



Mobile Commerce: Hype or Reality



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What is Mobile Commerce (m-commerce)

- It is the combination of e-commerce, data networks and wireless devices
- It is an extension of e-commerce to another channel : wireless devices
- It is the capability to interact and make transactions any time, any where and any place

A decorative graphic consisting of overlapping yellow, red, and blue squares with a black crosshair.

Topics To Cover

- Current and Future Market Size
- Some Technical Terminology
- I-Mode Vs. WAP
- WAP Infrastructure/Implementation
- Business Models
- Use Case – Financial Industry
- Middle East Status
- Future Trends
- Concluding Remarks

Present and Future Market Size Wireless Device Market

- 6 Million PDAs were sold in 2000 and another 10 Million in 2001

Source: Consumer Electronic Association



Handspring Visor



Palm



Compaq IPAQ

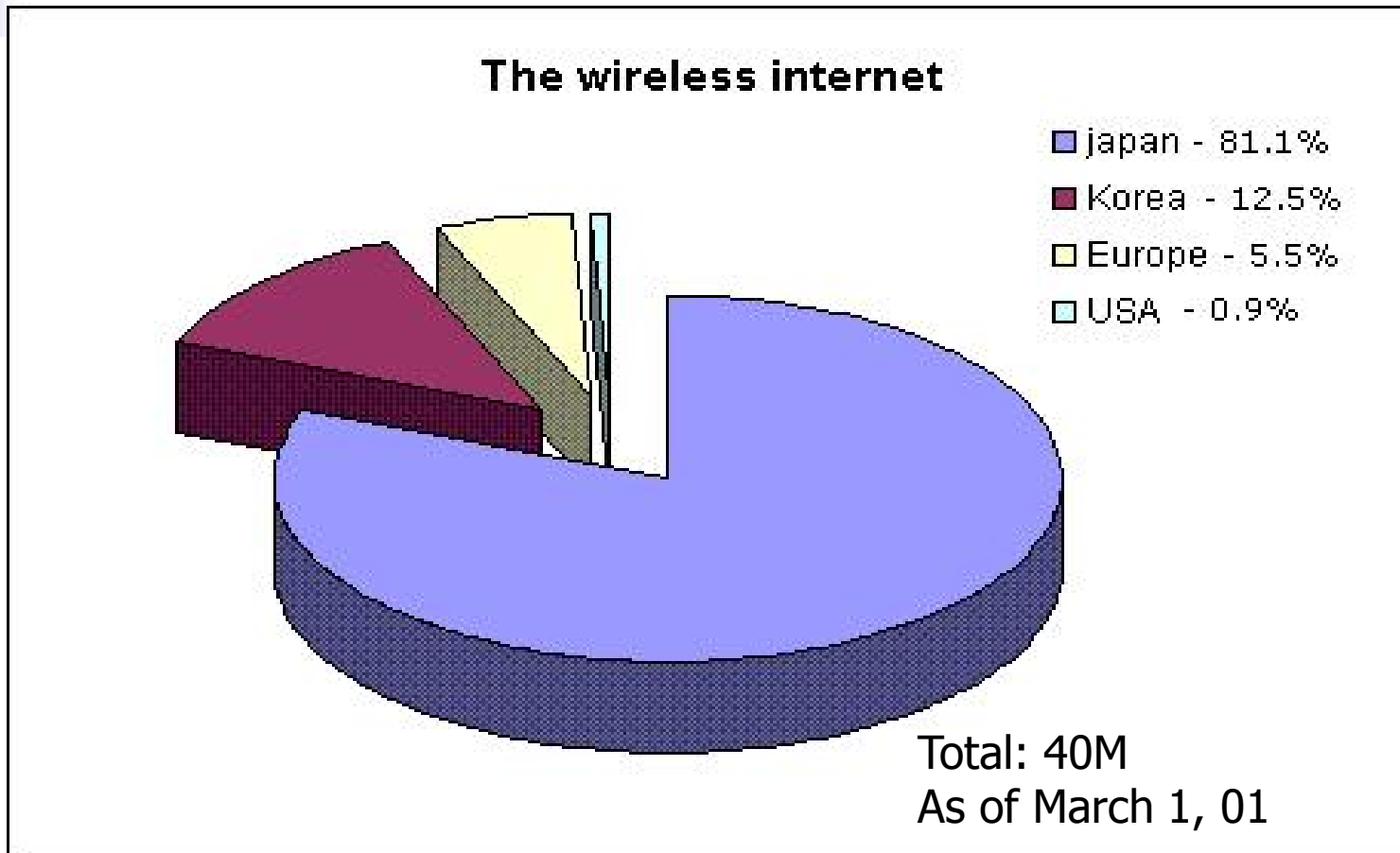
Current and Future Market Size Wireless Device Market

