



Multiple Interface Management for Mobile Network Platforms

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Contents



Highlights



UMTS Testbed



Campus WLAN



Mobile Internet Protocol



Mobile IP Testbed



Mobile IP Software



Filters for Bindings



Mobile IP Presentation: GSM/802.11b Handoff



UMTS Pilot Project

- ✍ Cooperation „Bremen in TIME“ between T-Mobil and Hanseatic City of Bremen
- ✍ Schedule 2001-2005 (50 Mio €)
- ✍ Isolated Application
- ✍ Development of multimedia products and services
- ✍ Building research groups to promote the domestic economy
- ✍ First UMTS applications on air in 2002

<http://www.umts-bremen.org>



Campus WLAN

- ✍ Campus provisioning by WLAN 802.11b wireless access points
- ✍ Purchase of notebooks and PCMCIA interfaces for internal students
- ✍ Promotion of WLAN infrastructure by internal projects (e.g. NOM@D)
- ✍ Design of mobile services (m-work)
- ✍ Synergy between UMTS-Testbed and Campus-WLAN network (new research projects)

<http://www.comnets.uni-bremen.de>



Mobile Internet Protocol

- ✍ Enables roaming between subnets
- ✍ Introduces to IP
 - ✍ Home Agent
 - ✍ Foreign Agent
 - ✍ Mobile Node

✍ Basic Operation ?

Post-Office forwarding service:

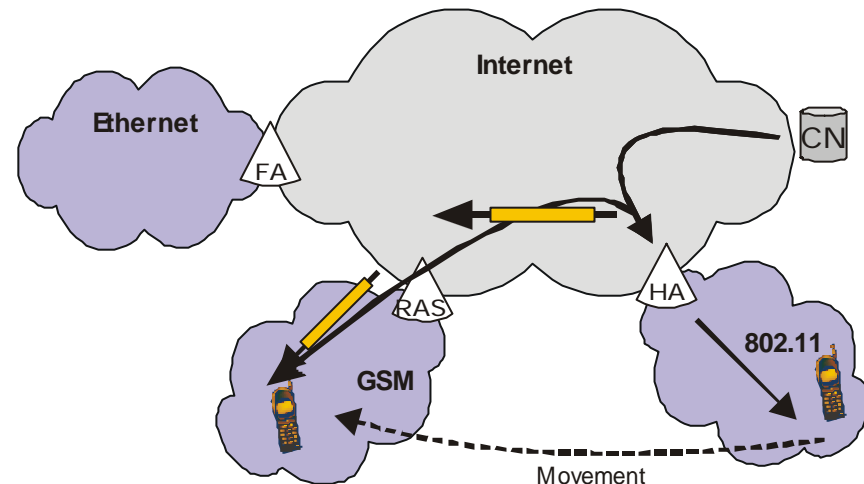
Mobile Node

1. *Acquire roaming address*
2. *Register roaming address*

Home Agent

1. *Intercept incoming traffic*
2. *Tunnel to new location*
 - ✍ Tunnel endpoint is FA when present or mobile node itself in case of collocated care-of address

- ✍ Independent of higher and lower layers
- ✍ Integration of heterogeneous network = problem of routing





Mobile IP Testbed

Home Agent (HA)

- IGEL-J Thin Client
- IGATE IEEE 802.11b AP

Remote Access Server (RAS)

