

Telecom Forum 98

Timo Rinne

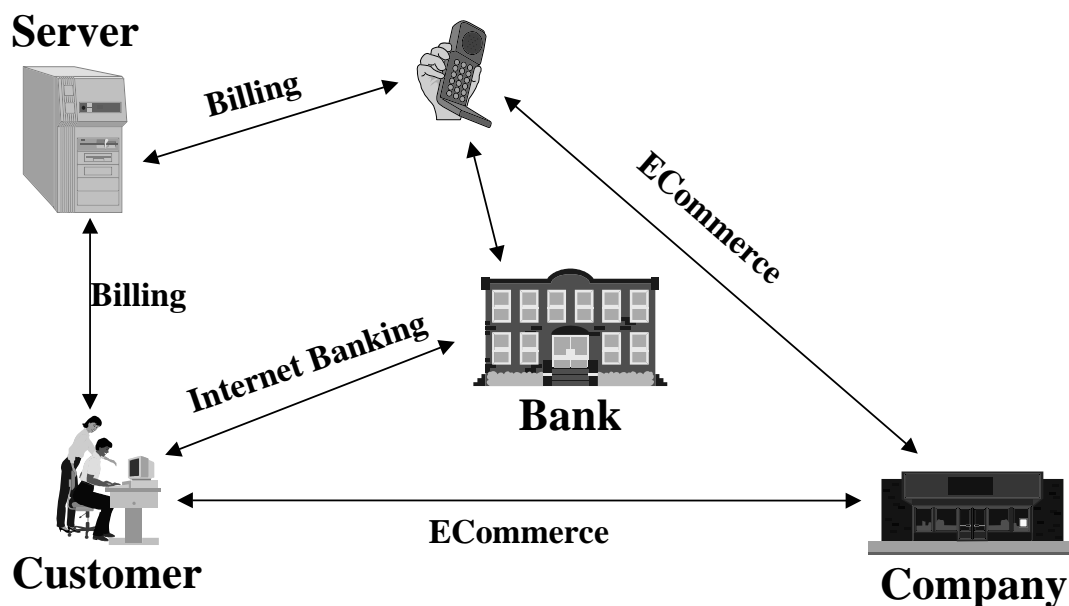
Development Manager

Helsinki Telephone Corporation

timo.rinne@hpy.fi



Electronic Money



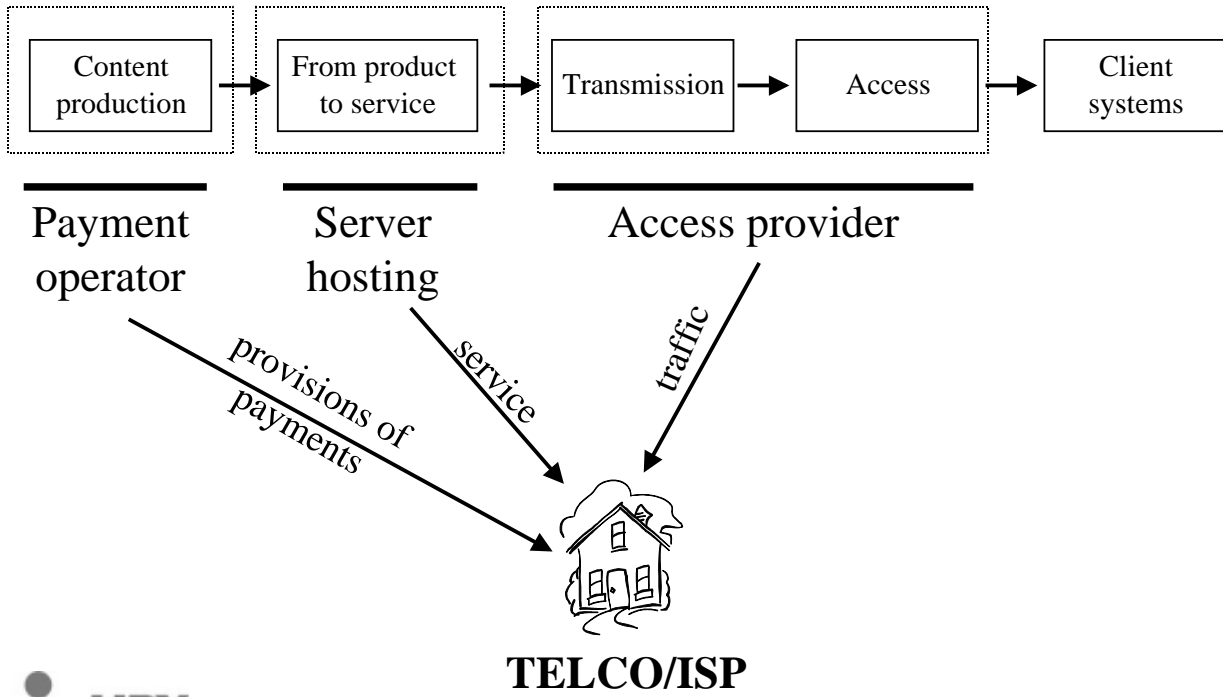
Classification of Network Payments

- **Amount of money to be transferred**
 - micro, small and big payments
- **The moment of payment transaction**
 - beforehand, simultaneously, afterwards
- **Classification by traditional payment methods**
 - credit cards, electronic cash, electronic cheques, account transfers, electronic invoices, smart cards, other methods
- **National / international payment**

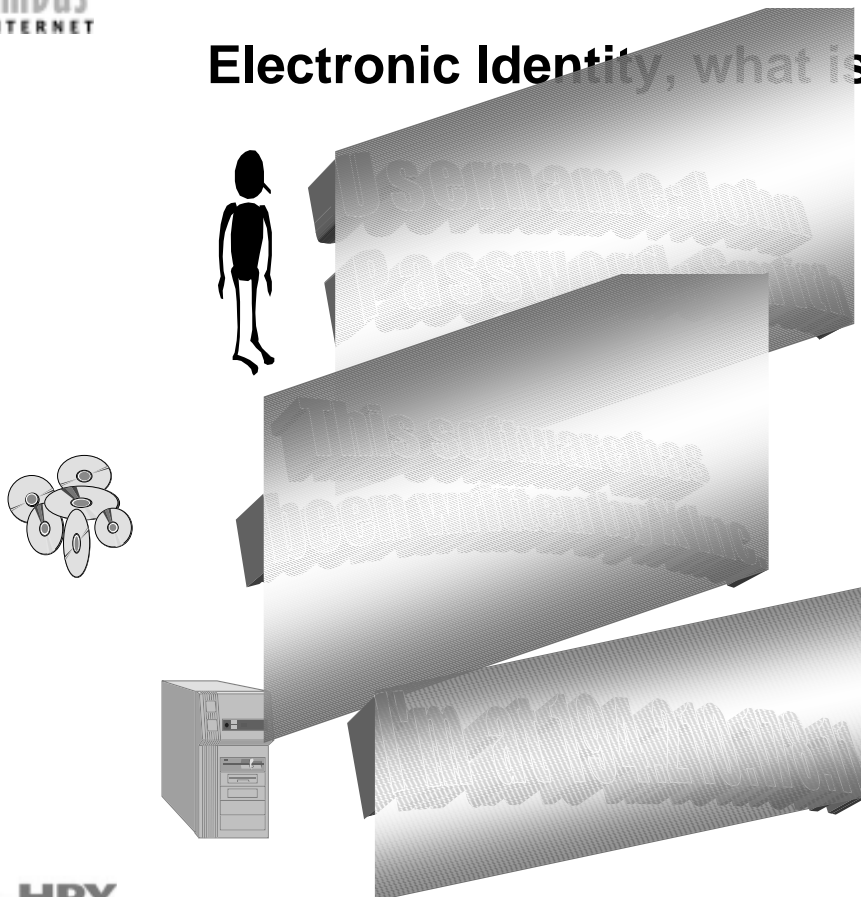
Network Payments in Finland

| | Co-operative organization or company | Amount of money to be transferred | The moment of payment transaction | National / international |
|--|---|--|--|--|
| Smart Card payments SET | VISA/Mastercad Luottokunta | Small and big | Afterwards | International |
| Account transfers Solo Kultaraha | Merita Osuuspankki | Small and big payments | Beforehand | National |
| Digital cash MiniPay Millicent Money-Penny | IBM Digital INA Finland | Micro payments | Afterwards Before/after Before/after | International International National |
| Smart cards with a purse Avant | Automatia | Micro, small and big payments | Beforehand | National |

Value Chain of E-commerce



Electronic Identity, what is it?



