Web In Your Pocket: Web Portals

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Agenda

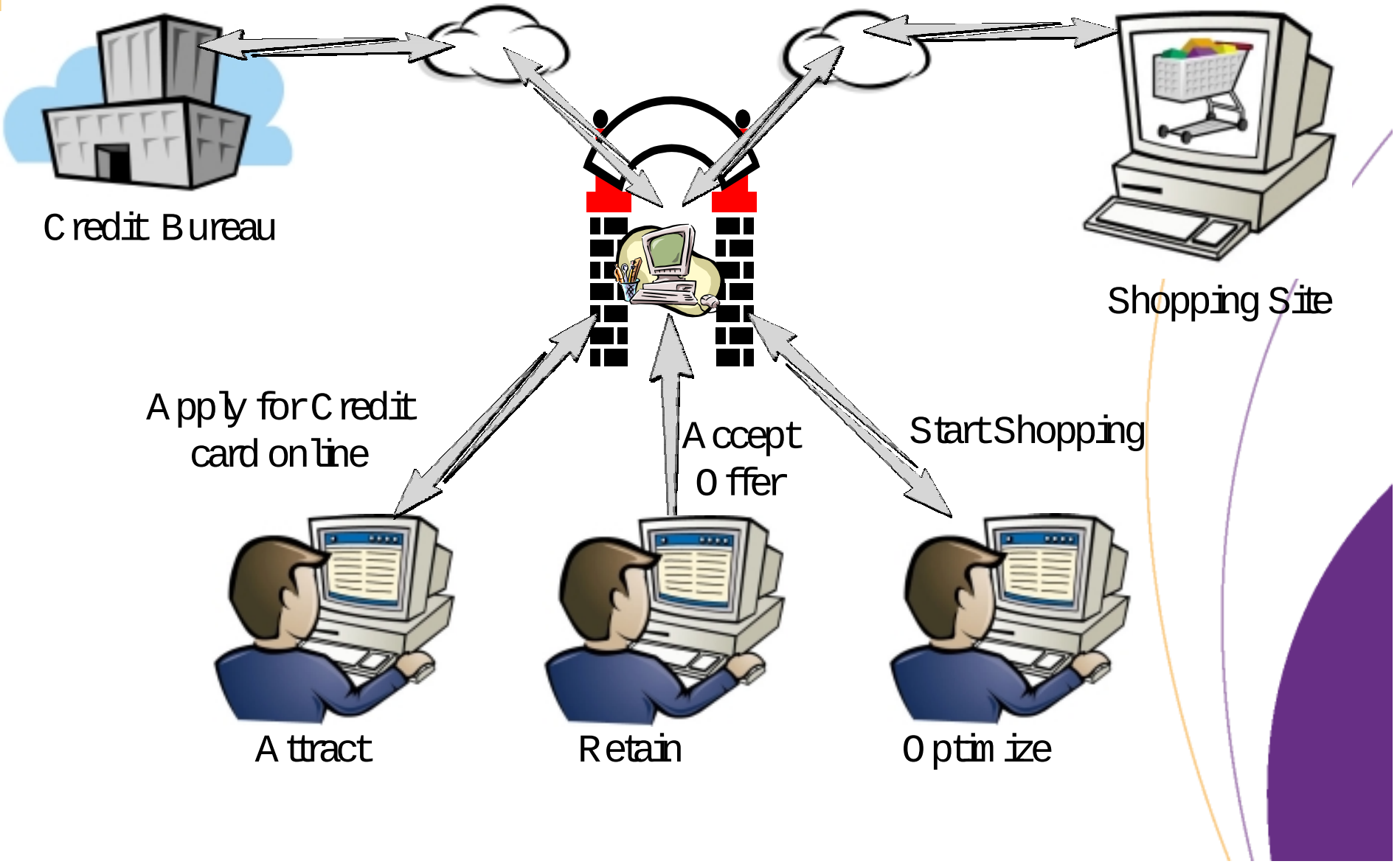
- Enterprise Portals
- Mobile Applications and Opportunities in Business
- Wireless Challenges
- Wireless Application Platform

