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**A Digital Identity Business:
Financial Services**

**Digital Identity
Forum**

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citi

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the competitive landscape | content and access volume

CITIGROUP

Agenda

- **Some general observations**
- **e-Commerce applications**
- **Role of the smart card**
- **B2E scenarios**
- **Summary**

Some obvious observations

- **Serious financial relationships and associated services delivery are based on trust**
 - Know your customer / partner
 - Ensure an appropriate degree of confidentiality, integrity, non-repudiation, privacy
 - Increase efficiency, convenience, speed
- **Delivery across open, insecure networks introduces new opportunities and challenges**
- **Technology is only one part of the solution**

Multiple Conventional IDs

- **Government**
 - Passports
 - Driver's license
 - National ID
- **Banks**
 - ATM card
 - Credit Card
- **Private Institutions**
 - Membership Cards
 - Tickets
 - Invoice statements
- **Not one fits all**
- **But procedures for selected mutual acceptance have been established**
- **Can digital IDs do better?**
 - technology-wise
 - procedurally

Citigroup - a global, full-service financial institution

- **Customers**

- Consumers - B2C, C2C, G2C
- Corporate and their employees and customers - B2B, B2E, B2C
- Government and institutional customers, their employees and customers - G2G, G2E, G2B, G2C

- **Products**

- Consumer Banking
- Insurance & mortgage
- Brokerage
- Cash & Trade management

- **Touch Points**

- Branch, ATM & kiosks, phone

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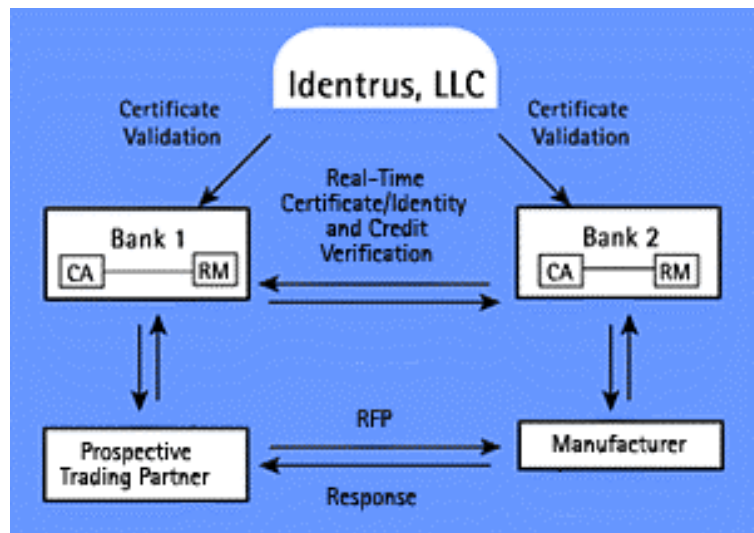
Citibank Products and Services Secured through PKI and Smart Cards

- **Identrus**
 - Secure access and signing of identity warranty
- **Orbian**
 - Co-venture between Citibank, SAP, and DCE
 - Access to the Orbian site, digital transaction signing
- **US Department of State**
 - Access to CitiExpert, Citibank's commercial credit card account management system
- **US General Services Administration**
 - Common Access ID Card: PKI based access and digital signature
- **CitiCommerce**
 - Deployed in Asia, Europe, Latin America

Business Needs for Secure B2B e-Commerce

- **Business Partners**
 - Enable serious electronic commerce with partners you may have no substantial track record with
 - Global scale
- **Infrastructure**
 - Funds and goods delivery warranty / insurance
 - Foreign exchange integration
- **Intellectual Property Protection**
 - Control access and privileges

For Example: The Identrus Network



Identrus creates an infrastructure that ...

- ... provides a **global framework** for the provision of certificate authority services
- ... enables financial institutions to extend their full range of practices onto the Internet and become **trusted third parties for e-commerce transactions**
- ... positions financial institutions to develop new lines of business as the **Internet becomes a preferred transaction medium**
- ... **gives businesses the ability to leverage a single bi-lateral relationship with a financial institution for all e-commerce dealings**
- ... offers businesses and financial institutions a way to **proactively manage the risk associated with e-commerce**

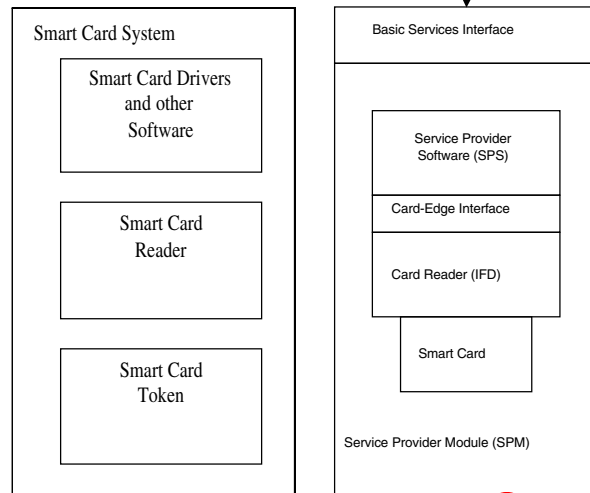
Orbian

- **Orbian is the business-to-business finance and payment solution that allows businesses to:**
 - Pay each other instantly, securely online, whether you are trading in a traditional supply chain or in an e-business community. If you're selling, you can receive the value of your invoices quicker, to improve your liquidity.
 - Finance payments. If you're buying, you can defer payment of invoices and improve your liquidity at a much lower cost than traditional financing sources.
- **By reconciling the needs of both buyers and suppliers, Orbian provides an alternative method of payment that works in the interests of every trading partner, allowing them to trade on better terms.**

