

Giesecke & Devrient at the IFIP Summerschool 2009

Privacy on Mobile Devices: Present and future technologies

Prof. Dr. Marc-Michael Bergfeld
Dr. Stephan Spitz

Nice, September 10th, 2009



Giesecke & Devrient
Creating Confidence.

What we do...



Creating Confidence.



PrimeLife

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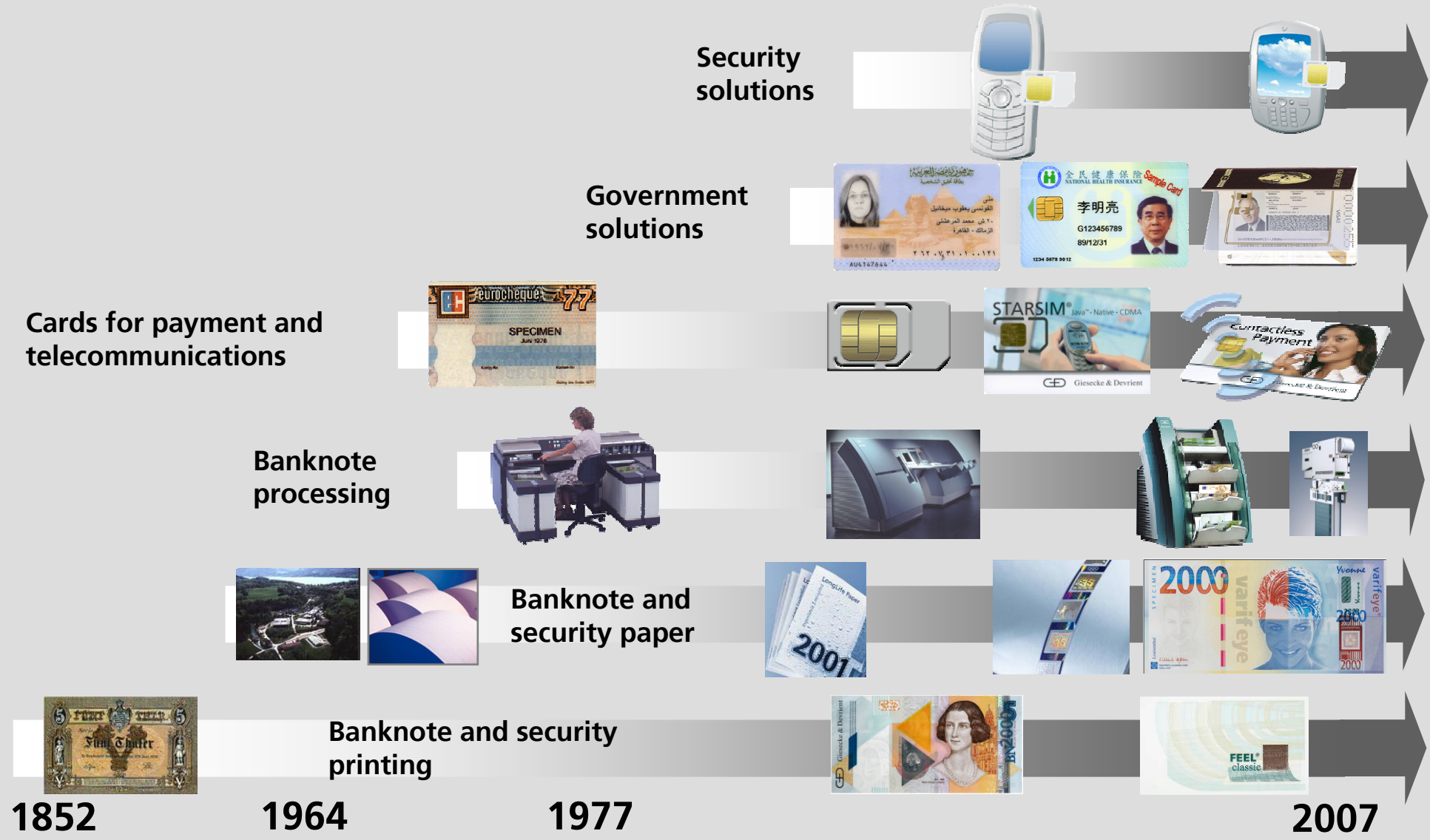
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Giesecke & Devrient — From Printing Paper Securities to Providing High-Tech Solutions



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Why G&D is a competent judge for mobile devices

Experience with various secure elements from multiple projects

- **mPayment, access control, smart posters and mTicketing with secure embedded NFC:**