Enterprise Portal: Business Challenge

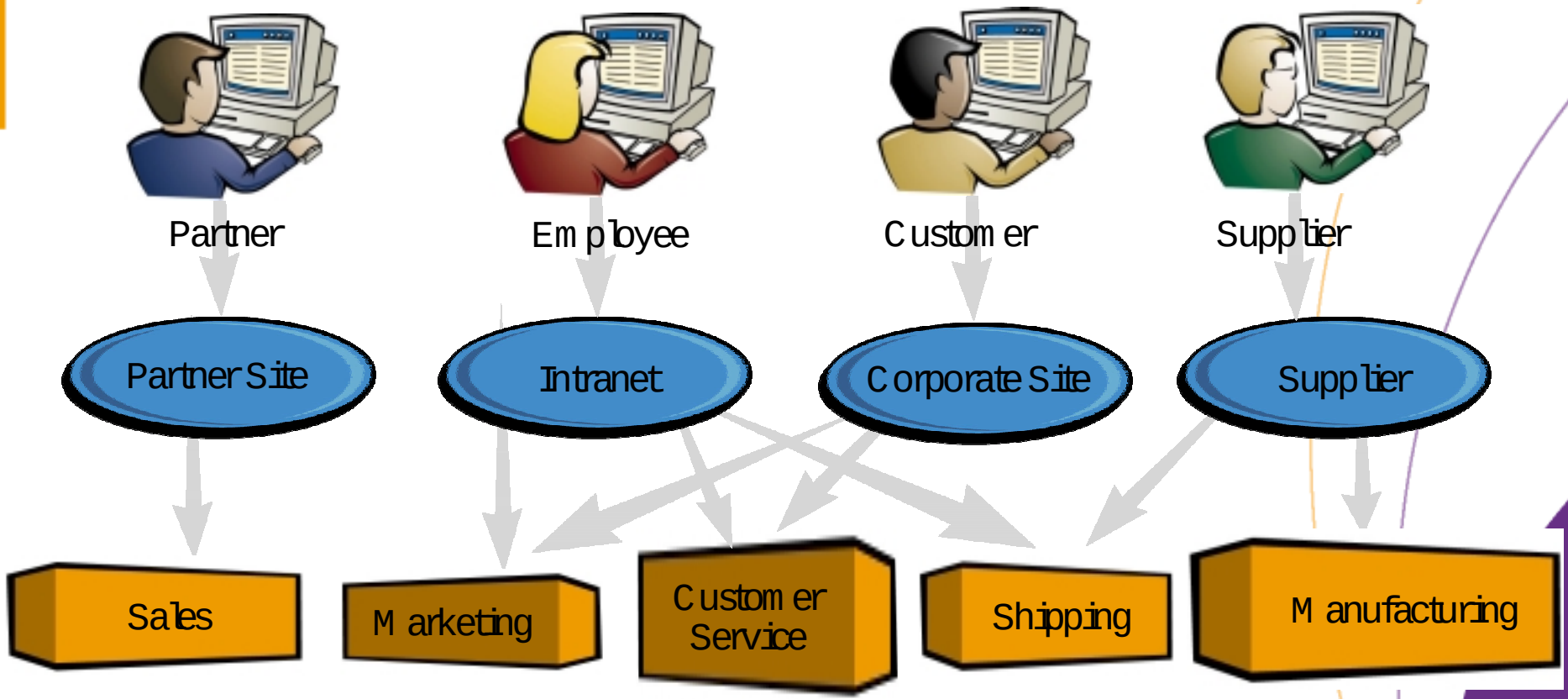
Rapidly adapt to the e–Business landscape to:

- **Attract** new customers
- **Retain** existing relationships
- **Optimize** the experience

