SEMOPS

Secure Mobile Payment Service

The Next Generation Electronic Payment Service

Internet + Mobile

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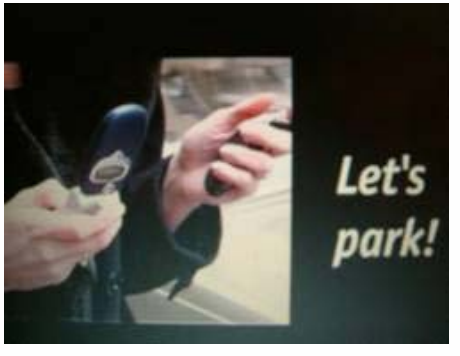
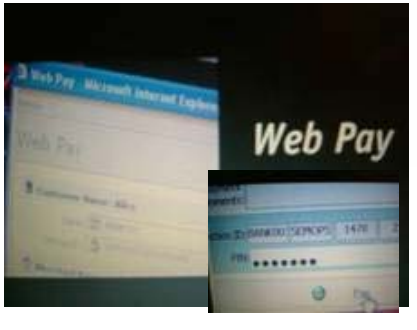
About SEMOPS

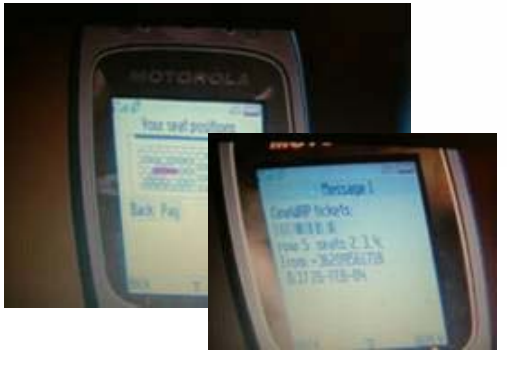
Introduction

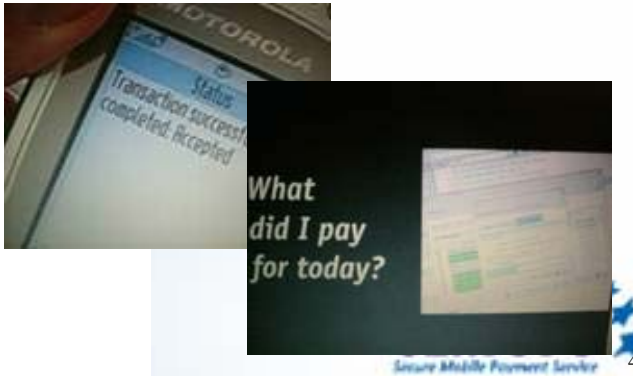
- SEMOPS is an universal electronic payment service for both Internet and Mobile commerce transactions.
- SEMOPS is handset and communication independent, built on open standards.
- SEMOPS solves those security and economic difficulties that could not be tackled by other solutions.

The SEMOPS future – “my mobile day”









Environment

Justification for a universal payment service

- There will be uniform electronic commerce on different channels
  - mobile commerce
  - internet commerce

  Homogenous market

- **There will be one uniform business model**
  - a combination of the
    - internet model – completely open
    - and the mobile model – fully controlled

- Homogenous market + uniform business model → right foundation for a **universal payment service**.

- An electronic payment service can be used in the traditional physical environment as well -- POS, P2P
  - it needs to generate added value
    - speed, comfort, security, new services

Existing blocking factors of “e/m” commerce

- **Lack of adequate security**
  - trust
  - adequate protection of money and information
  - low cost
  - simplicity

- **Lack of the right payment service**
  - universal
    - for all types of transactions
    - for any values
  - generally available
    - for a large number of customers and merchants
  - trusted
  - secure
  - real time
  - economical

- **Lack of sound business model**
  - affordable for the users
  - economical for the service providers

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The SEMOPS answer

Potential SEMOPS transactions

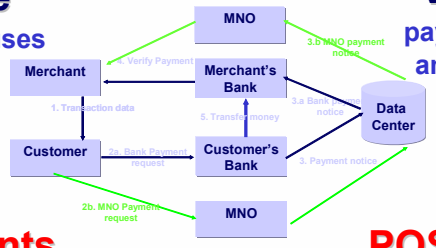
Digital content
purchase of ring tone, music, information, etc.