Orbian Process Diagram



Different Granularity Options regarding Interoperability

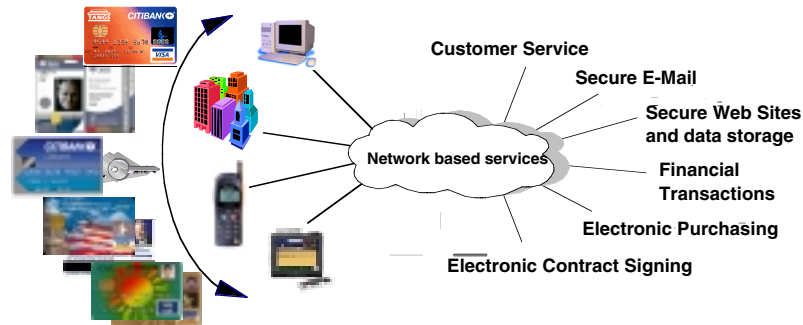


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The Role of the Smart Card

The smart card is the **single-sign-on authentication token** for **convenient, secure and mobile access to network based services** and executes **e-signatures** for non-repudiable e-transactions



The smart card allows us to **provide enhanced card offerings** which enable **multi-product services** that increase efficiency and convenience in **for our cardholders**

What do Smart Cards add ?

- **Secure on-card execution of cryptographic algorithms**
 - generation of public / private key pair
 - derivation / encryption of symmetric session keys
 - digital signature
- **Secure storage of encryption keys and certificates**
 - private key never leaves the card
 - protected through password or biometrics
 - public key / certificate ready for easy distribution
- **Additional security related applications**
 - Storage / convenient use of static user-ids and passwords
 - Emulation of dynamic password generators (DES Gold)
 - Workstation logon / Building access

Smart Card Benefits

- **Ultimate non-repudiation**
 - Life cycle of private signature key is under full and sole control of card holder
- **Mobility**
 - Keys and certificates can be used in any smart card enabled end user device, not just the user's PC
 - E.g. kiosks, ATM's, Cell Phones, PDA's
- **Reduced susceptibility to network attacks on end user devices**

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Business Needs for Enhanced Campus Cards

- **Functions**

- Increase e-security
- Improve financial services delivery
- Enhance employee work experience

- **Infrastructure**

- Tailor applications to individuals or employee segments
- Enable dynamic change of application mix during life cycle of the card
- Ensure vendor independence

US Government (GSA) / Citibank Campus Card



- Official Employee Badge
- Web Server Access
- Digital Certificates
- Biometrics
- Standard Credit Card
- Calling Card
- Building Access
- Property Management
- e-Boarding
- Java Card™ API / Open Platform

SUN Microsystems Global Employee Badge

Citibank is the global supplier of SUN's Java Badge ...



- SUN Official ID Badge
- JavaCard with additional contactless and magnetic stripe components
- JavaCard based applications
 - Identification and login
 - PKI based authentication, encryption, and signature
 - Remote dial-in authentication
- Physical Access Control based on contactless MiFare
- Integrated Card Life Cycle Management Services

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Customer Service Help Desk



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Challenges

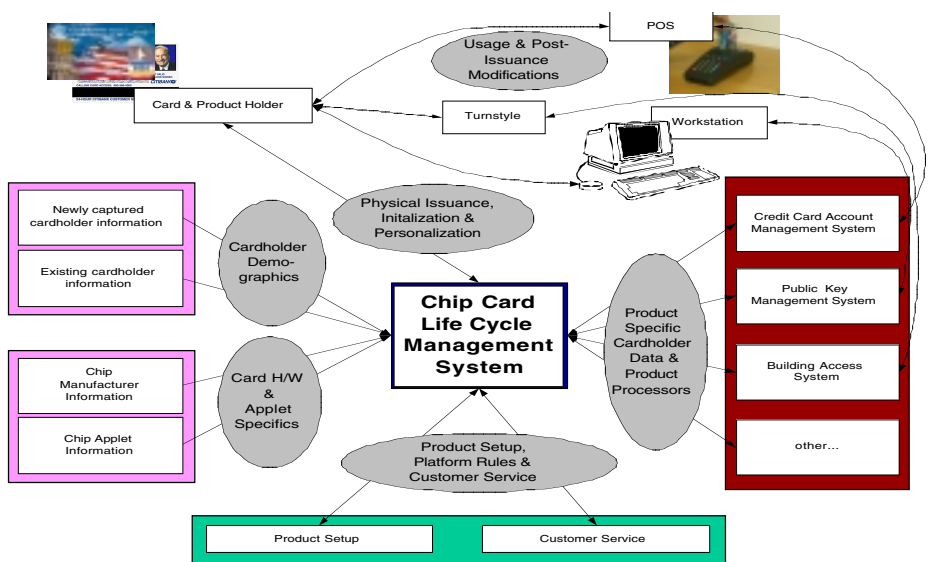
- **Standards (or the lack thereof)**
 - on all levels of the stack

- **Proliferation of multiple digital identities**
 - as a private person vs. performing a business role
 - within a closed environment (corporation) vs. in an open environment (B2B e-commerce)
 - domestically vs. globally

and the associated management and acceptance issues

- **Card and Application Life Cycle Management including issuance, distribution and customer**

Chip Card Life Cycle Management System (CCLCMS)



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Thank you !

Questions, comments ?

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