- 412.7 Million mobiles were sold in 2000 which is an increase of 45.5% over 1999. By 2004, over 1 billion mobiles will be sold

Source: Gartner Group (Dataquest)

- In 2000, 15 Billion SMS messages crossed GSM Networks every month as compare to initial estimates of 3 Billion

Present and Future Market Size M-Commerce Users Breakdown



Present and Future Market Size Mobile Commerce Users by Region - 2005

Western Europe	33%	Central & South America/Caribbean	6%
Asia-Pacific	26%	Central Asia	6%
North America	22%	Central & Eastern Europe	3%
		Middle East and Africa	4%

Note: total=500 million

Source: Ovum's report: Mobile e-commerce: Market Strategies

Current and Future Market Size M-Commerce Revenues - 2005

Western Europe

US\$74 bn

Asia-Pacific

US\$56 bn

North America

US\$47 bn

Middle East

US\$8.7 bn

Source: Ovum's report: Mobile e-commerce: Market Strategies

Some Technical Terminology Air Interfaces

GSM – Global System for Mobile Communication

- Digital mobile system operates over 170 countries including Europe and Middle East
- Uses 900 MHz or 1800 MHz

TDMA- Time Division Multiple Access

- Second most used system in US and Japan
- Both systems cover 90% of the world mobile systems

CDMA – Code Division Multiple Access

- Used mostly in USA and now hopefully in China
- Uses 800 MHz to 1.9 GHz and based on Spread Spectrum method
- Various versions like CDMA2000 and WCDMA

Technical Terminology

Various Speeds of Data

- 2G – current GSM with a speed of 9.6 kbps. Can not meet serious business demand
- GPRS (General Packet Radio Service) also called 2.5G. Promises 150 Kbps and particularly suited for web browsing
- 3G - 3G promises increased bandwidth, up to 384 Kbps when a device is stationary or moving at pedestrian speed, 128 Kbps in a car, and 2 Mbps in fixed applications (UMTS)
- 4G mobile data transmission rates are planned to be up to 20 megabits per second.

I-Mode

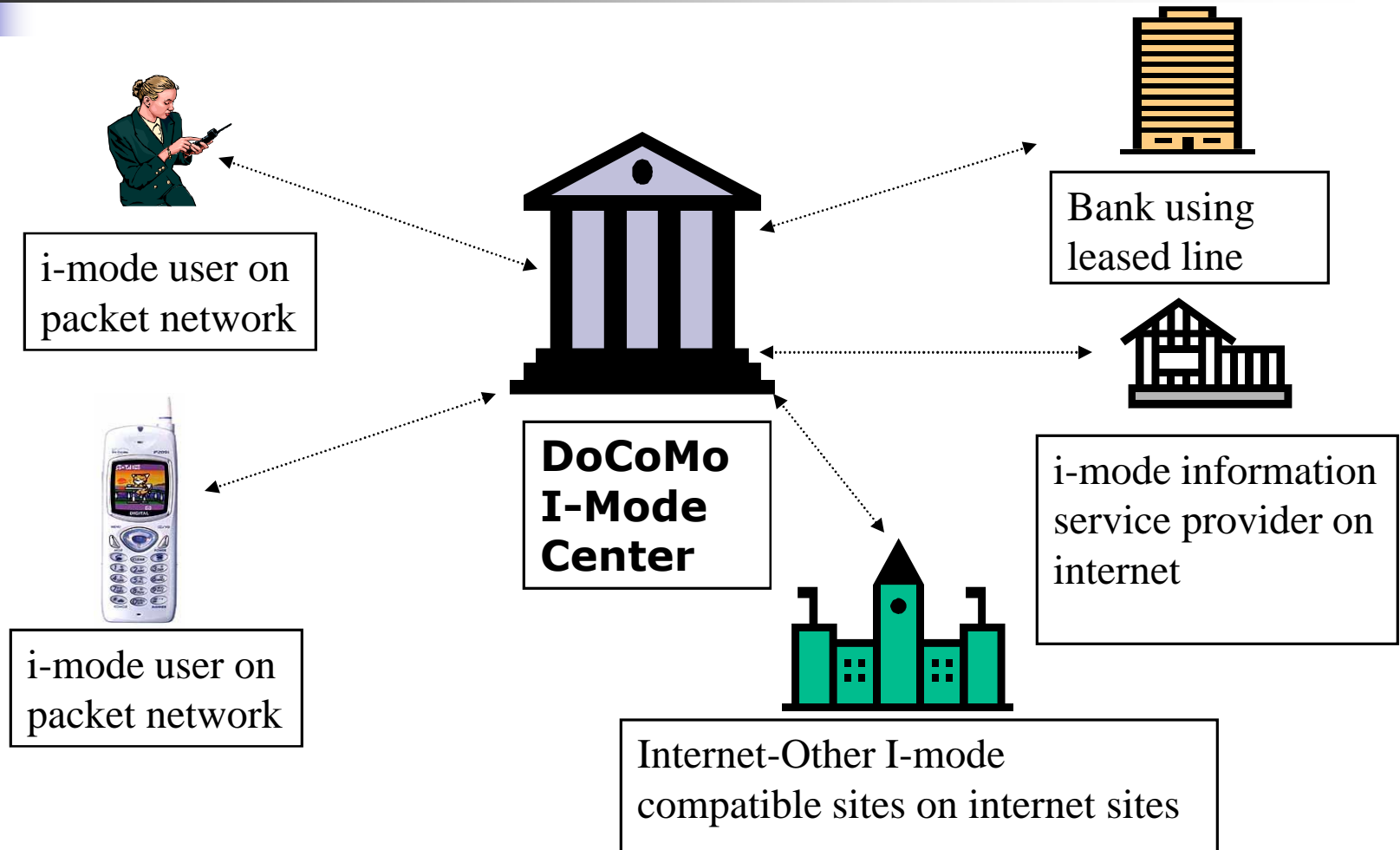
- Name of a brand or service available in Japan for wireless access to web introduced by NTT DoCoMo since Feb. 1999. 40,000 Users/Day are signing up
- wireless access is in the range of 9.6Kbits/Sec
- Implemented on TCP/IP data networks and thus it is ALWAYS ON model. Charges are on usage only
- So far 99.99% contents for I-mode sites are in Japanese language
- Target age group is between 18-30 years primarily used for email, news and entertainment



