



Securing Financial Transactions



Wireless Internet 2001

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Agenda

- ❖ Overview
- ❖ Wireless Financial Services
- ❖ Wireless Security Risk, Challenges and Benefits
- ❖ Wireless Security Solutions

Overview

- ❖ Leading provider of security products and services for wireless and wired Internet.
- ❖ Complete line of products, technologies, and services for wireless applications, devices, components, and networks.
- ❖ Cryptography and Security Expertise since 1985
 - ❖ Leaders in Elliptic Curve Cryptography "ECC"
- ❖ Security Leadership in Financial Services Sector
- ❖ Publicly traded: NASDAQ and TSE
- ❖ Headquartered in Silicon Valley, CA
 - ❖ Research & development in Toronto
 - ❖ Sales offices in North America, U.K., Helsinki, Singapore
 - ❖ Over 250 licensees

Certicom Security Products/Solutions

SECURITY REQUIREMENT							
	Trustpoint C/J/Client	Mobile Trust & Trustpoint PKI	SSL⁺	WTLS +	Security Builder	Movian VPN	Movian Crypt
Strong Authentication	X					X	
Transport Level Encryption			X	X		X	
Data Encryption/Storage	X				X		X
Data Integrity	X		X	X	X	X	
Non-Repudiation	X				X		
Supporting Infrastructure		X					

movian Solutions

- Certicom's newest family of Enterprise Wireless Security Applications
 - built on underlying Certicom's security technology
 - focused on Enterprise IT requirements
- **movianVPN™** ~ first product for movian offering a convergence from the handheld to traditional deployed VPN solutions. Operates with the major VPN gateways.
- **movianCrypt™** provides secure data storage on the handheld using 128-bit AES encryption to prevent unauthorized access to records.
- **movian applications** enable broader enterprise adoption of handheld devices for wireless remote corporate application access with security, performance, and complete end-to-end solutions for constrained devices.

Wireless Financial Services

Early Adopters

- ❖ Banks - Wells Fargo, BofA, Bank of Montreal, Citibank, Wachovia and Dresdner (DrKW)
- ❖ Tech savvy Credit Unions- Motorola, Golden1, Delta CU, Enron
- ❖ Brokerage – Fidelity, Schwab, E-trade and major brokerages
- ❖ ASPs – 724, Digital Insight and Corillian

Wireless Brokerage Services

Charles Schwab

Fidelity  Investments

Brokerage – more popular and mature service

❖ Services

- ❖ market results, indices, quotes
- ❖ account positions, order entry, order status
- ❖ alerts, watch lists

❖ Devices

- ❖ RIM pagers, internet ready phones, and PDAs

❖ Business models

- ❖ Primarily access thru ASPs such as Aether
- ❖ Alliances with carriers ie. Cingular, Sprint, RIM

Wireless Banking

Bank of America.



❖ Functionality

- ❖ View Account Balances and History
- ❖ Transfers
- ❖ Branch and ATMs locations, alerts

❖ Target Customers

- ❖ Primarily early adopters, technology centric Consumer and Small Business customers
- ❖ Some Institutional (DrKW) and Cash Mgmt (Wachovia)
- ❖ No real payments yet!

❖ Business models

- ❖ In-house
- ❖ Third party ASP model

❖ Results

- ❖ Slow customer adoption; minimal value-add

Wireless Financial Services

Third Party Outsourced Model

❖ Most Prevalent Current Solution

- ❖ **724 Solutions** – Bank of America, Wells Fargo, Citibank
- ❖ **Aether Systems** – Charles Schwab, Merrill Lynch
- ❖ **Air2Web** – Digital Insight, ABN Amro, Corilian, Motorola
- ❖ **SensCom** - First Tech CU, New England FCU, CUSO
Financial Services

❖ Benefits

- ❖ Typically fully-hosted solution available
- ❖ Interoperates multiple carriers and devices
- ❖ Minimizes infrastructure and development costs
- ❖ Centralized operational and technology support
- ❖ Faster to Market

Wireless Security - Risks

- ❖ Eavesdropping is easy
 - ❖ Encryption / privacy
- ❖ Phones and PDAs are often lost/stolen
 - ❖ authentication
- ❖ Voice security insufficient for data
 - ❖ Telecoms do not understand security
- ❖ Sensitive financial data includes credit card numbers, passwords, account numbers sometimes in the clear
 - ❖ Regulatory responsibilities to protect customer data