Loyalty programs
payments against loyalty points

In band payments
WAP transactions (tickets, etc)

Auction purchase
buying in online auction houses

Vending machine
payments to unmanned POS and withdrawal from ATM



Real time refund
distribution of lottery wins

Mobile services
parking, ticketing, etc.

Internet payments
B2B and B2C payments on the WEB

POS and virtual POS
in store payments, B2B payments

EBPP-MBPP
internet and mobile invoice presentation

Wallet top up
prepaid accounts and mobile top up

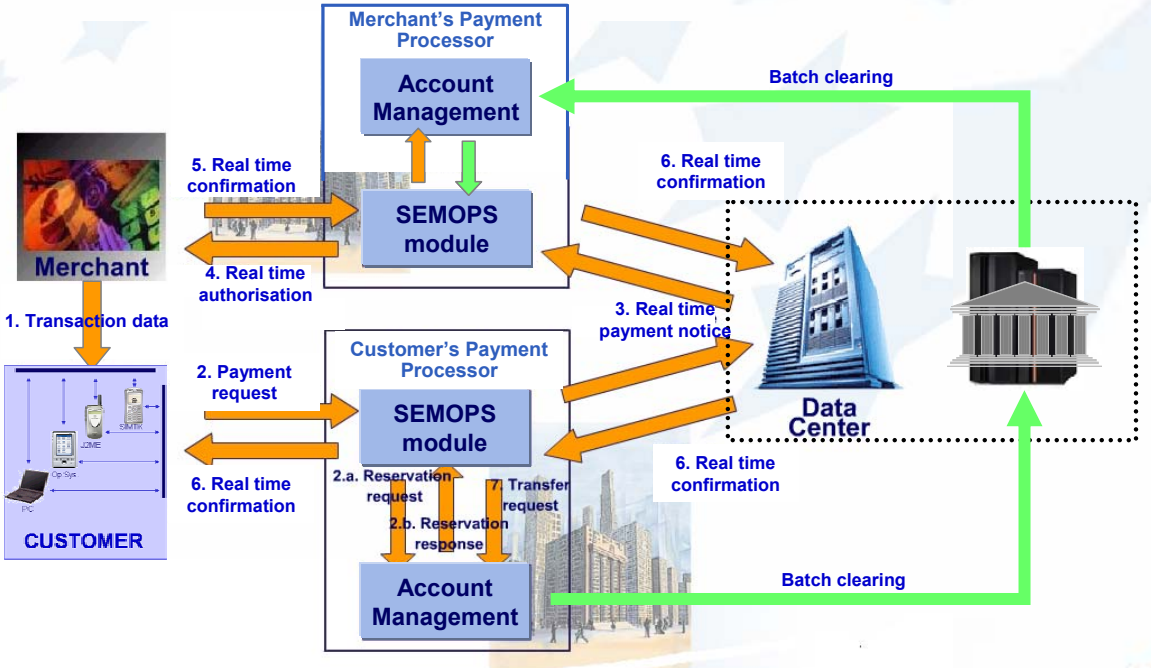
P2P payments
payments between persons ,fund wire

A very broad interpretation of E/M-commerce + POS + P2P = SEMOPS transaction types

For the most important use cases both market and technical conditions are favorable. The service can be implemented immediately!

