Trusted Integration of Mobile Platforms into Service-oriented Networks

Michael Marhöfer, Siemens AG and Andreas Schmidt, Fraunhofer SIT

Presenter: Claudia Eckert, Fraunhofer SIT

11th German-Japanese Symposium, 13 – 16 September 2005, Tokyo - Japan
Outline

1. Major Trends in Mobile Service Provisioning

2. Trusted Integration of Mobile Platforms into Service-oriented Networks

3. List of Use Cases Mobile Applications benefiting of Trusted Computing

4. Example: mobile phone for buying/charging retail items

5. Conclusion
Three Major Trends in Mobile Service Provisioning

- **Mobile access to applications & content is becoming network-agnostic**
  - Customers attracted by attractive applications & content
  - Diversity of technologies (2G, 3G, WLAN, WiMAX, MobileIP)
  - Customers interested in optimizing price/performance ratio

- **Mobile devices are becoming very smart, multi-purpose devices**
  - A lot more than just voice communications
  - Both consuming and providing applications, data and media
  - Supporting the trend towards Peer-to-Peer networks

- **Trusted computing becoming the enabler for service provisioning**
  - Provides a new level of trust and security for networked devices
  - Enables network- and device-agnostic trust relations on application-level
  - Uniform trusted platform for service provisioning

**Findings:**
- network access is a commodity, customers expect additional features
- Next step for MNOs (business models): providing customized/customizable services
Trend Towards Network-Agnostic Access to Applications and Content

Current Operators

Tight Vertical Integration

Future Operators

Service & Content Access

Service Layers

AC for services & content independent of AC for network, enforced E2E

AC: Access Control
Paradigm Shift: Devices also Providing Services

Classical client/server

Future

Provides Services to User

Provides Service to Network

Remark: Peer-to-Peer might be a disruptive technology for MNOs

MNOs should try to convert it into an enabling one
Benefits of Trusted Computing

Networked, sensitive applications and services scale by the ‘level of trust’:

- Network and Service Access
- Mobile Payment, Ticketing
- Field Personnel, Machine Maintenance
- Distributed Accounting and Charging
- Provisioning of Federated IDs
- Content Delivery
- Establishing Ad-Hoc Contracts & SLAs
- …
Payment – Simplified by a Trusted Mobile Device

- Session initiation does not require network communication (1-8)
- No transaction data needs to be stored in the POA
- POA does not need networking capabilities
- Trust: relationships
  - POA and device via TPM
  - Device and MNO via USIM
- MNO provides payment services to the vendor
- A transitive trust relationship is established (mediated) by the device

Steps 2-8

No Data

point of acceptance

TPM

Banking institute

MNO

vendor

e.g. Vending Machine

Device acts as Intermediary between MNO and Vending machine

Signed transaction

© Siemens AG, Fraunhofer SIT, 2005
Conclusions

- Major trends in mobile technology:
  - Horizontal integration of network access technologies
  - Smart devices *consume and provide* data and services
- Integration of trusted computing into mobile platforms enables
  - alternate method of device authentication – to MNO *and third parties*
  - the *extension of trust relationships* beyond the mobile device
- This enables *new MNO-centric business models* to provide goods and services to users and third parties, for instance
  - MNO as part of a payment chain
  - MNO supports remote machine maintenance (see handouts)
- Shift:
  - from *tight coupling: access & service*
  - Towards *separation: service access on an end2end basis with trusted devices*
Thank you for your attention!

Dr. Michael Marhoefer
Siemens AG, Mobile Networks
michael.marhoefer@siemens.com
Tel +49 89 636-75128
D-81541 Muenchen
Germany

Dr. Andreas U. Schmidt
Fraunhofer SIT
Andreas.U.Schmidt@sit.fraunhofer.de
Tel. +49 6151 869-60227
D-64293 Darmstadt
Germany