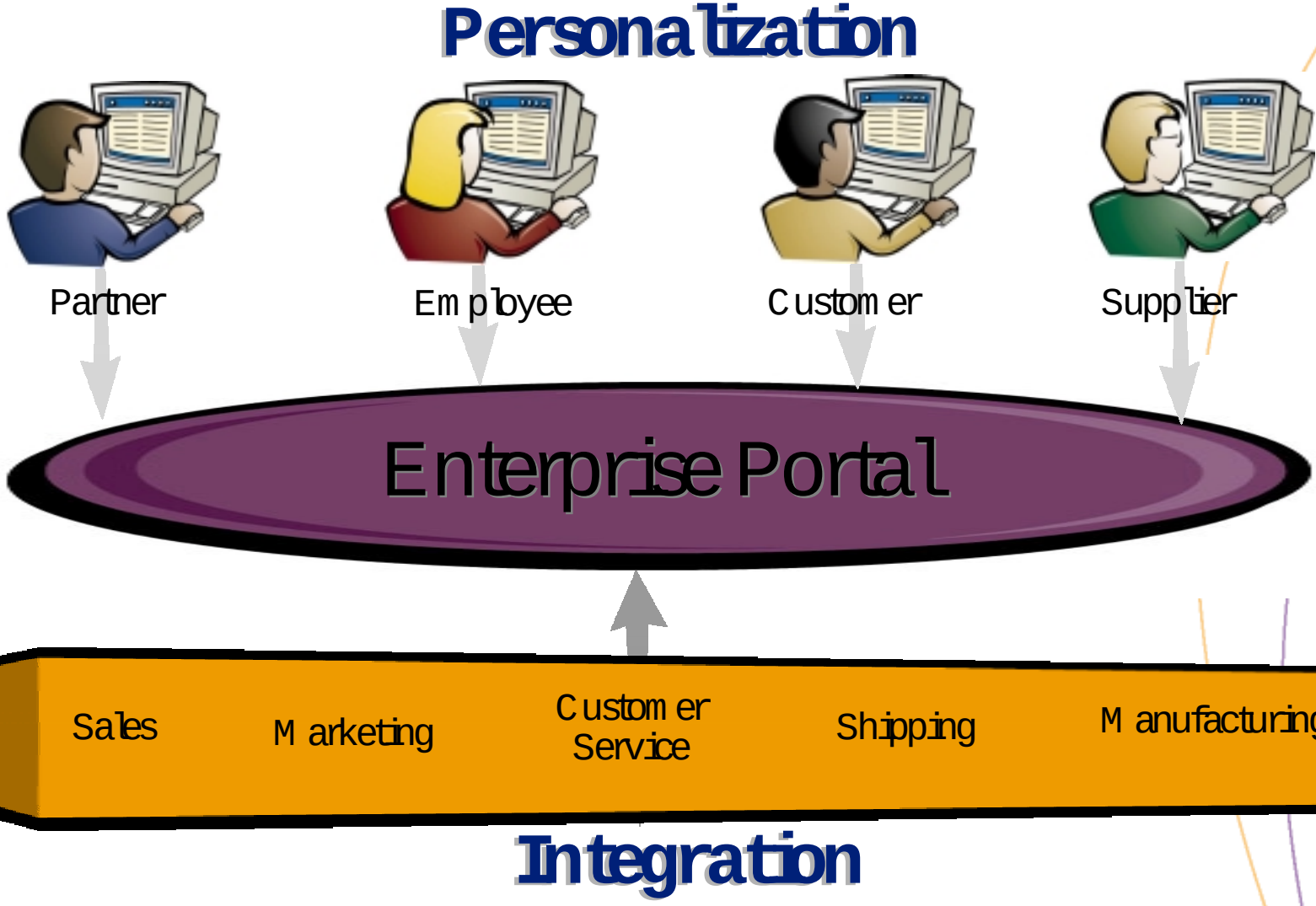
Opportunities



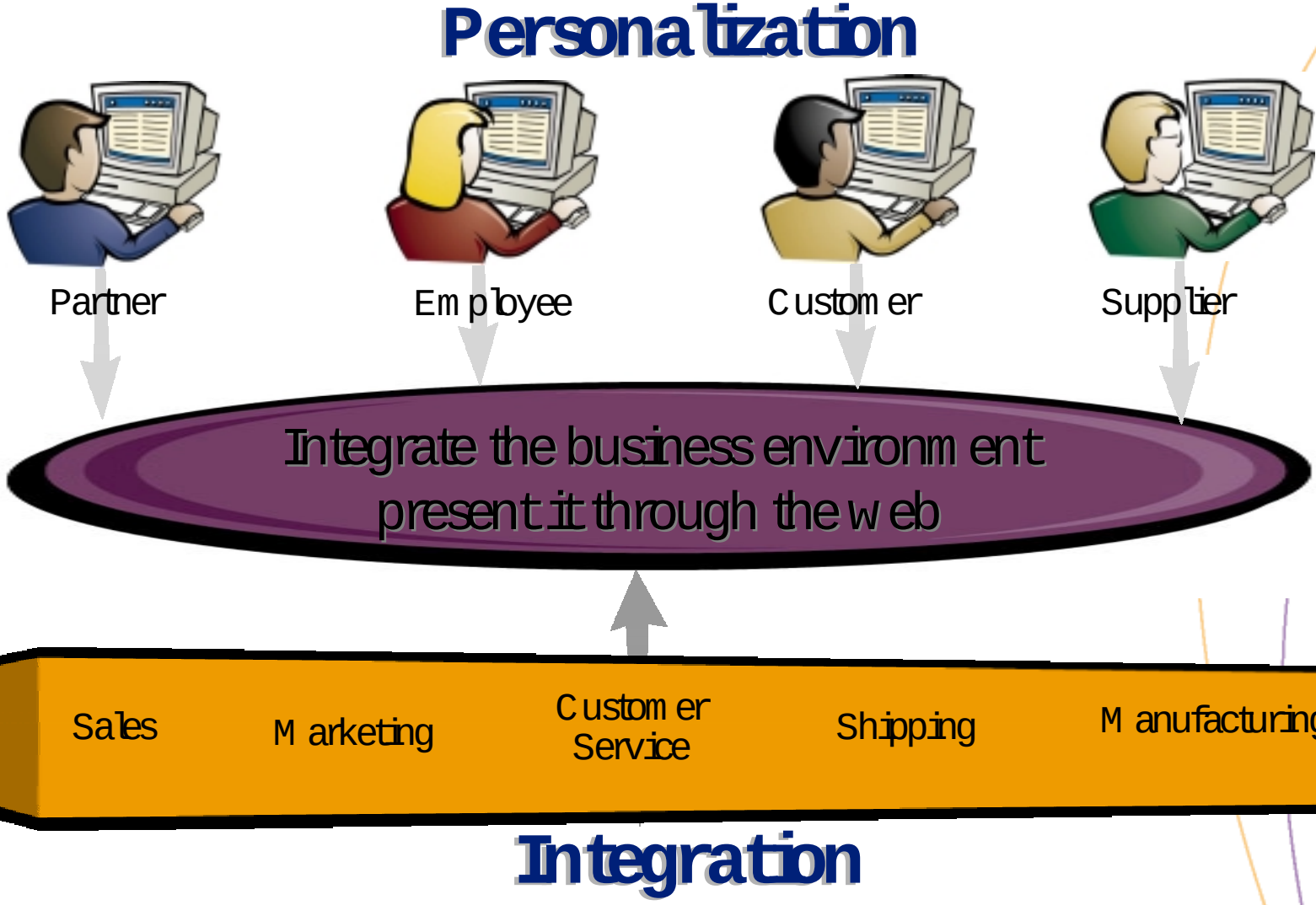
Current e-Business Environment Fragmented and Impersonal



Enterprise Portal
Personalized Business Experience



Enterprise Portal
Personalized Business Experience



Enterprise Portal Challenges

Continuous Availability

Prevent Failure

Ensure Success

Mobility: What we believe ...

- The **next wave** of Internet Computing will be mobile

- The ability to deliver high-value service and content to mobile users will determine **customer ownership**

- Extending the business Internet to mobile workers will continue the Internet-based gains in **productivity**.

The Mobile Internet is a disruptive technology

Mobile Applications in Business

- Mobile & remote workforce (43% in US by 2001, US Labor Dept)
  - Extend enterprise systems to the mobile workforce
- Mobile & remote customers (590M in 2002 - Dataquest)
  - Extend e-service to wireless devices
  - Extend e-commerce & e-portals to wireless devices
- Mobile & remote appliances
  - Retail point-of-sale, kiosk systems
  - Utility metering, security monitoring
  - Automobile tracking & maintenance
  - Sporting events

M-Commerce and *More...*

- Financial
  - Anywhere, anytime banking, trading, insurance
  - Sales force automation
- Healthcare
  - Point-of-Care Systems
- Utility, Services, Transportation, Public Sector
  - Field access to work orders & system information
  - Time tracking & chain of proof for service delivery
  - Load balancing, micro-scheduling
  - Defense; Safety inspection & compliance

End-User Example: Insurance Sales

- Sales force automation deployed to 12,000 seats across 300 offices
- Enables field agents to access customer information from anywhere in the country
- Increased employee productivity & customer service

“ *We needed a tool to generate prospecting and appointment activity, and turn those into automated processes so field reps didn’t lose their prospects in the future”*