I-Mode

- 256 Colors display models and can show animation
- cHTML is the language used to develop contents for I-mode sites
- Maximum size of page is 5Kb
- NTT has made alliances with Netherlands KPN, Italy's Telecom Italia and in Taiwan and HK
- NTT has bought 16% in AT&T
- Recently made an alliance with Coke to test the idea of buying cokes from vending machine

I-Mode Official sites



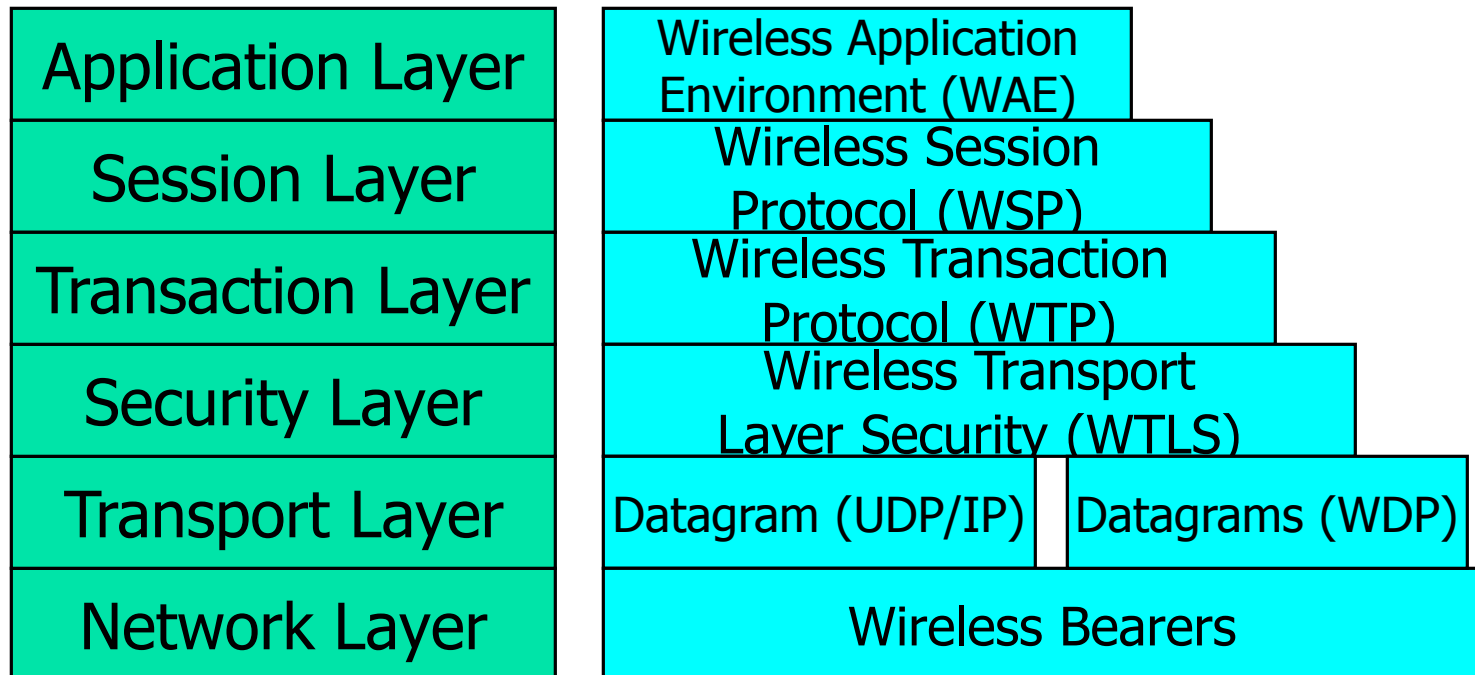
– Wireless Application Protocol

- WAP Forum was established by Nokia, Phone.com (currently OpenView), Ericson and Motorola in June 97
- Over 400 companies are now members of this forum including NTT
- WAP standards are open and independent of devices, operating system and air interfaces
- WAP protects and leverages on current investment in Web Server technology
- WAP 2.0 shall be released later this year that would address the needs of multimedia

– Wireless Application Protocol

- WAP compliant solutions can interoperate
- Uses WML (Wireless Markup Language) that has been derived from XML. This language is designed to satisfy the demands of small screen users
- WAP devices communicate through WAP Gateways which then communicate with web server to access internet
- Suite of protocols that adheres to OSI seven layer model