- O2 Wallet Trial in the UK with Barclaycard, TfL, VISA and Venyon

- **mPayment with secure embedded NFC:**

- Bank of America's NFC trial in the US with MasterCard

- **Post-paid mTicketing with NFC and SIM:**

- Touch&Travel Project of Deutsche Bahn (German Railway) together with Vodafone and T-Mobile and NXP

- **mBanking with NFC and SIM**

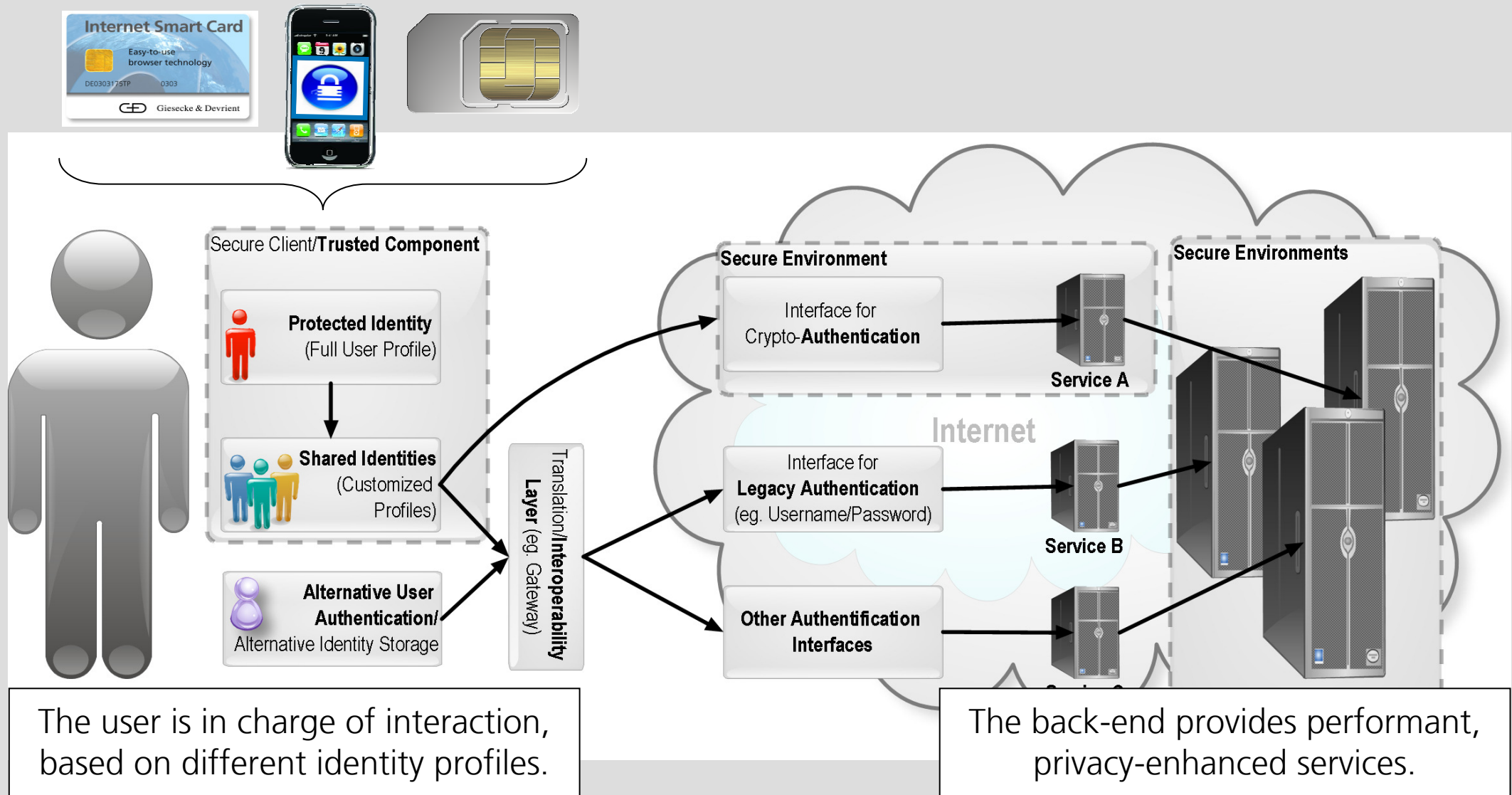
- Turkcell Trial in Turkey with Garanti Bank, Ekart and Venyon

- **Pre-paid mTicketing w/ secure embedded NFC:**

- NYC Metro Tap&Go™ Trial in New York City with Citigroup, MasterCard and Cingular to facilitate MasterCard PayPass transactions