End-User Example: Hospital Patient Information

- Point-of-care solution for patient information
- Enables physicians to access & update critical patient information by scanning patient's id bracelet
- Reduces administration costs
- Increases patient profile accuracy

End-User Example: Integrated Prescription Service

- Integrated physician, patient, pharmacy, payor drug prescription system.
  - Wireless prescription pad
  - Internet order transmission
- Improve quality of care
  - Integrated with patient data
- Improve guideline compliance
  - Access to payor's guidelines
- Reduce overall cost

End-User Example: Utility

- Direct Burial Map Locator
  - Wireless laptop application providing up-to-date, detailed maps of service area
  - Replaced thousands of maps (previously required specially equipped vehicles just to handle map weight)
- Spill Reporting
  - Quick, accurate information from field in the event of an environmentally dangerous spill
- Asset Management Tracking
  - Inspect & report on field equipment condition
- GPS Crew Tracking
  - Tracks location of crews to aid dispatchers

End-User Example: Defence

- Handheld application for individual soldiers and Marines
  - Up-to-date situational awareness information to enable them to safely accomplish their missions
- Bi-directional flow of information
  - Improved contact between military command centers and field soldiers
  - Enhanced probability of mission success
  - Reduced casualties

End-User Example: European PGA

- E-Golf
  - Collect information on handheld and wirelessly synchronize
- Up-to-the-minute information
  - Keep track of all aspects of game (score, club, distance)
  - Instant ranking
  - Feed press information for commentary

Cyber caddies keep track of golfers on tour

THE European golf tour is to pioneer new technology for tracking players on their rounds, with an electronic caddie recording their every shot.

An adapted Palm Pilot handheld device, using a wireless connection, will replace the traditional walkie-talkies used by officials reporting the play. The device will relay information about every player back to a central computer.

The data will be used by European Tour Productions, the largest producer of golf programming in the world, to keep in touch with key events on the course and create constantly updated leaderboards for television.

The Palm Pilot has been adapted and "ruggedised" by Symbol Technologies. Officials tap on the screen with a stylus to record information into a Sybase database, such as distance to pin, whether the player has found sand, the rough, water or the fairway and which club has been chosen.

The device relays data on every player back to a central computer

"Covering a major golf tournament is amazingly complex. At any moment, you may have 54 groups of players spread out across a wide area," says Sten Oerndfelt, vice-president of Symbol in Europe.

"Knowing where to turn your attention at any moment to capture the big picture is a huge challenge. Wireless technology allows us to manage this complex process efficiently for the first time."

The information will also be relayed to leaderboards situated around the course and, in the near future, spectators will be able to hire the handhelds to monitor the action. The statistics can also be fed instantly to the tour's website for the benefit of a global audience.

The data is currently in plain text but could be mapped on to graphics of each hole to help an audience better visualise the state of play. Further down the line, real caddies are expected to use the devices to record their golfers' rounds.

The set-up was tested successfully at the Volvo Masters in Jerez, Spain, last month and the new system will be put in place for next year's tour. It involves laying fibre-optic cable around the courses to provide access points which can be fed by the wireless handhelds from up to a kilometre away.

There are many advantages to the system, according to Paul Tweedie, senior business development manager at Symbol: "Currently, with walkie-talkies, it can often be people talking with an accent which makes it difficult to understand the data. With this, we eliminate such problems.

"The tour also has to apply for radio licences as it goes from country to country. This solution already has the necessary approvals."

Mark Lichtenstein, director of IT and new media on the European Tour, commented: "Television and increasingly the internet are placing huge demands on the quality and quantity of data we can collect in real time from the course. The traditional methods using radio are simply unable to do this in the time available."

Terry Stapley, of Sybase's Mobile and Embedded Computing Division, says the technology has applications elsewhere. "It can be applied to almost any industry requiring immediate access to accurate information in a mobile working environment. Transportation, logistics, healthcare, finance and banking or manufacturing can benefit from this kind of wireless solution."

The Bottom Line: Business Value

- Better Customer Service & Increased Revenue
  - Increase customer satisfaction and loyalty
  - Opportunity for new services and product differentiation
- Reduce Costs & Increase Productivity
  - Reduce call centers / field service / form processing costs
  - Reduce losses from errors and omissions
  - Respond to changes immediately
- Grow Business Intelligence
  - Detailed information capture from e-Forms

Market Opportunity

- Over next five years, 80% + corporate applications will be designed for non-PC, wireless Internet devices
- By 2005 e-business enterprises will generate 20%+ revenue through mobile phones and other wireless devices
- 750 M remote and mobile workers projected by 2004
  - 43% in US by 2001, US Labor Dept

Market Enablers

- Less Expensive, Faster Wireless Networks
  - 400 million wireless WAN subscribers today growing to 1 billion in two years (Technology Review)
  - 40 million 3G subscribers worldwide by 2005 (Micrologic Research)
- Availability of Internet-ready Devices
  - Over 79 million browser-enabled phone by 2003 (Jupiter)
  - Number of wireless devices will top 1 billion by 2003 (Technology Review)
- Industry Standards
  - WAP, Java, SyncML, Bluetooth

Wireless Technology – Devices

- Phone with Internet/PDA functions
  - Voice-centric; Closed application environment
  - EPOC / WAP
- Pager with Internet/PDA functions
  - Message-centric' Closed application environment
  - Proprietary OS / WAP
- Super PDA / "Pocket PC" with access to wireless
  - Palm OS / Windows CE
  - HTML / WAP
- Mobile PC with access to wireless
  - Windows
  - HTML

