



**SETECS**

Secure Transactions and Electronic Commerce Systems

## SETECS<sup>®</sup> Mobile Technologies

# SETECS<sup>®</sup> SAFE<sup>™</sup> System

## Secure Applications for Financial Environments

SETECS<sup>®</sup> SAFE<sup>™</sup> system supports several groups of secure transactions using mobile phones. For *mobile banking* it provides access to bank accounts and various payment transactions. For *telecom services*, the system supports purchase and usage of air-time and various other communication security services. For *mobile commerce* the system supports over-the-counter client-to-merchant payments based on debit cards, credit cards or stored money (micro payments), person-to-person transactions, and other commercial applications (ticketing, gift cards, bonus points, etc.)

The most important and distinguished feature of the system is its strong, *end-to-end security* for users, transactions, mobile devices, data, and applications. It is based on strong cryptographic algorithms and comprehensive security architecture supporting easy expansions, scaling and interconnections between banks, telecom companies, merchants, and countries.

The system is very simple to install, customize, maintain, expand, and use. Its services may be offered by banks, telecom operators, commercial companies, credit card payment gateways, or by any Internet service provider.



### Secure Applications:

- m-banking (access to bank accounts)
- m-commerce (orders and payments)
- Telecom services (air time)
- Pre-paid services (gift cards)
- Business transactions
- Digital content sharing
- Personal messaging

## Services and Applications

### Application Services

#### Mobile Banking for Banks

- Personal deposits and withdrawals
- Third party deposits to user accounts
- Prepaid transactions
- Transfer of cash between accounts
- Downloading cash (stored money)
- Bill payments
- International transactions (remittance)
- Loan applications (micro finance)
- Loan payments
- Notifications and events indications

#### Mobile Commerce for Web Merchants

- Retail payments (on-line and over-the-counter) using debit or credit cards or accounts stored in the phone
- Retail micro payments using money downloaded and stored in the phone
- Issuing orders (on-line and over-the-counter – Point Of Sale)
- Ticketing – purchasing, saving and using tickets (airline, movie theaters, sport events, etc.)
- Payments and usage of subscriptions
- Handling of bonus points and benefits
- Purchasing, sharing and using gift cards and other pre-paid instruments
- Downloading and paying digital media

#### Mobile Telecom for Telecom Operators

- Purchasing, use, and transfer of air-time between accounts
- Optimization of subscription plans

#### Personal Transactions for Individuals

- Person-to-person financial transactions
- Transfer of gift cards
- Exchange of digital business cards
- Sharing of digital media

### Security Services

#### Transactions Security

- Authentication of users based on cryptographic credentials and X.509 certificates
- Encryption of transactions in mobile phones and decryption at back-end servers (end-to-end security)
- Digital signing of transactions (sender's authenticity)
- Digital enveloping of transactions (receiver's authenticity)
- Authorization of users

#### Identity Management

- Face-to-face registration of all participants
- Reliable verification of all identities
- Single sign-on authentication
- Authorization in federated domains

#### X.509 Certificates Management

- Generation of public / private key pairs in the phone
- Storing of certificates in the phone and distribution from the phone
- Usage of certificates for users authentication and transactions security

#### Smart Cards Management

- Issuing of smart cards with biometric data and certificates
  - Authentication of authorities based on smart cards and biometrics data
  - Authorization of actions and protection of transactions based on smart cards
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## Components and Architecture

### Components

**Clients:** software components used by users. There are two types of clients in the system:

- **Secure Mobile Wallet** loaded and used in the mobile phone
- **Secure Browser Wallet** used through any standard browser

**Security Service Providers:** software components used as servers. There are four security services providers in the system:

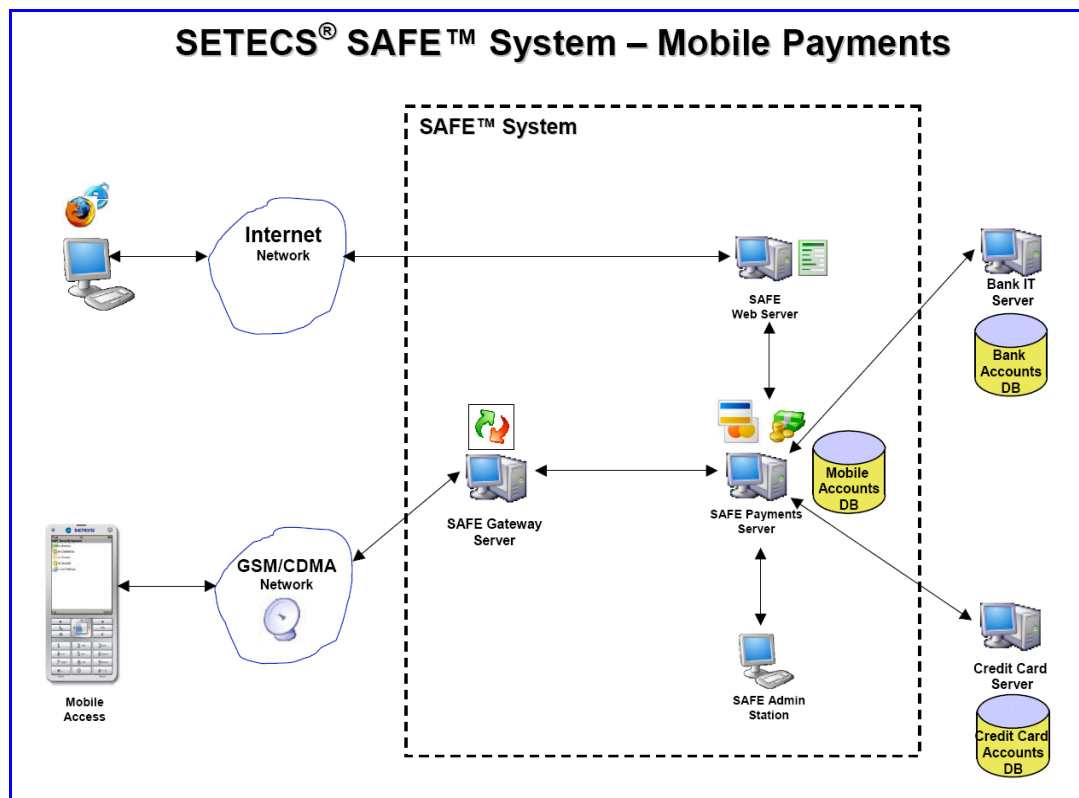
- **SAFE Gateway Server** for communication services
- **SAFE Identity Management Server** for identity services
- **SAFE Certificate Authority Server** for certificate services
- **SAFE Authorization Server** for authorization services

**Application Services Providers:** software components used as servers. There are three types of application services providers in the system:

- **SAFE Payments Server** for m-payments transactions
- **Merchant Server** for m-commerce transactions
- **Telecom Server** for telecom services

### Architecture

All components are interconnected through network protocols, so that all functions are available to clients. Access is easy and transparent using a gateway server. The system easily scales by registering new users, adding new servers and interconnecting with equivalent environments.



## Business Benefits

### Benefits for Banks

- Extended customer base and account deposits
- Increased volume of transactions with lower operating costs
- Compatibility and support for standard payment methods (debit cards and credit cards)
- Support for international transactions (remittance)
- Reduced administrative costs for opening and maintaining user accounts
- Reduced operational cost for distribution of account status information

### Benefits for Telecom Operators

- Increased subscribers base
- Lower administrative costs for opening and maintaining subscribers' accounts
- Increased revenue with reduced transactions costs
- Enhanced customer loyalty and quality of services
- New revenue streams
- Improved ARPU (Average Revenue Per User)
- Elimination of costs and burden for distribution of scratch pre-paid cards

### Benefits for Users

- Easy and convenient access to accurate account information
- Secure handling of transactions
- Significantly reduced transaction fees
- International transactions with improved transactions time and reduced fees
- No need for pre-paid cards

### Benefits for Investors

- Minimal up-front costs and investments
- No infrastructure investments or capital costs needed
- Reasonable break-even number of subscribers (25,000)
- Exceptional Return On Investment (ROI) compared to other types of investments
- Very short time to profitability
- Recurring revenue through transaction fees, software maintenance and upgrades

## Additional Information

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