WAP Stack



I-Mode Vs WAP Handsets



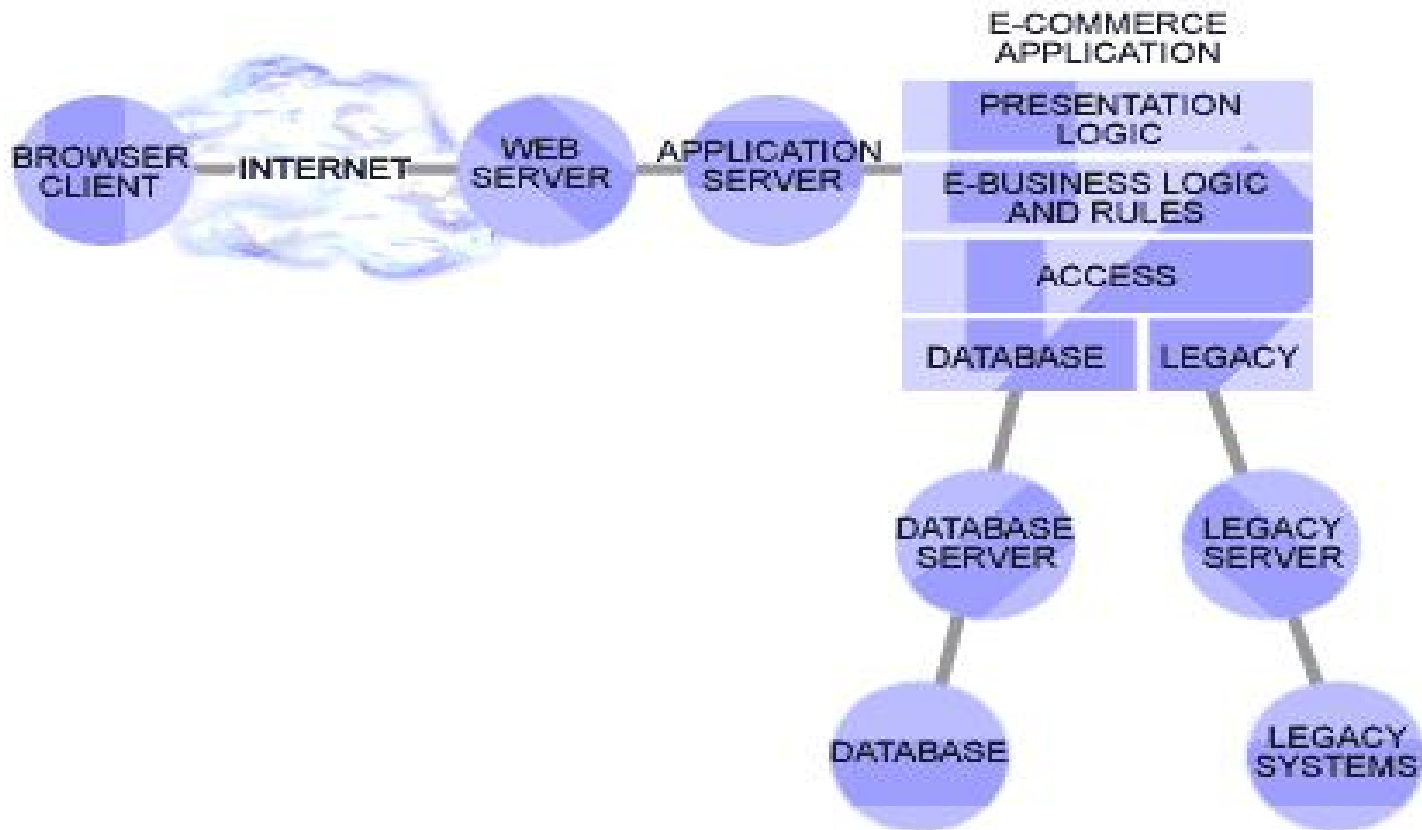
WAP Infrastructure/Implementation

WAP Gateway

- A WAP gateway is a two-way device (as with any gateway)
- It compiles the WML into binary format so WAP enable devices can understand
- On the web server side it communicates using HTTP while it uses WTP to communicate with WAP devices
- Some times WAP Server/Gateway terms are used together and may create confusion