Why does the mobile device matter here? (PrimeLife approach)



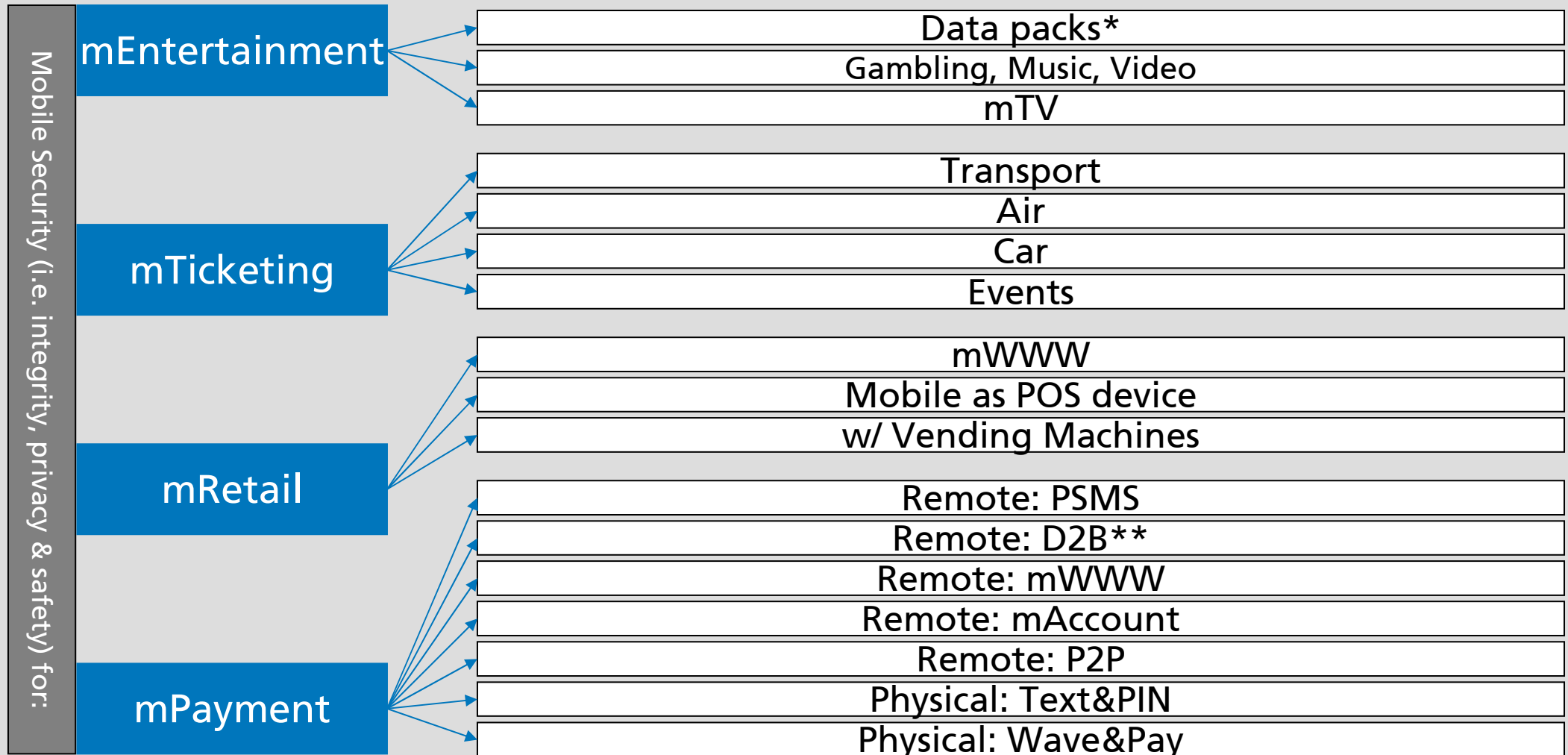
Privacy & identity via mobile devices?

Privacy & Identity	User identity & privacy	Service- specific user identities	Privacy & security for the user & service provider.	Example: My mobile Social Network profile – always on.
	Device identity	Device- specific service provision	Identification and sec. link / tie between service and unique device.	Example: Trusted Platform modules in Laptops.

Why?