Electronic Identity

- A way for an entity to prove who it really is -> AUTHENTICATION
- Reliable authentication is necessary for telecommunications:
 - access control
 - authorization
 - billing



Driving Forces of Electronic Identity

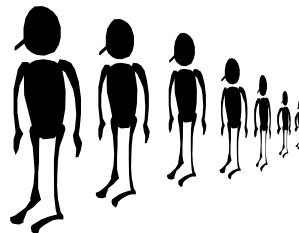
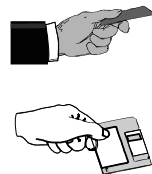
- Electronic commerce
- Internet services
- Secure protocols (SSH, IPSEC)
- Routing protocols
- Wireless communications
- Legislation
 - The Law of Privacy in Telecommunications in Finland 1998-99
- General requirements for information security

What should a telco do?

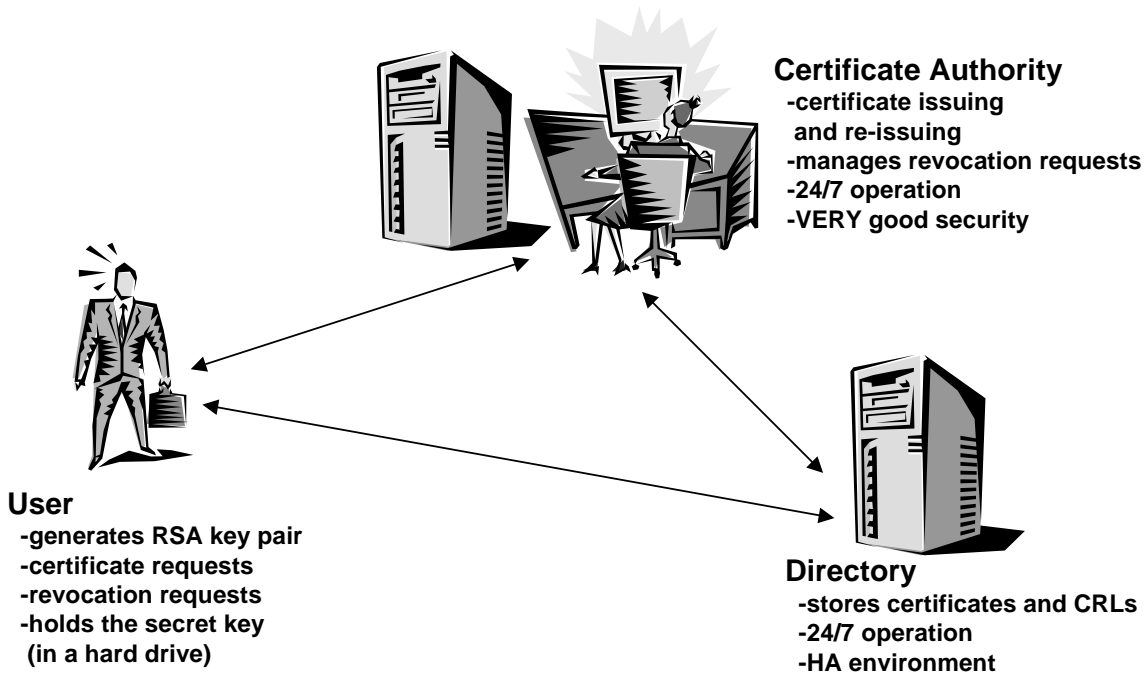
- A telco or an ISP should provide electric identity for its clients and for all entities in its network
- Electric identity is an important part of the telecommunications infrastructure
- Reliable electric identity requires certificates
- Certificates can be issued by a telco itself or they can be supplied by some other third parties
- So, should a telco or an ISP establish its own CA services?