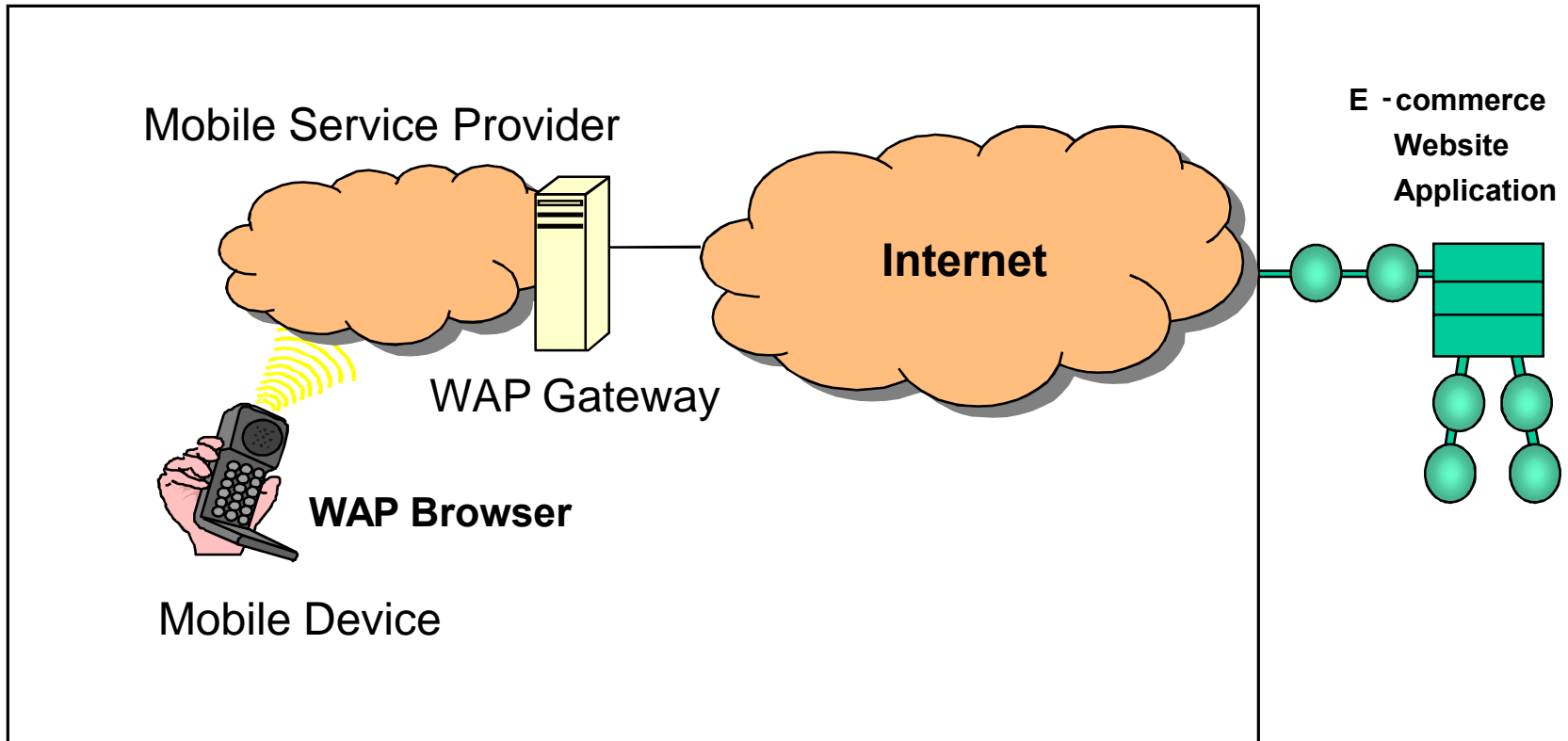
How Wire line Model Work

B2C N-TIER E-BUSINESS SYSTEMS MODEL

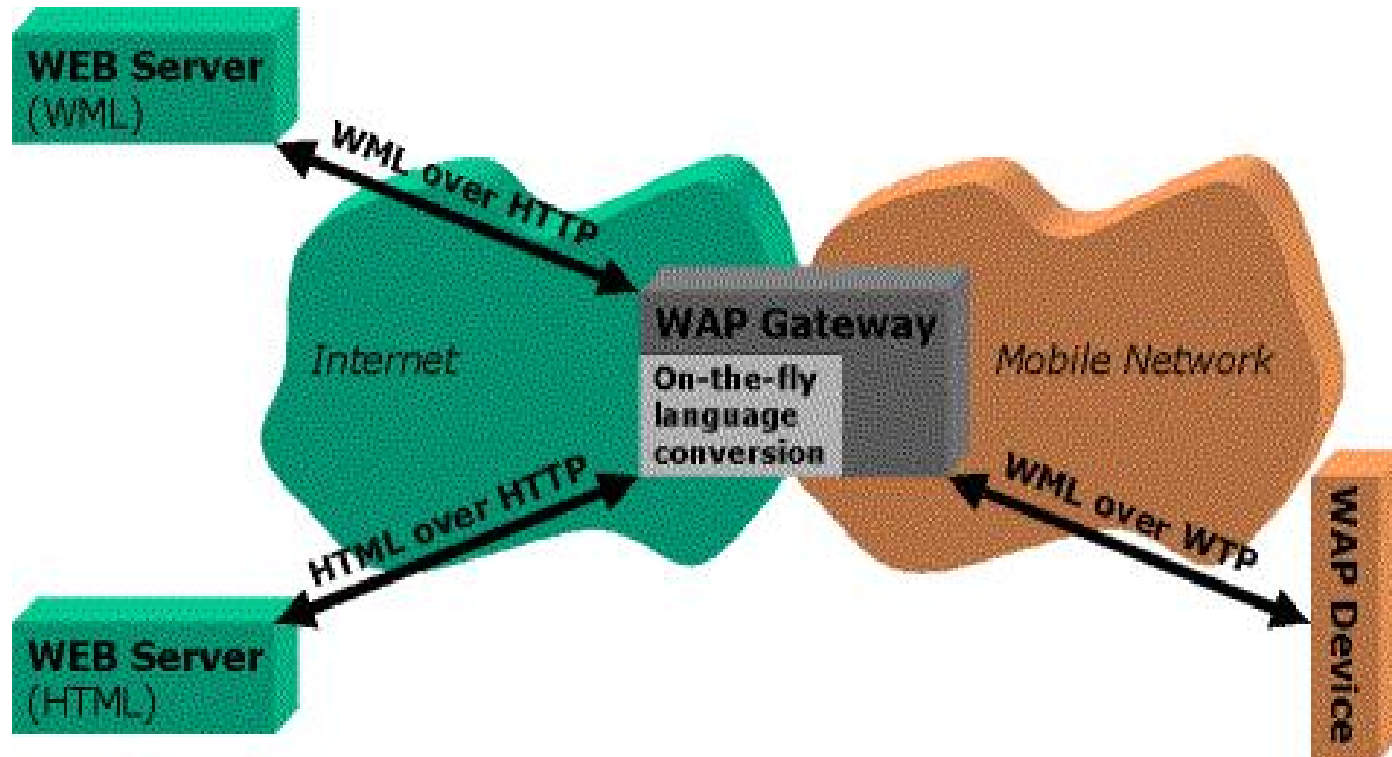


WAP Infrastructure/Implementation

WAP Gateway



Infrastructure/Implementation WAP Gateway



Business Models

WAP Market Players

- Device Manufacturers
- Network Infrastructure Developers
- Carriers
- Mobile Phone Resellers
- Content Providers
- Content Aggregators (**portals**)
- Application Developers
- Wireless ISPs (**WISPs**)
- Wireless ASPs (**WASPs**)
- Service Bureaus
- Integrators and Consultants
- Don't forget the **Customer!**



Business Models

- Business Models are evolving
- Every company has to identify their niche market to rollout the service
- Transaction fee based content access
- Subscription fee based content access
- Share (%) of network airtime
- Carrier portal pays for content



Business Models

- Free Content Access
- Content Provider pays for portal placement
- Develop wireless portal to integrate with wired portal of carrier-owned ISP and gain more control of customer (& reduce churn)
- Expand into E-Commerce / M-Commerce
- Carriers have the distribution channel and market strength to move the phones, plus the infrastructure to support them.

