



Delivering Mobile e-business

Paula H Richards
PvC Solutions Enablement
phr@us.ibm.com

Agenda

- Mobile landscape
- Addressing the challenge
- Development considerations

Mobile Landscape



More than NSYNC ring-tones and SMS messages to your color-coordinated pager

- " ... improve one major problem facing airlines today: unhappy customers." airline CTO
 - ▶ Improve effectiveness of crews
 - ▶ Connect, retrieve, inform, present options, support action
 - Customers, Functions, Crew
 - ▶ Improve efficiency/timeliness of CRM and BI
- "... eliminate costly, proprietary implementations and allow us to easily extend beyond current capabilities ..." transportation company CEO
 - ▶ Easily integrate into existing infrastructure
 - ▶ Make information available at point of control - connect to edge of network users/devices
 - ▶ Gain control
- "... support mobile workers and mobile office from single, easy to manage infrastructure.. " a CIO's dream
 - ▶ Leverage/extend existing backend processes
 - ▶ Connect field service personnel not only to the home office, but to each other
 - ▶ Improve access to relevant information

Things to Remember

- It is not just about mobile.
- It is about services not technology.
 - ▶ Information presented is of high-value, intensely filtered and facilitates immediate action.
- It is about geo-specific trends and opportunities.
- It is about leveraging existing e-business systems.
- It is about extending your reach.

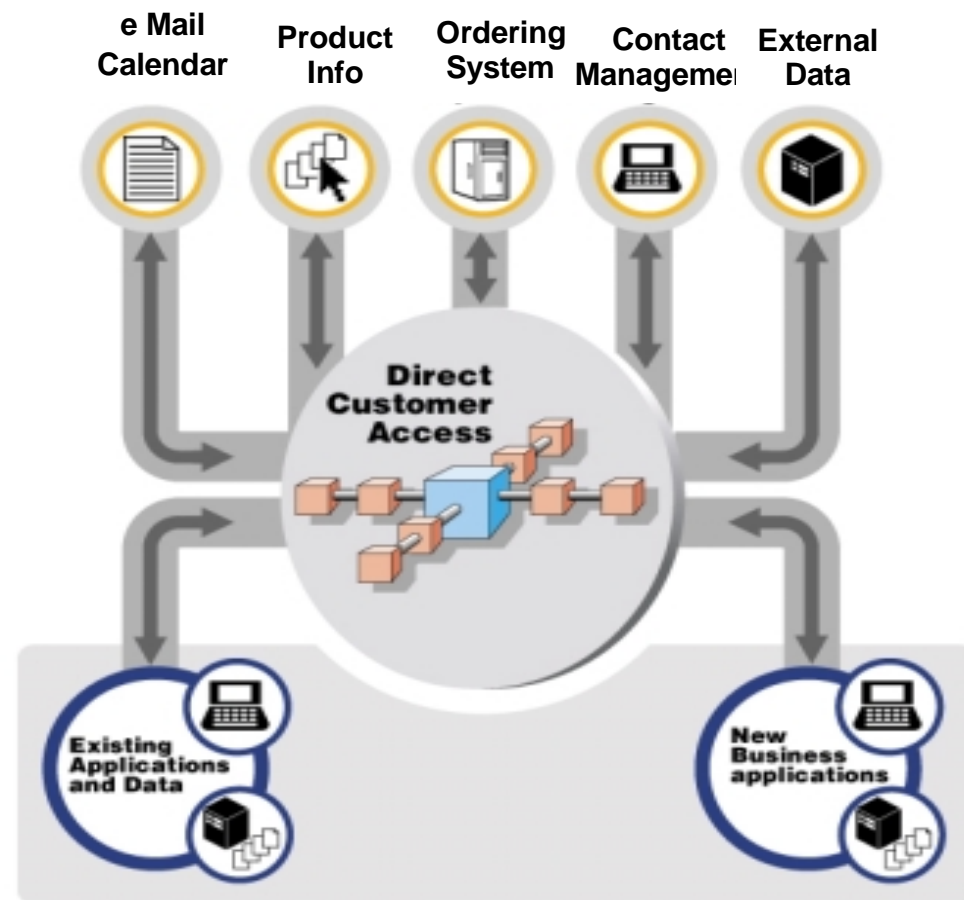
The Big Game Changers...