Telco/ISP as a CA

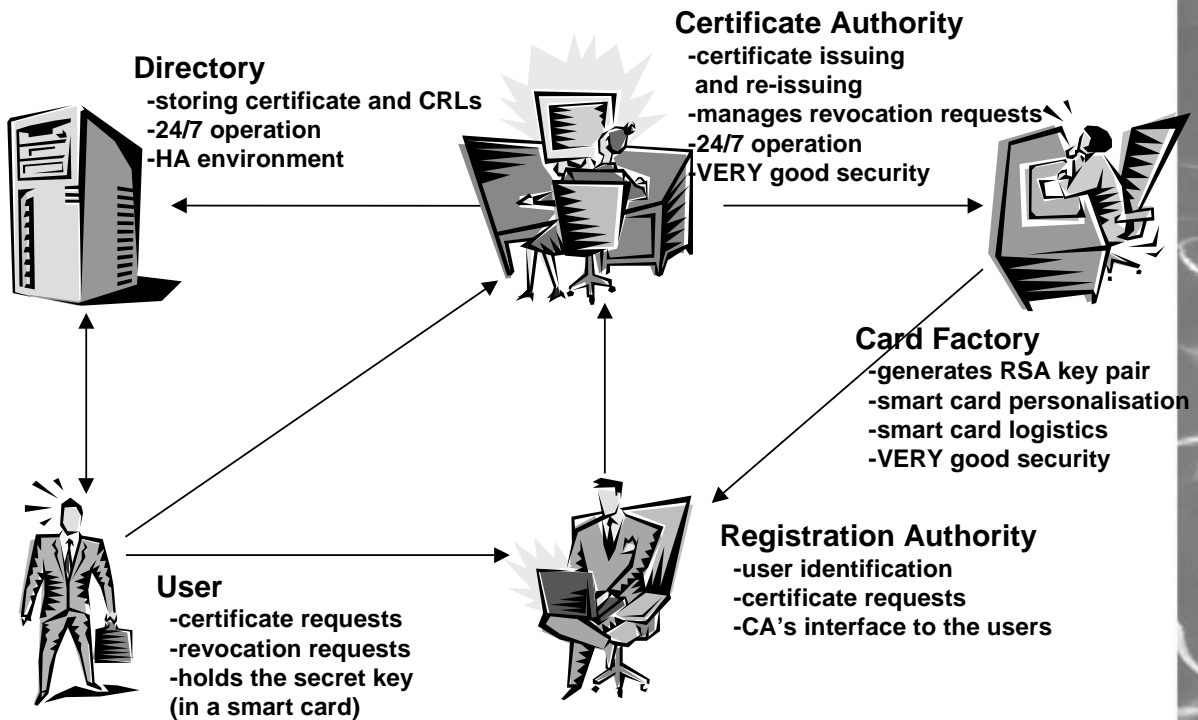
- Future CAs will be established by the governments, financial institutes and telcos
- Why telcos and ISPs???
 - To supply services with higher quality
 - To supply certificates as a part of the infrastructure
 - CA services can be integrated easily in a telco's business processes and traditional services



Internet Certificate Services



CA services - smart cards



Internet Certificate Services

- **Pros**
 - inexpensive to the users
 - minimum investments
 - automatic operation, minimum number of personnel
 - existing infrastructure supports Internet Certificate Services
 - client applications exist already
- **Cons**
 - low grade of security
 - smart cards will penetrate to the market anyway
 - life cycle only few years

Certificate Services - Smart Cards

- **Pros**
 - high grade of security
 - multiple services on the same card
 - dynamic services can be developed with mobile code
 - can be integrated on mobile equipment
 - technology for today and to the future
- **Cons**
 - expensive to the users
 - requires investments
 - requires personnel
 - logistic chain is very complex to set up
 - client side is not ready yet

Conclusions

- **Telcos and ISPs can act as many roles in E-commerce**
- **Electronic commerce requires strong authentication and good security**
- **Using certificates is an generic way to do the job**
- **Certificates will be (they already are) important part of the telecommunication infrastructure**
- **Telco or ISP should set up its own CA services**
- **Internet Certificate Services can be deployed right now**
- **Smart cards are about to penetrate to the market as soon as client side gets ready and the prices come down**