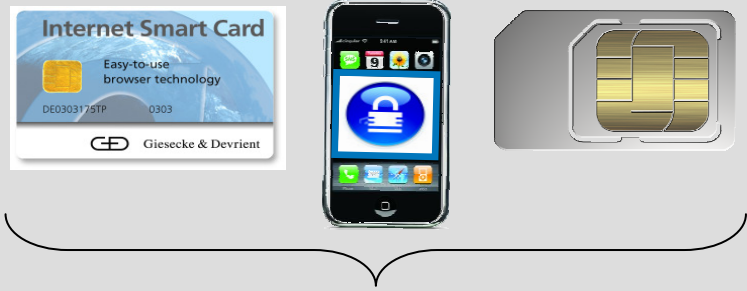
Confidence for the service providers – Device identity and user identity
Confidence for the service consumer – power over identity management, privacy assurance.

Which markets could be affected? (examples)



Sources: Juniper Research (2006): Mobile Commerce; Juniper Research (2007): Mobile Payment; Note: * data packs can be ringtones, wallpapers, single songs etc.; **= Direct To Bill: payment over mobile phone bill.

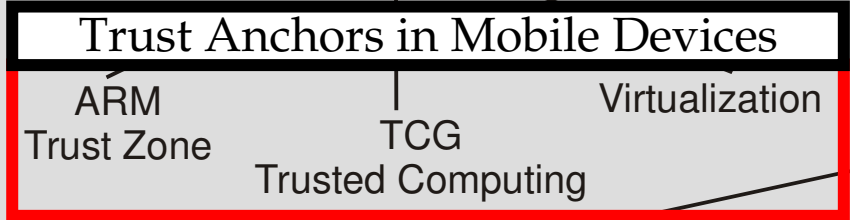
Infrastructure technologies that can protect privacy & manage identity



Secure Environments

(Embedded) Systems

Smart Cards & Tokens



SmartCards/ISO7816

Token

JavaCard

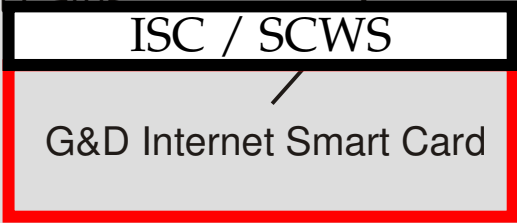
U/i/SIM

EMV Cards

PKI Smart Cards

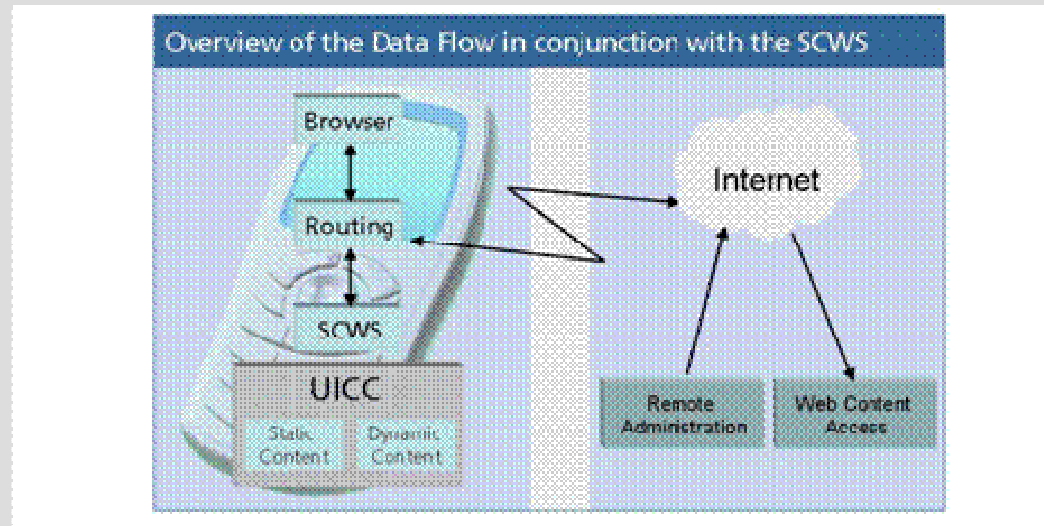
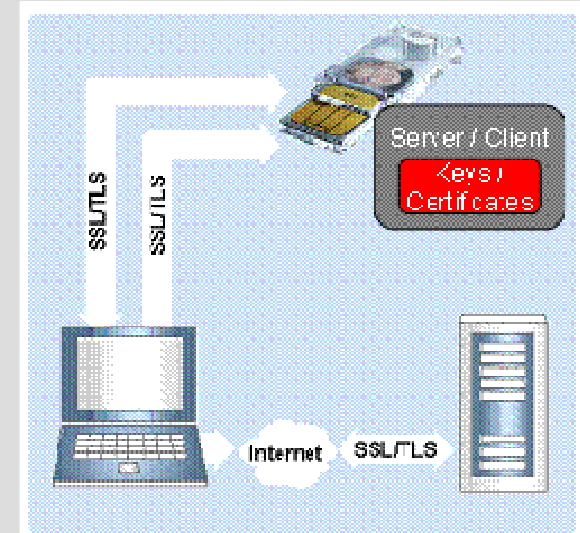
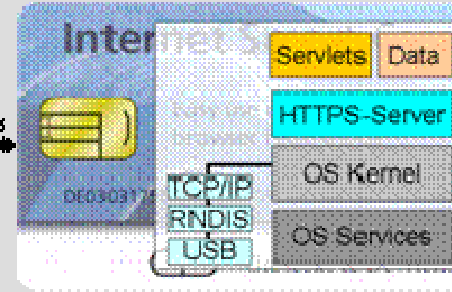
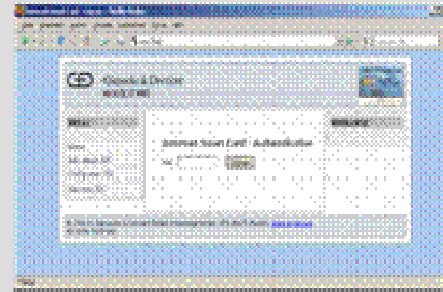
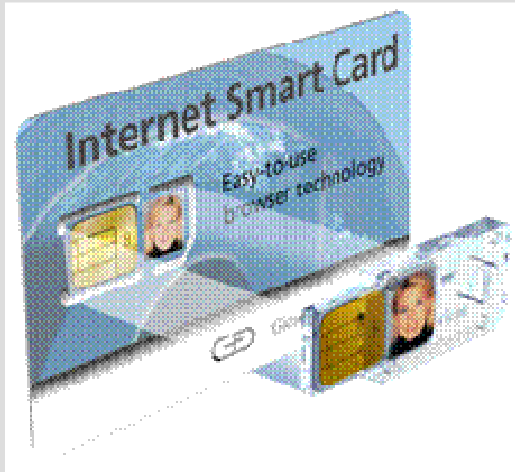
USB