Use Case – Financial Industry Expected Banking Applications

- **Banking Applications**
 - ✓ Account information
 - ✓ Credit card statements
 - ✓ Bill payment
- **Security Analysis**
 - ✓ Trading data and charting
 - ✓ Detailed stock quotes
 - ✓ Watch lists
 - ✓ Alerts
- **Brokerage**
 - ✓ Investment statements
 - ✓ Holdings and activities
 - ✓ Balances and open orders

Use Case – Financial Industry Product Characteristics

Integration With Current Systems?

All three companies provide full service integration with legacy e-commerce systems



Delivers Content to Multiple Devices?

The three companies vary as to the number and types of devices to which they can deliver content.



Case – Financial Industry Product Evaluation

Multiple Network Delivery ?

- ✓ 724 – offers worldwide connectivity
- ✓ Senscom – US connectivity
- ✓ W-technologies – offers worldwide connectivity



Case – Financial Industry Product Evaluation (Cont)

Employed Security Technologies

- Public key infrastructure (PKI)
- Secure socket layer (SSL)
- Wireless transport layer security (WTLS)
- Transport layer security (TLS)

Use Case – Financial Industry Product Evaluation (Cont)

Experience?

Banks



Bank of America, Bank of Montreal,
Barclays Bank, Chase Manhattan Bank
Newzealand Stock Exchange

Credit Unions



Fairwinds Credit Union, America First
Credit Union, USC Federal Credit Union

Brokerages



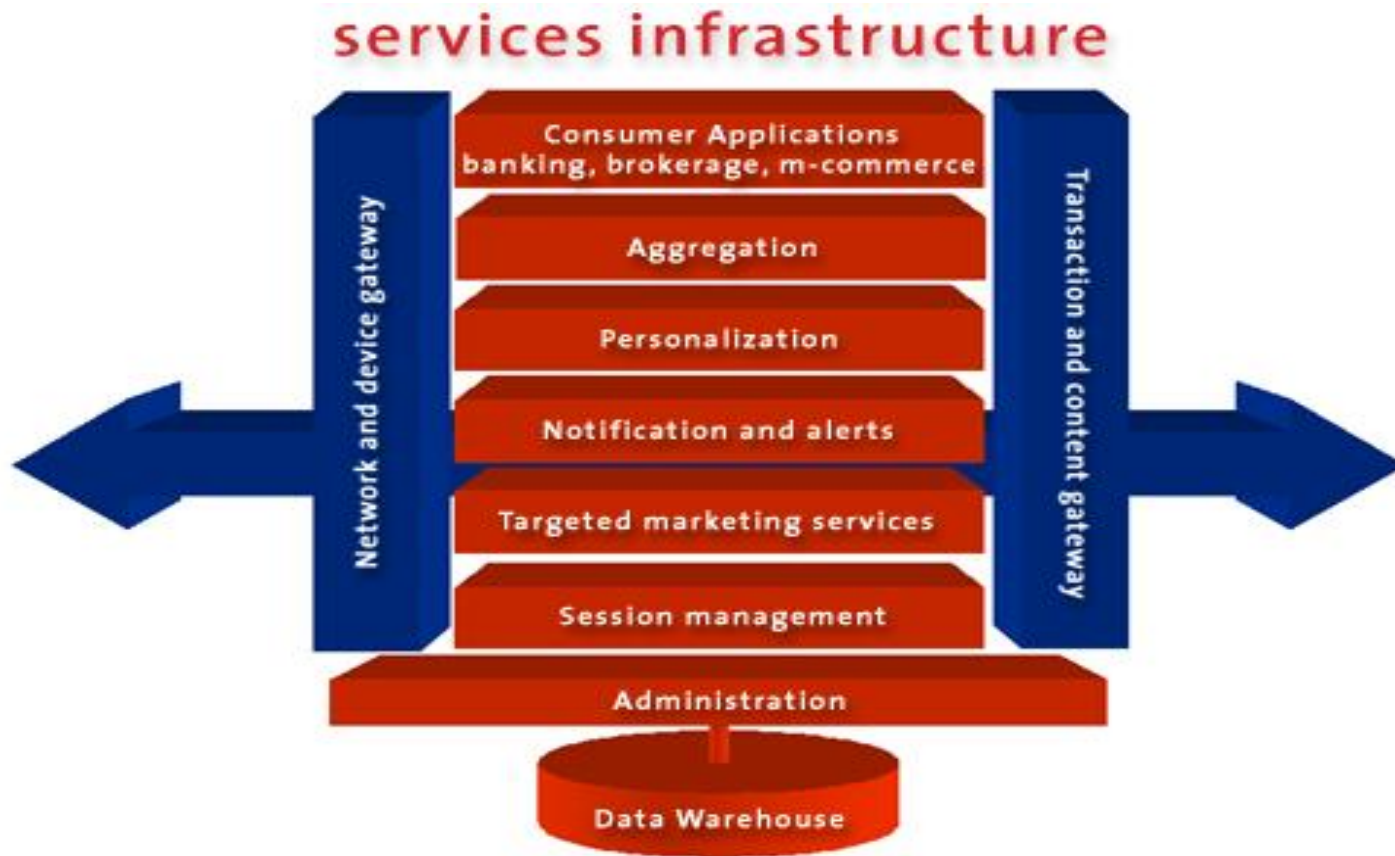
Dreyfus Brokerage, First
Union and Quick and Reilly