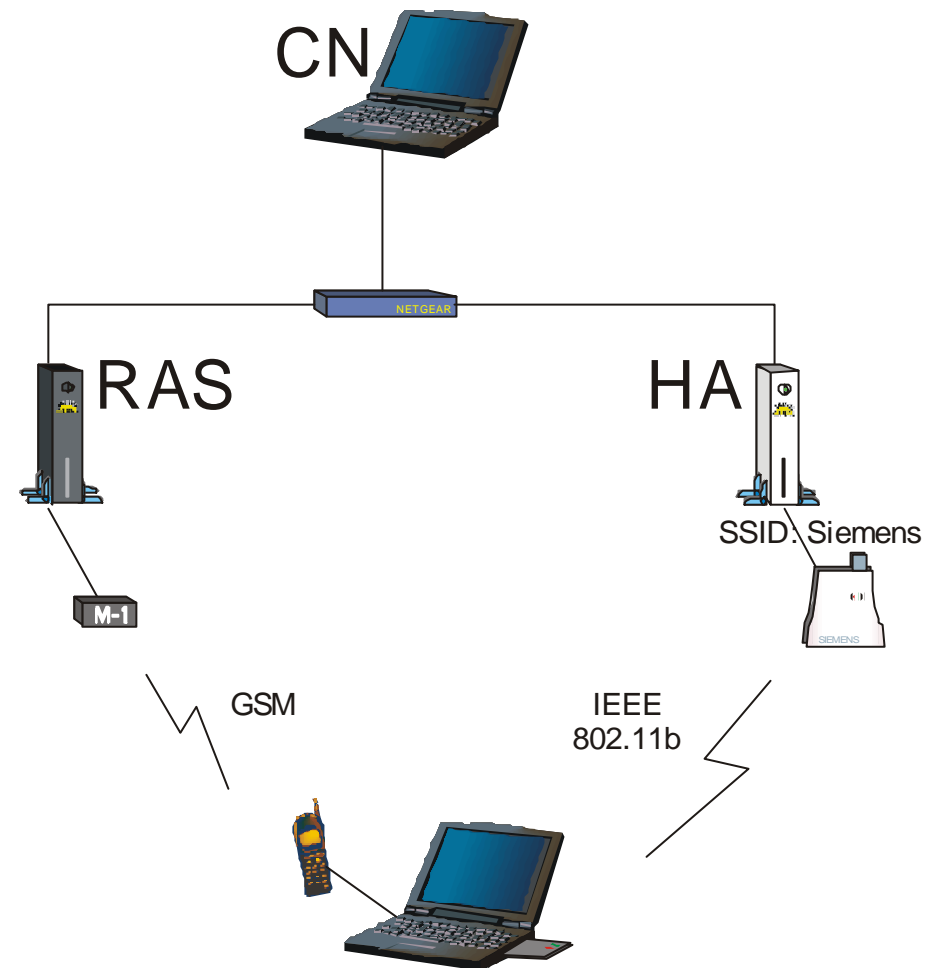
- IGEL-J Thin Client
- Siemens M1 GSM Modem

Mobile Node

- Siemens S-Series Lifebook
- S-35i Mobile Phone
- IGATE IEEE 802.11b PCMCIA

Correspondent Node (CN)

- Samsung Laptop
- Xircom Ethernet PCMCIA

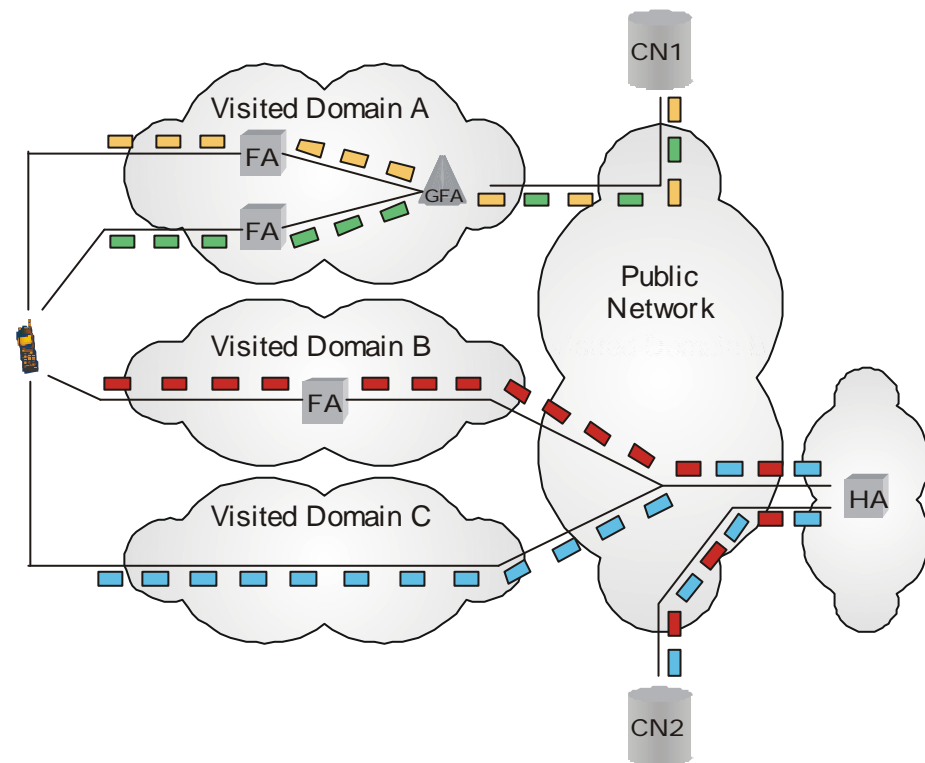


Filters for Bindings

- ✗ IP/Mobile IP does not distinguish between flows
- ✗ One registration (binding) applies for all traffic
- ✗ Only one interface may be active

Proposed Solution

- ✗ Filters for Bindings. IETF draft-nomad-filters-mobileip.txt
- ✗ Agents associate flows with different bindings





Thank you!

Questions?