SecureFlash



Source: PrimeLife Deliverable 6.2.1

Today: The G&D Internet Smart Card & Smart Card Webserver



Source: PrimeLife Heartbeat 6.2.1

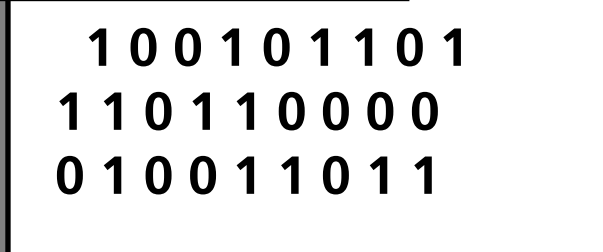
Tomorrow: Potential Trust Anchors for Mobile Devices



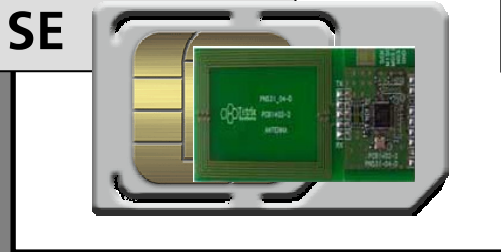
External Card



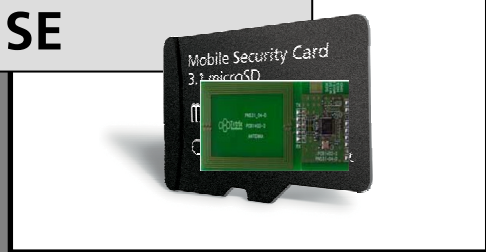
"Software" SE



SIM-based SE



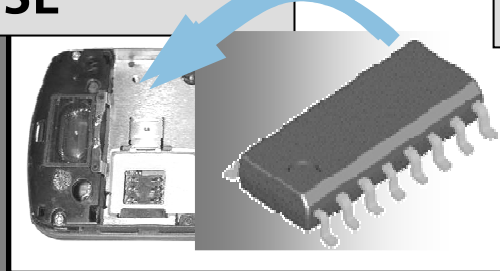
Removable SE



Attached SE



Embedded SE



SE in Processor



Tomorrow: Options to use potential Trust Anchors



Easy!

Known technologies

PINs

PWs

SIM & Secure Elements

Future technologies


Biometrics

Voice, Minutia

Netbooks & Mobile Terminals

When data prices come down...

Premium Peak or Bottom of the Pyramid?



Thank you very much for
your attention



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