Boosting up traditional fund transfer

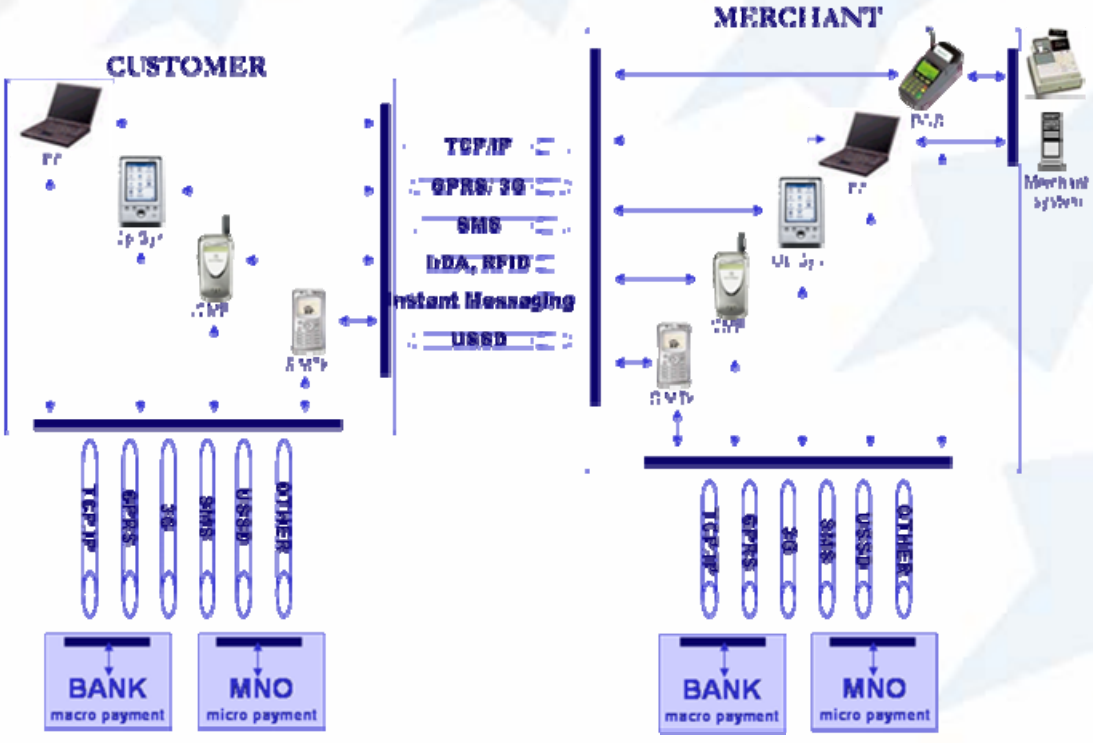
- Account based, real time credit transfer
  - real time authorization messaging flow is added to traditional fund transfer



Real time authorisation and confirmation flow

Batch settlement process – the traditional interbank settlement

General availability



Device independent technology:

- SIM card – traditional handset
- **J2ME – modern handset**
- Operating system – PDA, Smartphone
- **Browser - Pc**

Convenience + flexibility

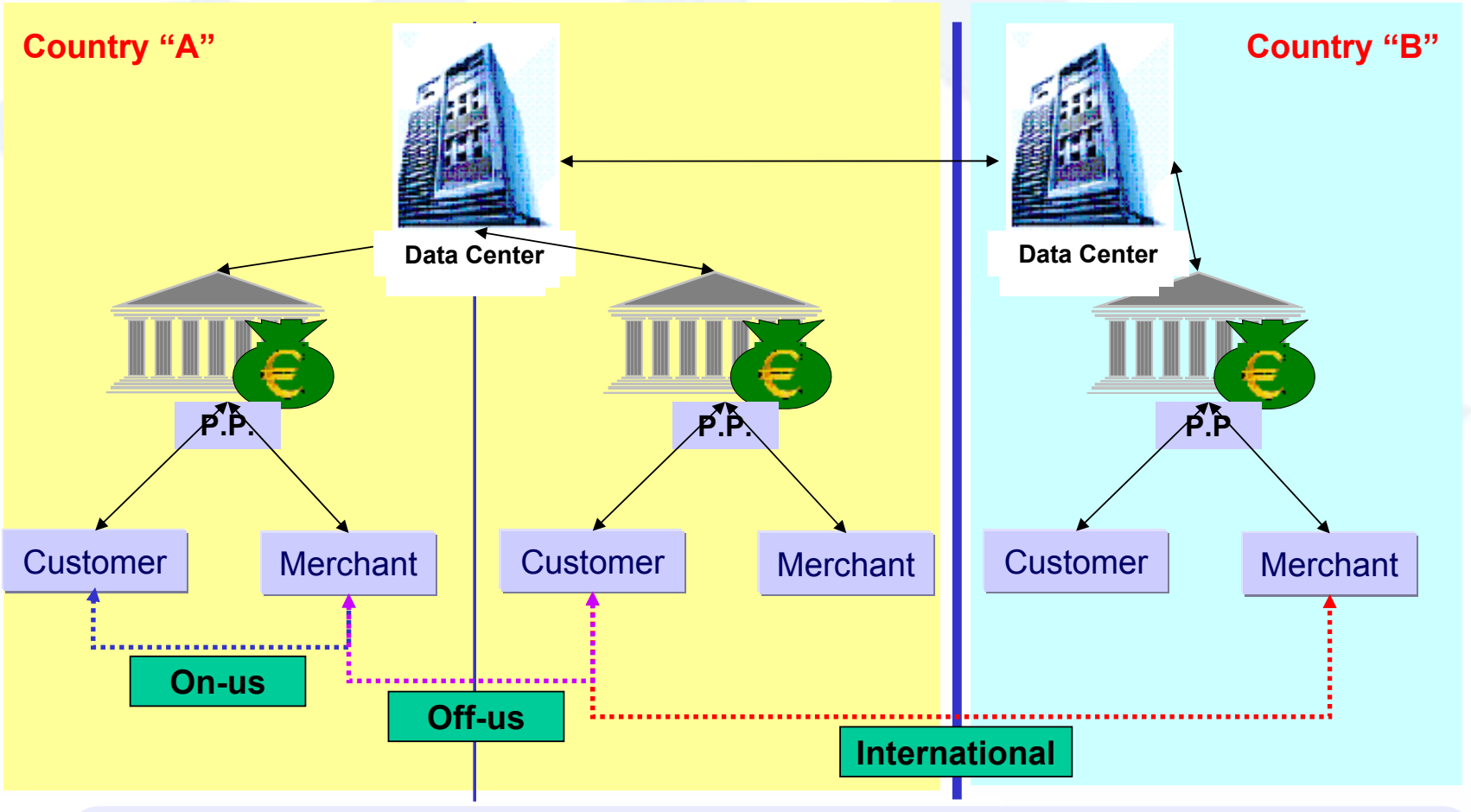
Channel independent technology:

- SMS– traditional handset
- **GPRS – modern handset**
- 3G – modern handset
- **Web - Pc**

Speed + cost saving

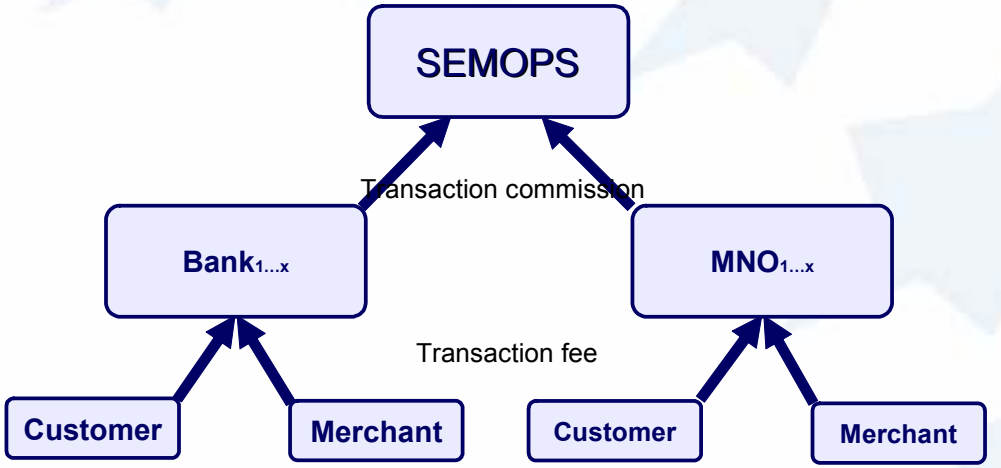
Economics of the service

Open model



- Any payment processor may join the service.
- Everyone connects to its own payment processor.
- Any clients of any payment processor transact with each other.

Business principles



- Payment processors are free to elaborate their own policy. No uniform business regulation – free competition!
  - competition with existing solutions
  - competition between payment processors
- The service is offered to the public under the payment processors' own brand
  - opportunity for differentiation

- Payment processors are free to decide
  - which services to offer
  - when to introduce new transaction types
  - what fee structure to use
  - what fee level to use
  - how to differentiate between transaction types and users
- Expenses are well predictable
  - general rules
  - transaction related cost elements

Economics of SEMOPS

Revenue maximization:

- Largest clientele
  - Clientele of many mobile operators
    - customers
      - prepaid
      - post paid
    - merchants
  - Clientele of many banks
    - customers
    - merchants
- Sales channel diversification
  - mobile
  - internet
  - traditional (POS)
- Various transaction types
  - in band
  - out of band
  - P2P
  - B2B
  - C2B
- Large geographic coverage
  - domestic
  - cross border

Cost efficiency:

- Optimized processing
  - MNO = micro value
  - Bank = mini-macro value
- Low unit cost
  - local Data Center for all transactions
  - full automation
  - leveraging existing infrastructure
- Optimized settlement
  - debiting prepaid accounts
  - few, but high value transfers
- Optimized communication
  - VPN (leased lines)
  - MNO – client communication
  - Internet
- Standardized solutions
  - existing standards
  - new initiatives
- Complex security solution
  - low risk levels
  - secure process flow
  - HW, SW protection
  - standard rules and regulations

Favourable effects

Banks:
•allows inexpensive entry to E- and M-business
•generates new transaction revenues
•allows inter-bank, bank-mobile operator cooperation
•improves access to other home banking products
•leverages traditional banking processes and infrastructure

Mobile operators:
•increases ARPU
•opens new line of business, with related new revenue sources
•allows cooperation with banks and other mobile operators
•increases customer loyalty
•paves the way to new mobile services and applications
•branding

Merchants:
•increases collection security.
•increases the number of realized transactions
•opens E- and M-commerce to new clientele
•cost savings

Customers:
•provides secure payment method in E- and M-commerce
•simplifies and accelerates payment transactions
•allows payments to a large number of persons, retailers, or businesses

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Financial Service Providers

- Hungary
  - MKB Bank
  - Erste Bank
  - GBC – Giro Bankcard
- Greece
  - Millennium Bank
  - Mellon
- Italy
  - SSB
  - Banca Marche

Project plan

Phases	Plan	EU project
1.	• 2007 09 • 2007 11	• Communication and integration testing • E/M Payment – On-us Transactions
2.	• 2008 03	• E/M-payment – Off-us Transactions
3.	• 2008 06	• E/M-payment – Cross-border
4.	• 2007 12	• Non technical environments
5.	• 2008 12	• Review

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StoLPaN

Summary

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EU project – key information

StoLPaN – Store Logistics and Payment with NFC

- 6th Framework Program
- Information Society Technologies – IST
- 5th Call
- Specific Targeted Research Or Innovation Project –STREP
  - RTD
  - DEMO
- Proposal/Contract no.: 33591

- 36 months duration
- July 1st 2006 starting date
- Budget: EUR 8.927.702
- Community contribution: EUR 4.878.309

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Project Partners

Consortium :

Motorola	*Project coordinator, handset integration, standardisation*
Deloitte	*Security issues, business modeling, quality control*
Safepay Ltd	*Technical management, concept development*
Auto ID Lab	*NFC, EPC logistical solutions, process definition*
Philips	*NFC chip, work on the handset related RF topics*
Hyperion Consulting	*Use case modeling, business analysis, payment issues*
Baker & McKenzie	*Legal work*
Bull	*Retail NFC support devices*
BPVI bank	*Banking requirements description, demo operation*
Libri bookshop	*Retail requirements description, demo operation*
T-Systems	*Back-end development (retail), mobile ticketing*
Sun	*Retail RFID solutions, back-end integration*
Constriv	*Contactless POS terminal, NFC service terminal*
Fornax	*Back-end development (bank)*
BP. Tech. Informatics	*Technology analysis and testing*
University of Technology	*Design, usability trials, testing*

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StoLPaN project structure

Mobile NFC research track

- standardizing operating environment
- porting of service profiles
- development of support infrastructure
- elaboration of business model

Retail NFC research track

- development of necessary support devices
- elaboration NFC based payment and check-out process

DEMONSTRATION OF SERVICES

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StoLPaN deliverables - mobile

- To develop a JAVA based mobile host application that provides a transparent environment for the simultaneous operation of various NFC based service applications, by neutralizing specifics of the handset design and taking care of resource, security and communication management

- Establish the back-office architecture and necessary communication protocols that ensure the secure, remote management of the various NFC applications hosted in the mobile handset

- Porting of selected contactless applications to the StoLPaN specification, and preparation of workflow like design guidelines for the development of new service profiles

- Business models and standards supporting the management and operation of the various NFC use-cases.

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StoLPaN deliverables – retail

- New retail process flows for purchasing and checkout
- Store level devices
  - Smart shopping cart
  - Smart security gate
  - Smart Shelf
  - NFC Service termina
  - NFC PSA
- Back-office module
- Input to mobile research track – new “Seamless Mobility Services”

Mobile NFC host + RAM