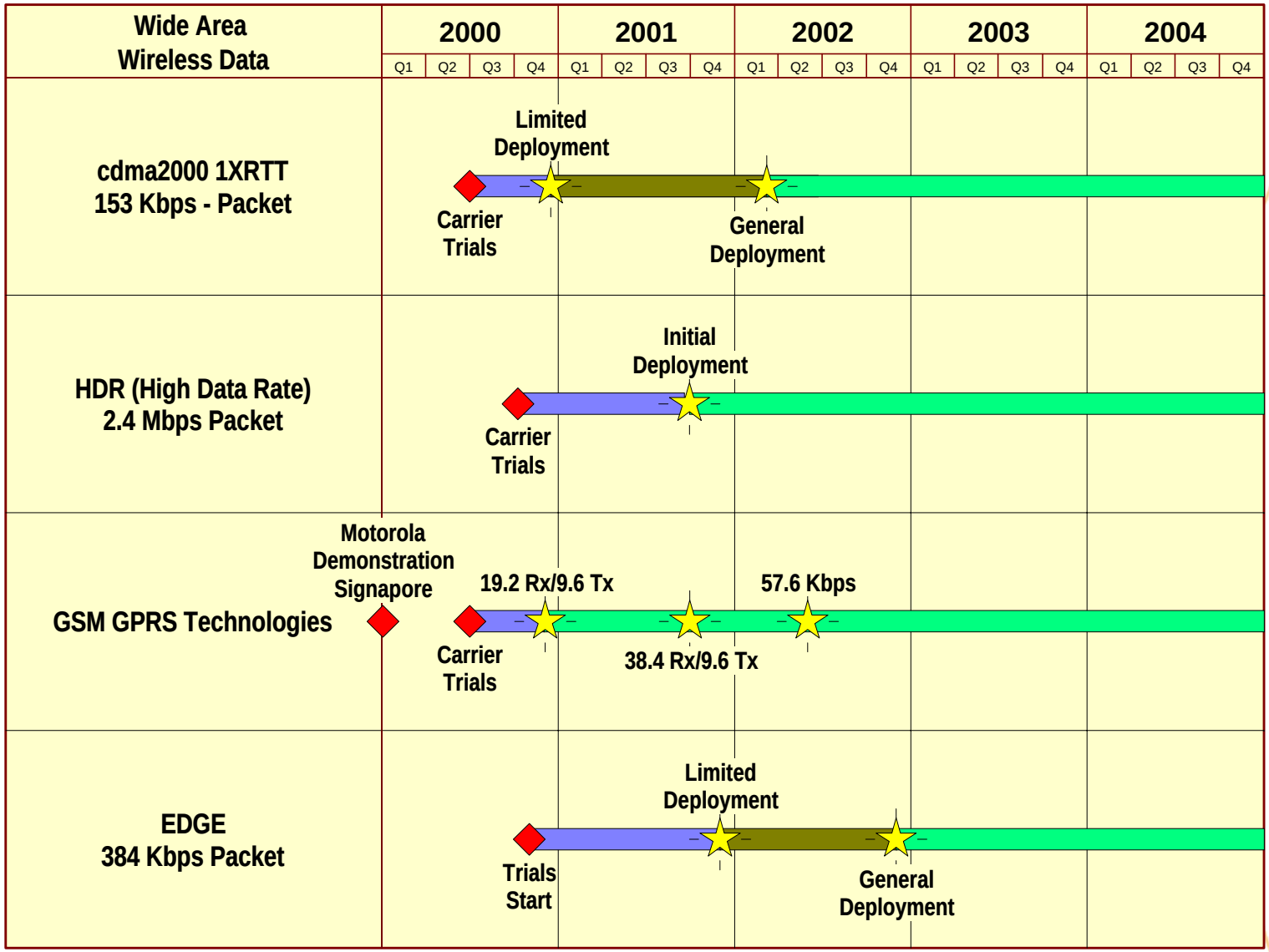
Wireless Technology – Wildcards

- WAP v.s. HTML v.s XML
  - Too much content to recode
  - WAP/XML could become a standard application platform with right standards / adoption
  - Depends on perceived need to run applications on WAP devices v.s. Windows devices.
- EPOC / Palm OS / Windows / Java
  - Application development for so many devices is a big issue
  - Expect some kind of stratification (device / OS)
  - Less important where browser solution sufficient

