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Access Control for Mobile Services

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Agenda

- Introduction
- Overview of current AAA systems
- Mobile challenges
- Research focus
- Conclusion

Introduction

- Tasks of AAA systems
  - Authentication
  - Access Control
  - Accounting
- AAA in telecommunication and computer networks
  - Architectural differences
- Converging networks, mobile internet

Current AAA systems

- RADIUS and Diameter in computer networks
  - Proxyable, multi-realm, trust relationships
- AAA in mobile networks
  - authenticates the device rather the user, seamless, trusted devices
- Research focus
  - UMTS-WLAN integration
  - Cellular to bit-pipe approach
  - Seamless authentication
  - Heterogenous networks
  - Ad-hoc
  - Role-based AAA and semantics

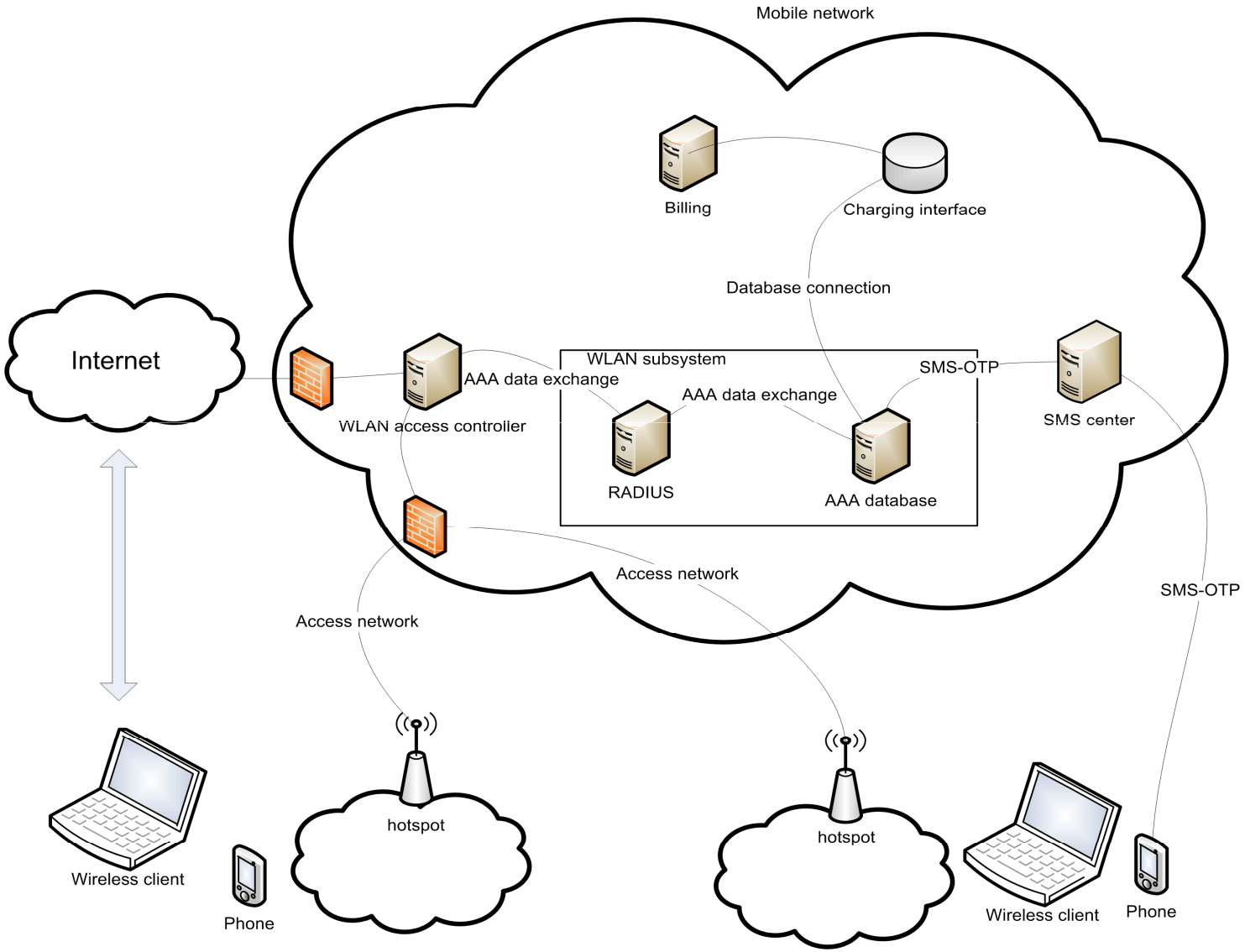
Mobile challenges

- Convergence (DT vs Skype)
- Pervasive networks (always best connected)
- Privacy, mobile service access
- Topology-aware AAA overlay-network
- Power consumption: crypto and communication

Research focus

- Connection to third parties
- UMTS-WLAN integration
  - Traffic tunnel through gprs backbone to enable UMTS AAA
  - Synchronization between SGSN and WLAN
    - For mobility management
    - For session management
  - Mobility management in WLAN network is qualitatively different
    - GPRS is essentially tunneled
    - WLAN could be tunnel-based or routing-based
  - How to maintain connection between MN and SGSN through WLAN?
  - Mutual trust

Research focus



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Research focus

- Cellular to bit-pipe
- QoS, routing delay (mobile signalling is already packet-sw)
- hierarchical MIP to overcome excessive handover delay
- Frequent handover-caused problems in AAA
- Corporate VPN solutions

Research focus

- Seamless authentication
  - Common in mobile, new in computer networks
  - Authenticates the device rather than the user
- Heterogenous networks
- Ad-hoc
  - Treshold crypto, distributed CA, typically no accounting
- Role-based AAA

Conclusion

- Two different flavors of AAA systems
- A unified system will be created
- Privacy protection becomes more important

Questions?