Wireless Security - Benefits

Security can enable advanced applications by providing services like:

- ❖ Authentication of customers
- ❖ Strong encryption
- ❖ Digital signatures on transactions
- ❖ Nonrepudiation for m-commerce

Wireless Challenges

Wireless Security solutions face numerous challenges:

- ❖ Competing Standards (TDMA, CDMA, GSM)
- ❖ Immature wireless architectures
- ❖ Constrained devices and networks
 - ❧ Low cost, limited processor capability
 - ❧ Minimal battery power
- ❖ Cryptography is computationally intensive
- ❖ Business models of wireless industry
- ❖ Interoperating with existing wired Internet

Nonetheless, it is possible to design effective solutions!

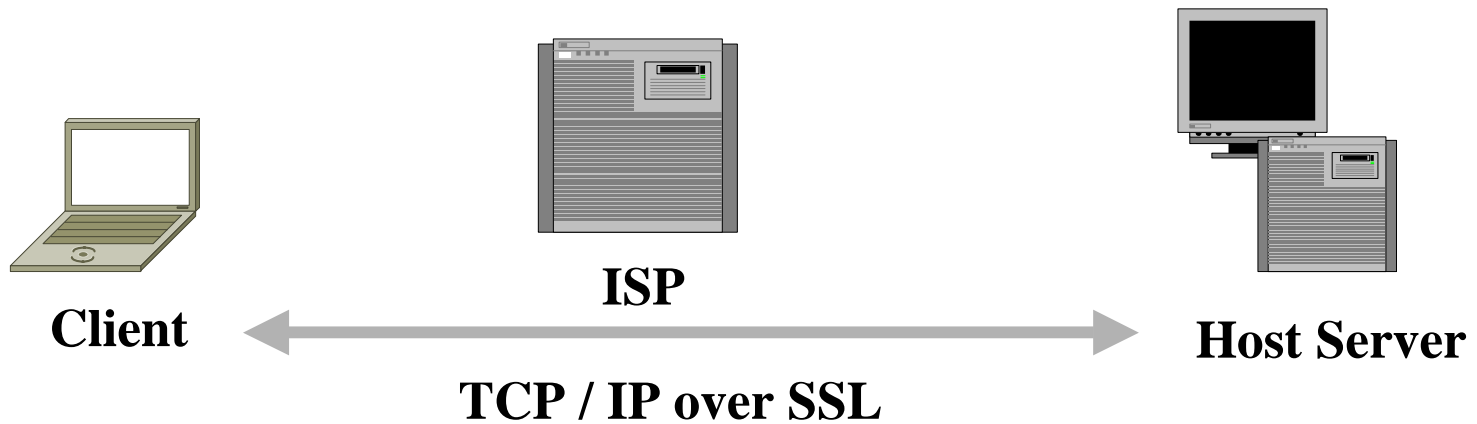


Securing Mobile Transactions

1. Architectural Design
2. Device Selection/security
3. Customer Sign On
2. Session And Key Management
3. Authentication Process
4. Encryption Session
5. Data Storage
6. Network Connectivity
7. Firewall Configuration
8. Physical Security

