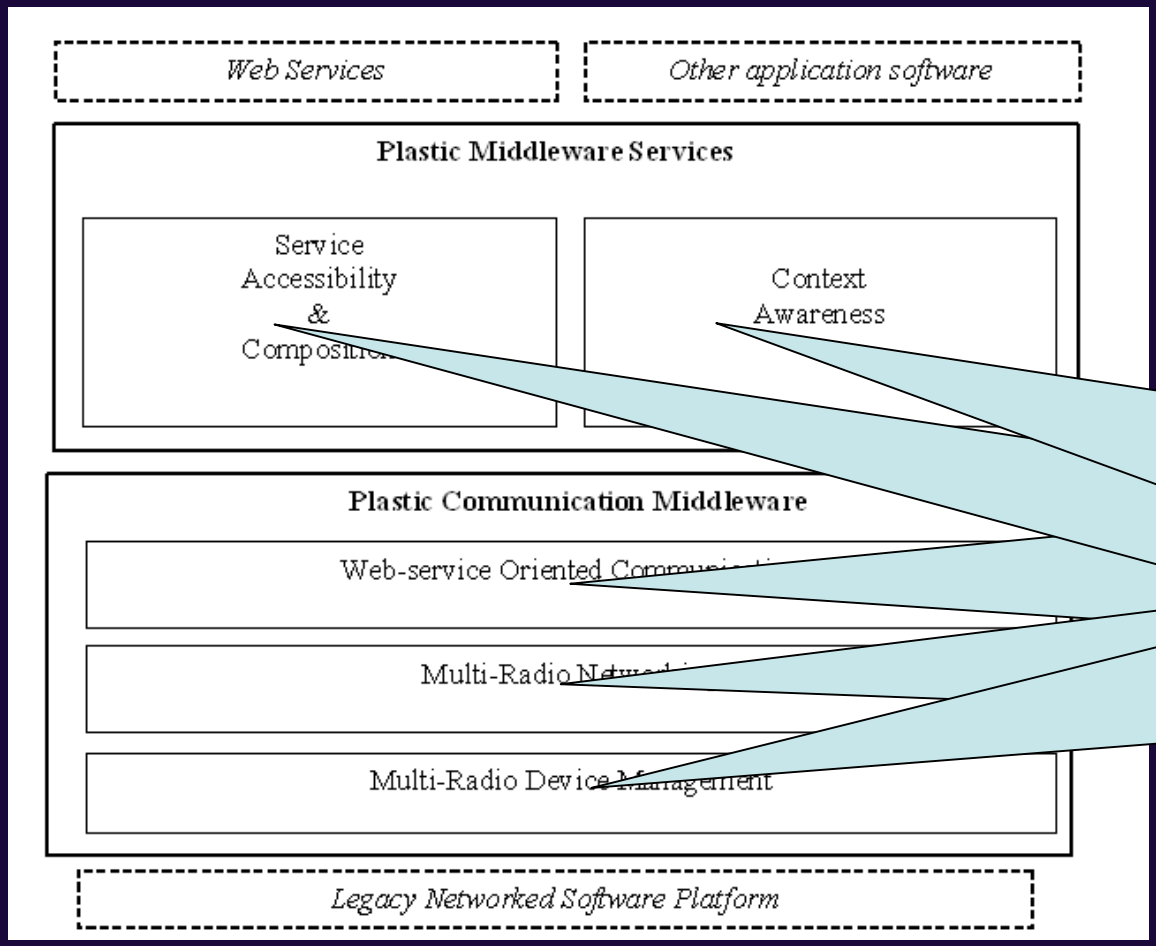
- e.g., teleconferencing between the doctors and George
- multi-modality support (e.g., switch from video to audio), buffer support