Case – Financial Industry Architecture Review

The 724 Solutions Financial Services Platform™



Phase – Financial Industry Services Review





Middle East Status

- GSM standard is available through out the region
- Substantial privatization plans are underway to stay competitive
- Vodafone, Motorola, and France Telecom now control Mobinil and Misrfone
- France Telecom also invested in Jordan telecom
- Batelco invested in Kuwait Telecom



Middle East Status

- Telcos in Saudi Arabia and Egypt have critical mass that can justify network upgrades to higher speed
- Batelco and Etisalat have state of the art equipment while others are in process of catching up
- WAP service is available in most of the region except Saudi and UAE
- 34.7 Million GSM users in the region by 2004 (Source: ArabianBusiness.com)



Middle East Status

- Info2Cell.com
 - Wireless Content Provider both in English and Arabic Language
 - Offices in Dubai and Jordan
 - Established Alliances with Telcos in Jordan, Egypt while discussions with other PTTs are underway
 - Offering news and services in more than 250 categories
 - Offering real time quotes of stocks from local stock exchanges



Middle East Status

- Ducont.com
 - WASP – Wireless Application Service Provider for the Banking Industry
 - Ideal for small and medium sized banks who want to develop wireless portals
 - Signing up and monthly retainer fee
 - Plans to setup mobile booking for cinema houses

Future Trends

BlueTooth Technology

- It will enable users to connect a wide range of computing and telecommunications devices easily and simply, without the need to buy, carry, or connect cables
- More than 1300 companies have endorsed this standard – Say Goodbye to cables
- A small microchip is built in the device that makes connection without any cable
- Data is protected and encrypted and guarantees high transfer rates



Future Trends

BlueTooth Technology

- PCs will be connected with mobile phones, printers and faxes
- By 2002 many commercial devices will be available that includes coffee machines, vending machines, refrigerators, cameras
- BlueTooth headset will enable you to answer calls while your mobile is the pocket
- Immediate transfer of images from bluetooth camera to mobiles

Future Trends

Blackberry - Complete Email Solution



- Mobile Email solution for Exchange and Outlook
- AOL and YAHOO have signed agreements with companies like RIM to bring "BLACK BERRY" products to consolidate Instant Messaging and email with mobiles
- Available only in US and Canada.
- Works on ALWAYS ON principle

Future Trends

- Disposable mobile from telespree
 - Prepaid value and should be available at convenient stores
 - No dial pad
 - Voice Activated (V-Commerce)
- Microsoft is catching up to become a major force in m-commerce area
- Mobile phone may become your electronic wallet
- I-Mode and WAP may merge to come up with single development language





Conclusions:Hype or Reality

- WAP has not delivered what it promised and lot depends on GPRS so it was hyped
- I-Mode is becoming serious threat to WAP
- Handset/mobile design for WAP has small screens that could not attract consumers
- Telcos in Europe invested over \$100B to purchase 3G licenses that has affected their cash flow
- North America will eventually catch up Europe and Asia in 3-4 years time but will not surpass it
- M-Commerce will indeed change the way we live today but it is still 1-2 years away