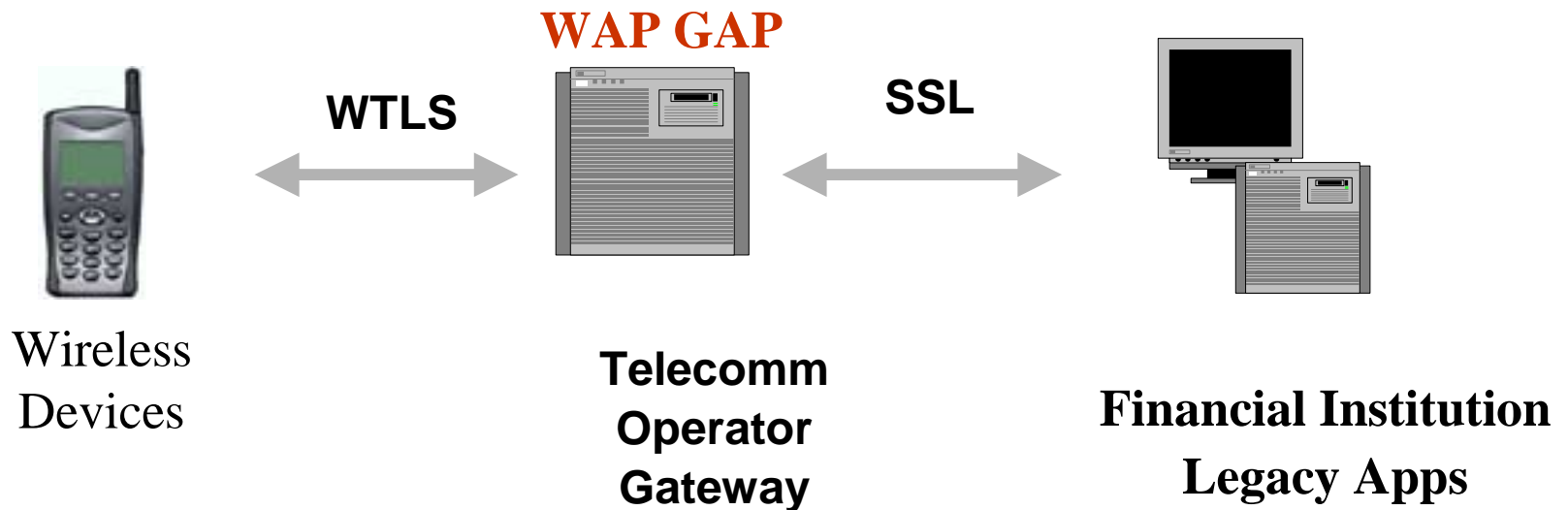
Wired Internet Architecture

Traditional TCP/IP Network Design:



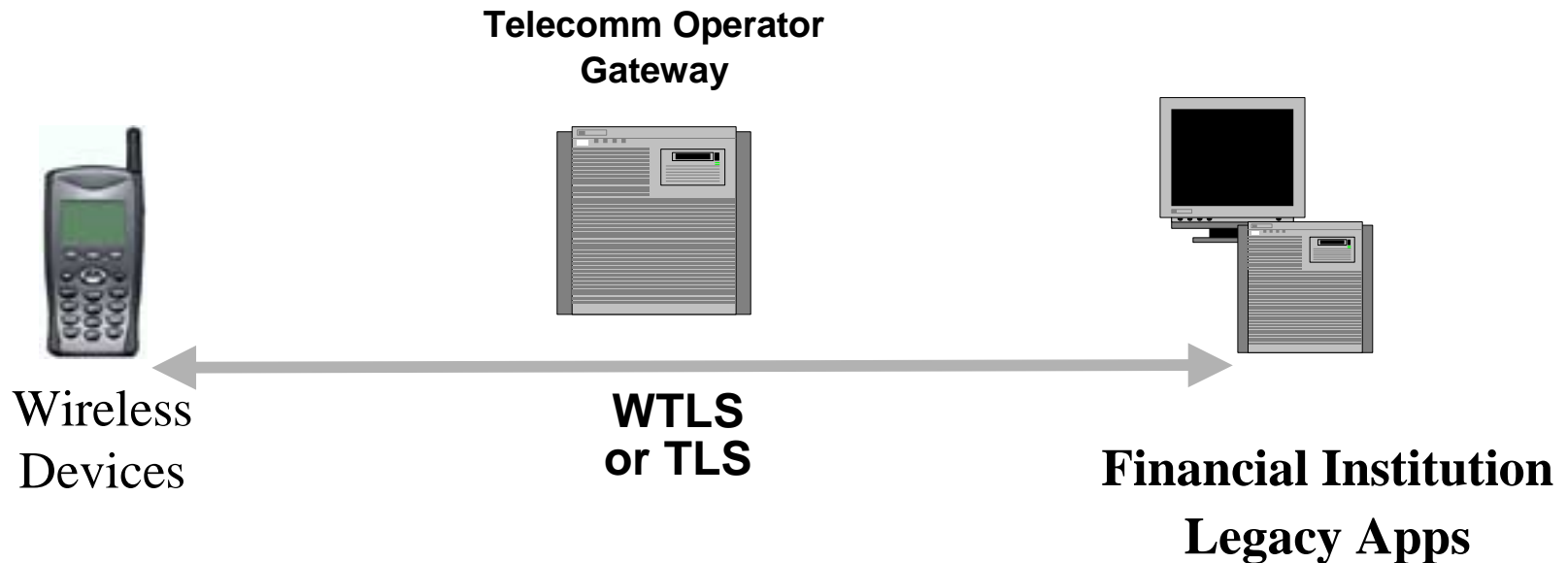
Today's Wireless Networks

Typical Wireless architecture:



Wireless Gateway acts as a translator.