Provides specific mobility support by delivering messages and data to users

- e.g., message exchange between Dr. Franklin and George
- asynchronous delivery

Propose a mobility management solution

PLASTIC middleware: initial architecture



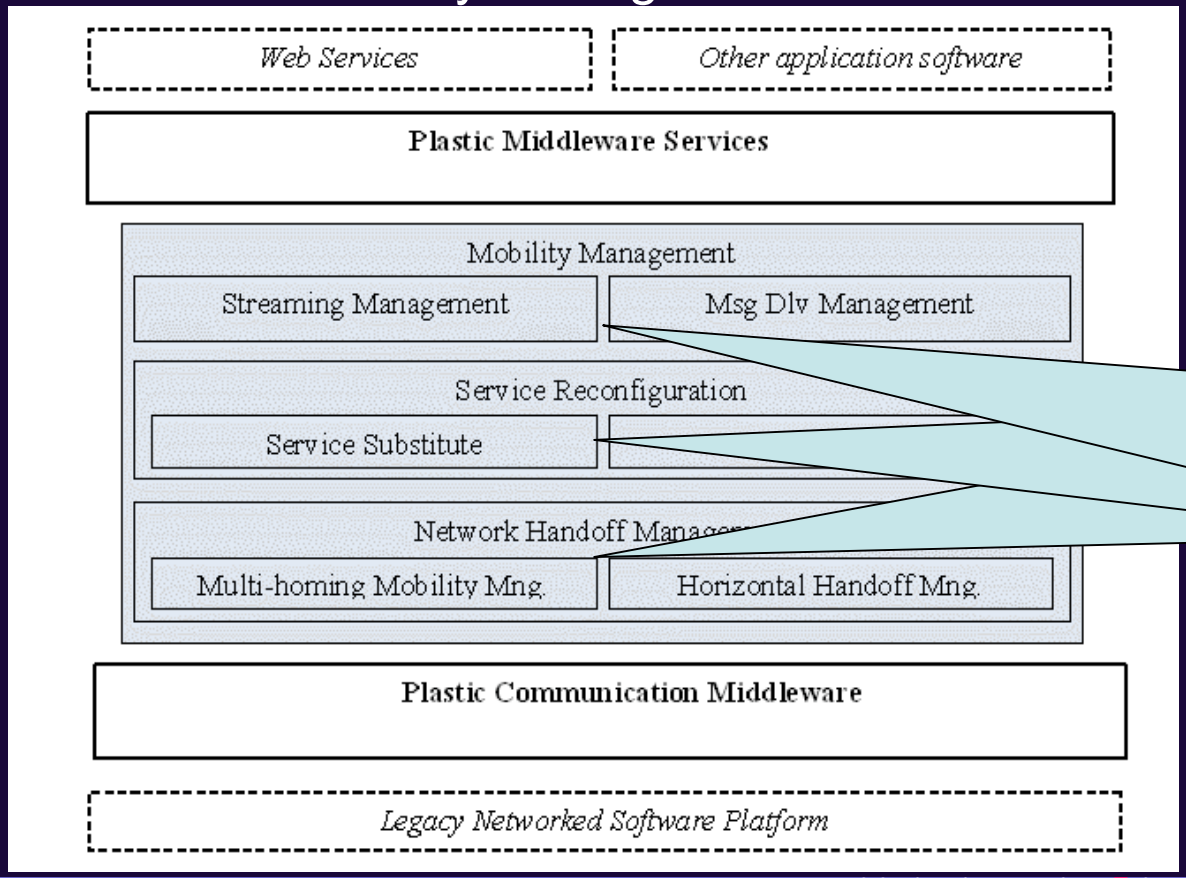
PLASTIC: IST-6 project aims at supporting SOA based B3G communication

Allows collection, storage and retrieval of B3G context

Propose a mobility management solution cont…

PLASTIC middleware

with mobility management module



Aims to provide a set of simple and uniform APIs: transparent and explicit

- Fully distributed, do not require any central entities,
- OSI layer independent

Conclusion

Proposed an mobility management middleware extension:

- Handle mobility in B3G networks : fully distributed, OSI layer independent
- Four different handling mechanisms are considered: two core types and two specific types
- Provide a set of simple and uniform APIs
- Currently under development: network handoffs and service reconfiguration
- Future research direction: performance evaluation, comparison to IMS, investigate application specific mobility

Thank You and questions

Questions relate to the presentation:

- What other mobility management aspects should also be considered within the B3G context?

Open questions:

- Is distributed B3G feasible in eHealth, especially with emergency situations?
- Rely on a distributed B3G (privacy, trust)?