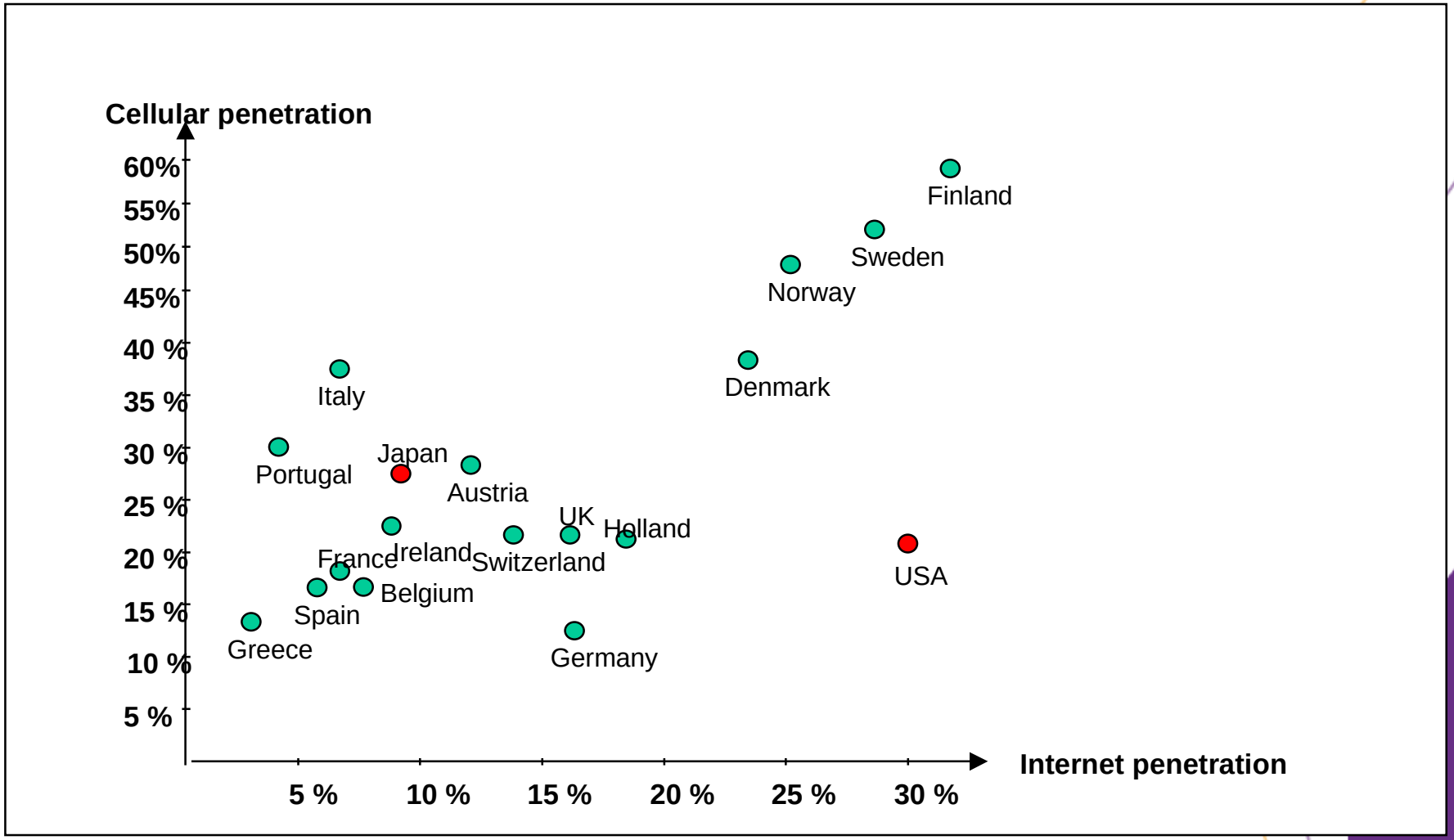
Wireless Technology – Networks

- Wireless Data
  - Packet-based; always-on
  - 10 kbps to 300 kbps *effective* bandwidth
- Coverage
  - 100% urban areas, world-wide
  - Rural areas remain a challenge for foreseeable future
  - Segmentation of US market will remain a challenge for 2 years
- Adoption
  - Japan first
  - US will quickly catch up to Europe in Internet / Wireless convergence
  - Asia will lead with Wireless Internet

Wireless Technology –Networks



Internet vs. Mobile market (Ericsson)



Wireless Challenge

- Few Pre-built Solutions Available Today
  - Existing solutions are only starting to use Internet
- Knowledge Gap
  - Uses different set of skills than traditional corporate or OEM application development
- Chaotic Application Infrastructure
  - Multiple vendors, approaches; each address only a piece of the problem
  - Network gap: bandwidth, coverage, cost and battery life will remain a challenge for the foreseeable future

Wireless Application Challenge

- Applications must be designed with mobile and wireless in mind
  - Shouldn't assume that desktop experience will work
- Every device has different capabilities for usability
  - Display
  - Ability to input data
- Wireless networks
  - Even when connected users will not "surf"

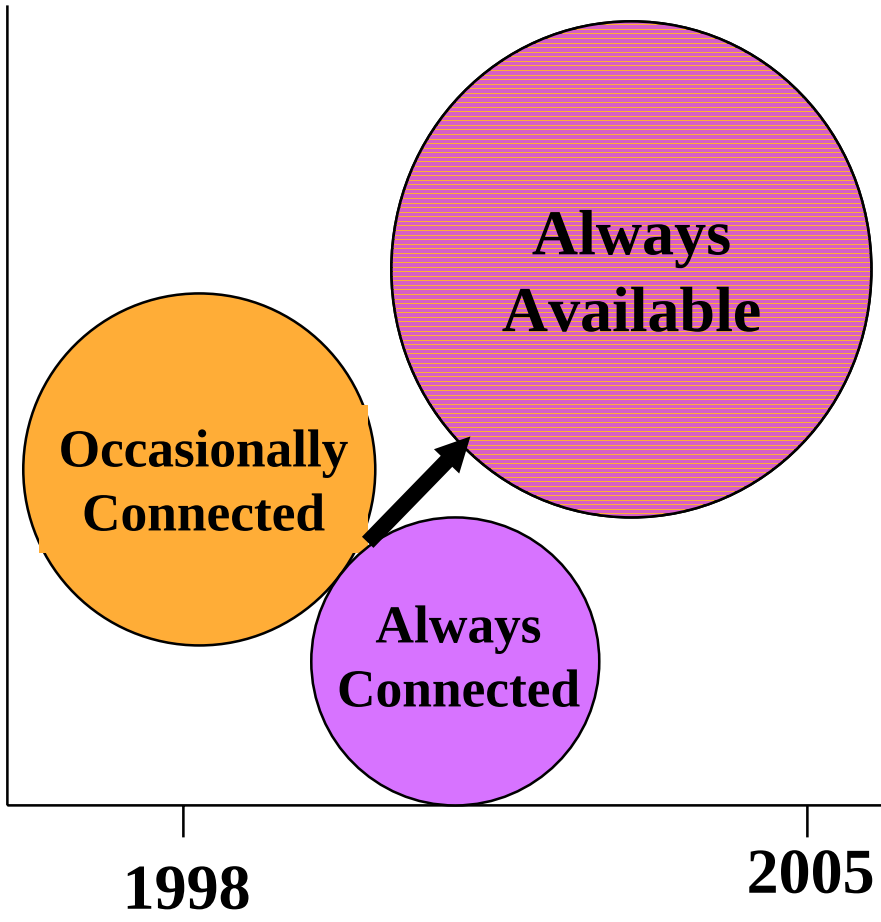
Wireless Platform Challenge

- Occasionally Connected
  - Off-line operation
  - Rich user experience
  - Optimized use of available bandwidth
  - Low-cost operation using wireless/wired hybrid
  - Priority messaging and synchronization for near real-time data