Future Wireless Networks



Evolving Wireless Architectures:

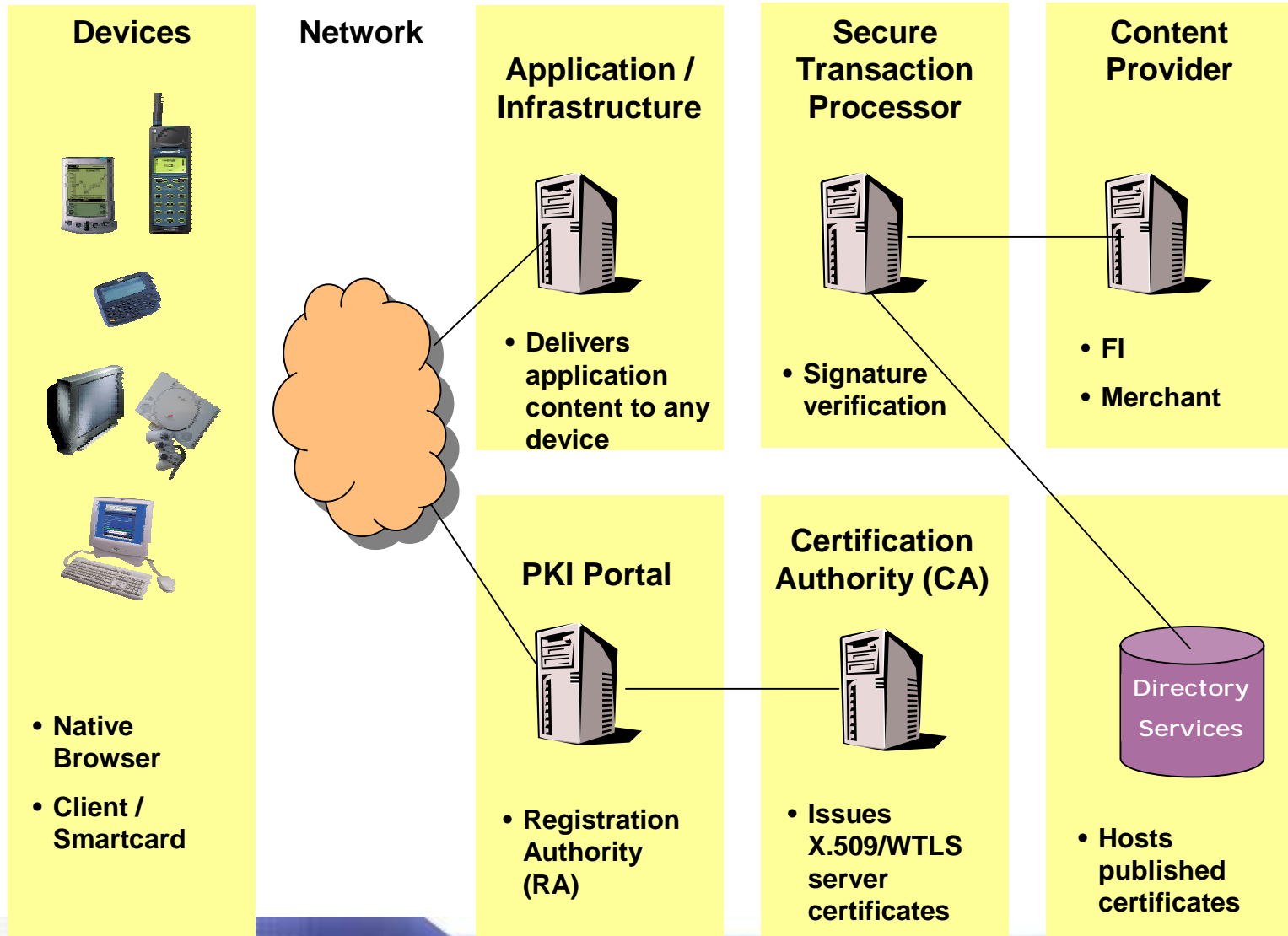
Full WTLS Encryption – device to WAP Server.

Wireless Gateway is bypassed – no WAP GAP.

Dynamic Proxy Redirect (WAP 1.2.1 – Openwave).

Application End-to-End Security Solutions.

WPKI – More Robust Security



Financial Future - Convergence