Wireless Platform Challenge

- Always Connected
  - Real-time data
  - Common browser interface across multiple devices
  - Light device requirements
  - No application deployment required
  - Priority messaging
  - Support industry-standard protocols: WAP, WML, XML

Wireless Platform Challenge



- Wireless Challenge
  - Bandwidth
  - Coverage
  - Cost
  - Battery
- Occasionally Connected
  - Offline use
  - Minimize network use
- Always Connected
  - Thin-client
  - Current data

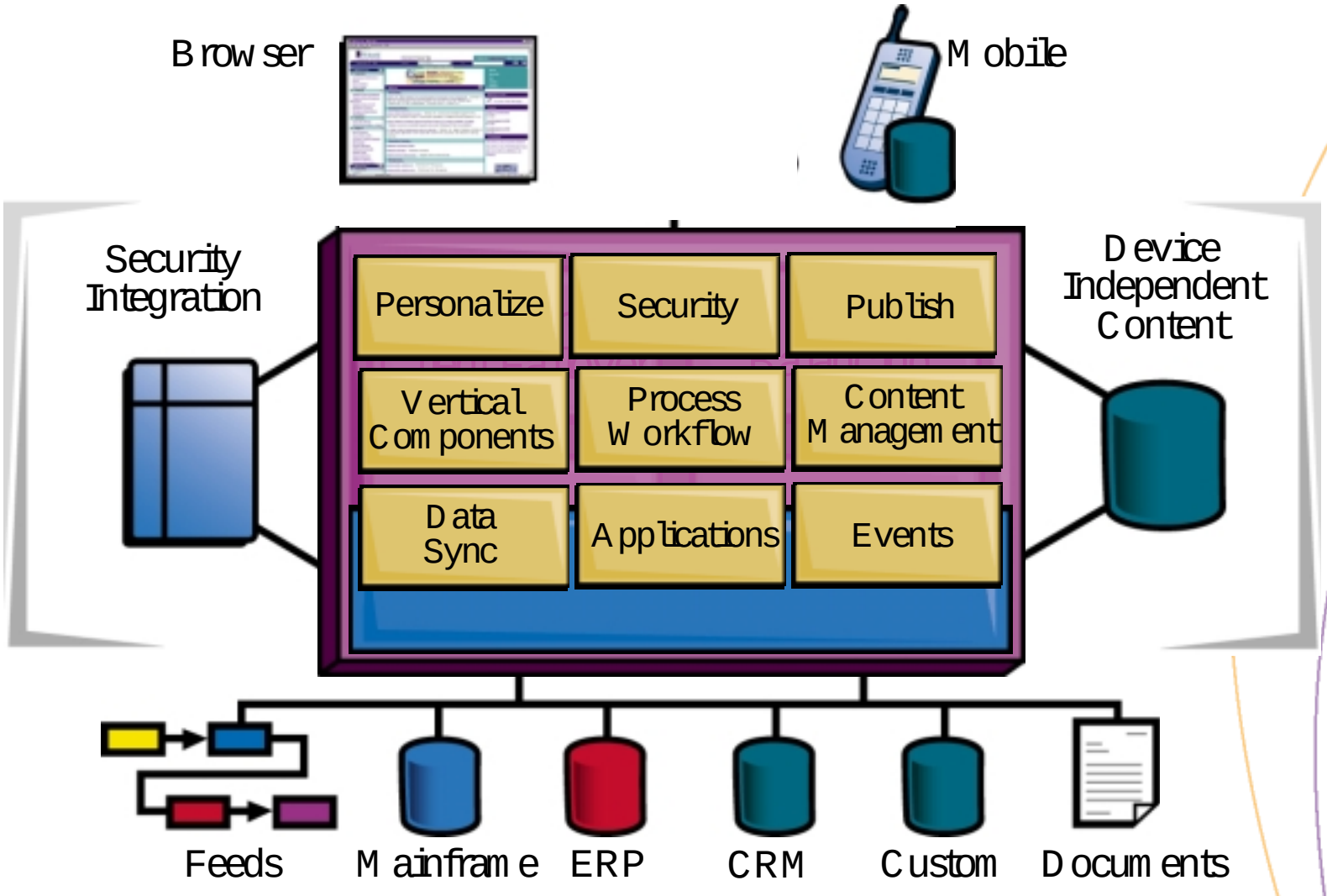
Wireless Platform Challenge

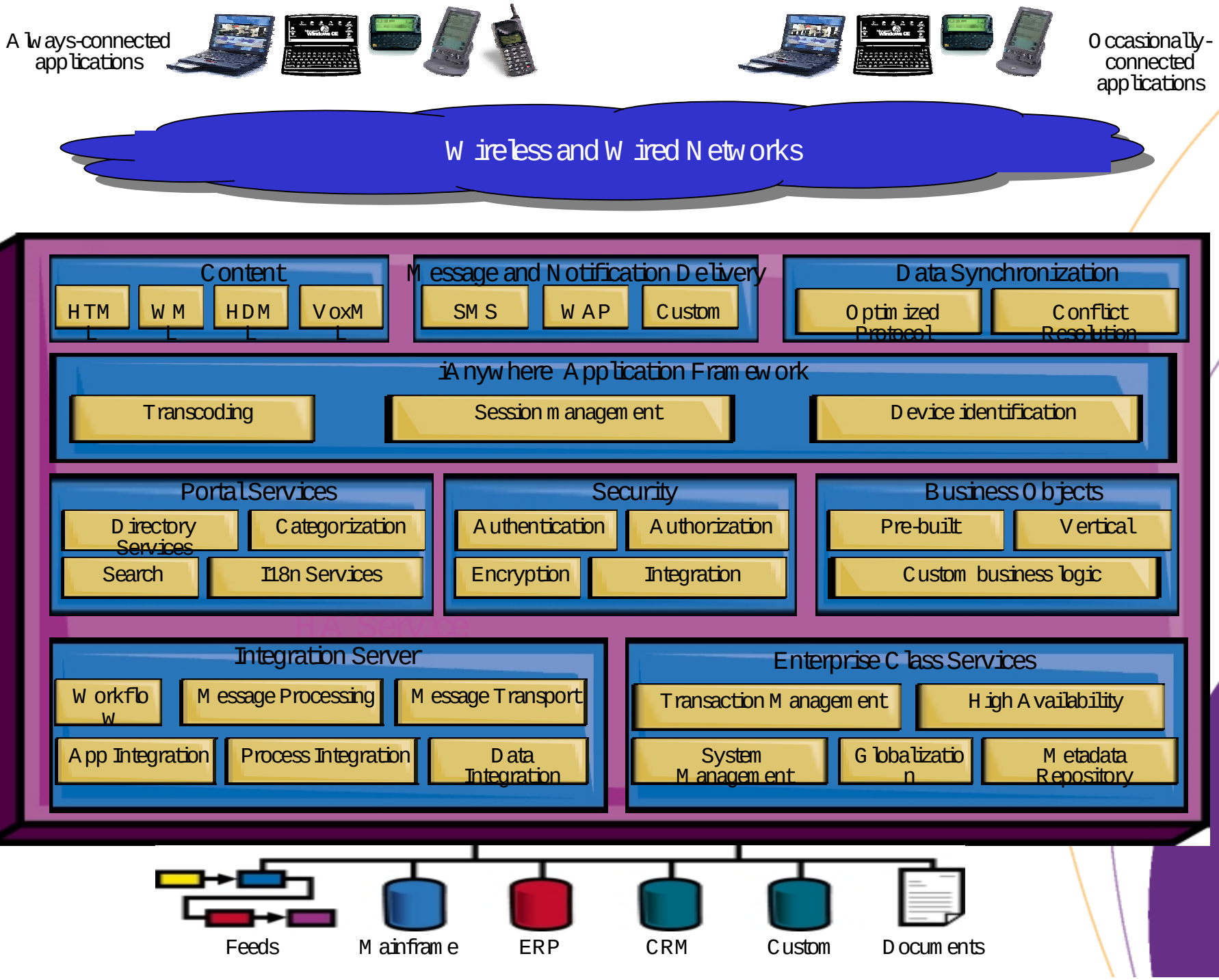
- Multi device & channel support
  - Multiple mobile device & network support
  - Internet (browser) support
  - Integration path for voice, other user communication systems
- Security
  - Network security (encryption, firewall support)
  - Subscriber and device authentication
  - Integration with back office security (e.g. LDAP, Entrust)

Wireless Platform Challenge

- Back Office Integration
  - Any database
  - ERP Systems
  - Component architecture (C++, J2EE, CORBA)
  - Message architecture (XML, message queues)
- Reliable, Available, Scalable
  - Load balancing & fail-over
  - Connection caching
  - Native threading & low-overhead component execution

Wireless Platform Architecture




Always-connected applications
Occasionally-connected applications
Wireless and Wired Networks
Content
HTML
WML
HDML
VoxML
Message and Notification Delivery
SMS
WAP
Custom
Data Synchronization
Optimized Protocol
Conflict Resolution
iAnywhere Application Framework
Transcoding
Session management
Device identification
Portal Services
Directory Services
Categorization
Search
I18n Services
Security
Authentication
Authorization
Encryption
Integration
Business Objects
Pre-built
Vertical
Custom business logic
Integration Server
Workflow
Message Processing
Message Transport
App Integration
Process Integration
Data Integration
Enterprise Class Services
Transaction Management
High Availability
System Management
Globalization
Metadata Repository
Feeds
Mainframe
ERP
CRM
Custom
Documents

Wireless Platform

- Always Available
  - Occasionally connected supported via data synchronization and full featured-client database
- Multi device & channel
  - Separate business logic (component), data (XML), presentation (XSL) with automatic selection
  - Common integration point for wired Internet / voice
- Security
  - Encryption, authentication, authorization
- RAS & back office integration
  - Failover, clustering, integration adapters

Wireless Internet Value Chain

- Nokia
- Motorola
- Ericsson
- Palm
- Psion
- Dell
- Compaq
- RIM

- Symbian
- Microsoft
- Palm
- Psion

- Phone.com
- Microsoft/ Ericcson

- DoCoMo
- Orange
- Sprint
- AT&T Wireless
- Vodafon/ Airtouch

- AOL
- FreeServe

- **Sybase**
- Phone.com
- Oracle
- General Magic
- Wireless Knowledge
- Portal Software
- Spyglass

- Yahoo!
- AOL
- Excite
- Oracle
- Opensky
- BellSouth
- CellNet

- Reuters
- AirFlash
- Brokart
- Fidelity
- E-bay
- CNN
- Cleckadeal
- Barclays
- AirFlash
- Saraide

- **Sybase**
- Logica
- Wireless Knowledge
- Aether Syatems
- 724

Conclusion

- Evaluate your requirements carefully
- Partner with platform vendor with experience in the issues

Questions?

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