- Diverse form factors
- Highly distributed
- Notification/push
- Logical connectivity
- Location based services
- Efficacy of information
- Immediacy of action



Challenges:

- Enable the mobile professional to be closer to the customer AND connected to the enterprise.
- Leverage existing systems and applications.
- Maintain secure, scalable, reliable network architectures.
- Manage applications and client hardware.
- Control costs.



Addressing the Challenge



IBM

Life used to be so easy....

3270

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LOGON - 20:21:40 CST TUESDAY, MARCH 14, 2001
*****
** IBM'S INTERNAL SYSTEMS MUST ONLY BE USED FOR CONDUCTING IBM'S **
** BUSINESS OR FOR PURPOSES AUTHORIZED BY IBM MANAGEMENT. USE IS **
** SUBJECT TO AUDIT AT ANY TIME BY IBM MANAGEMENT. THE MAXIMUM **
** QUANTIFICATION OF DATA ALLOWED ON THIS SYSTEM IS IBM CONFIDENTIAL. **
*****
*****
** TO REPORT TERMINAL OR OPERATIONAL PROBLEMS CALL THE HELP DESK AT **
** TEL: 9-434-4344 **
*****
*****
LOGON AT 01:59:49 CST TUESDAY, MARCH 14, 2001
*****
WWW: IBM CNO IS DOWN! 20:21:50
*****
*****
* Data transferred as IBM CONFIDENTIAL may be processed on this system. *
* IBM Internal system must only be used for conducting IBM's business. *
* or for purposes authorized by IBM management. *
* Use is subject to audit at any time by IBM management. *
*****
*****
PF4 HOTEL ATTRACTIONS
```

Screen scrapers

```
HOTEL NAME: Holiday Inn, Atlanta, GA
HOTEL ID: 002354
CALLER STATUS: AC
CONTRACT TYPE: R
HOTEL RANK: Good
TYPE PROJECT: UR
HOTEL OFFICE: GRD
RESORT AREA: NE
ACCOUNT MGR: DC
MARKETING DIR: P-W
# OF ROOMS: 420
INTERNAL POOL: Open
CHECK-IN TIME: 2 PM
AUDIT: N
PERIODS: 02
ADU. RESER. REQ.: V MAX
RESERVE. UNITS: 40 ME
UNITS: 28 ME
GENERAL REMARKS: Rese
LAST CHANGE: 12-12-1997
PF4 HOTEL ATTRACTIONS
```

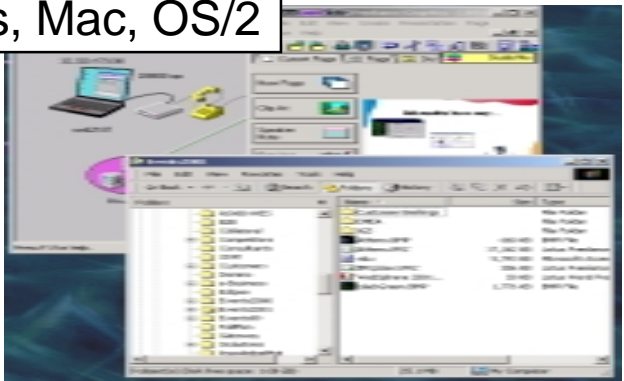
Facilities	Managerial	Geographic
Call Status: AC	Contract Type: Regular	Call Date: 11/25/97
Contract Type: Good	Contract: Robert	
Type Project: UR	Known Flare: Under Improvements	
Hotel Office: GRD	Key Account: 5	
Resort Area: NE	Service Level: 4	
Account Manager: DC	Sales Status: 6+	# Employees: 5
Available Date: 11/25/97		
Expiration Date: 06/01/98		
Client Type: Reg		
Initial Client Type: A		
Tenant: RG		

Hotel Attractions/Directions/Information

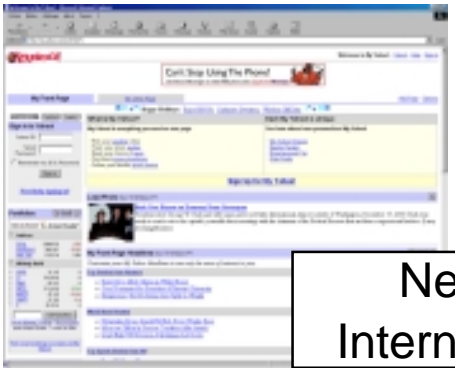
CHTML, HDML, HTML, VoiceXML, WML, XML, WAP, etc.....



Windows, Mac, OS/2



Netscape, Internet Explorer

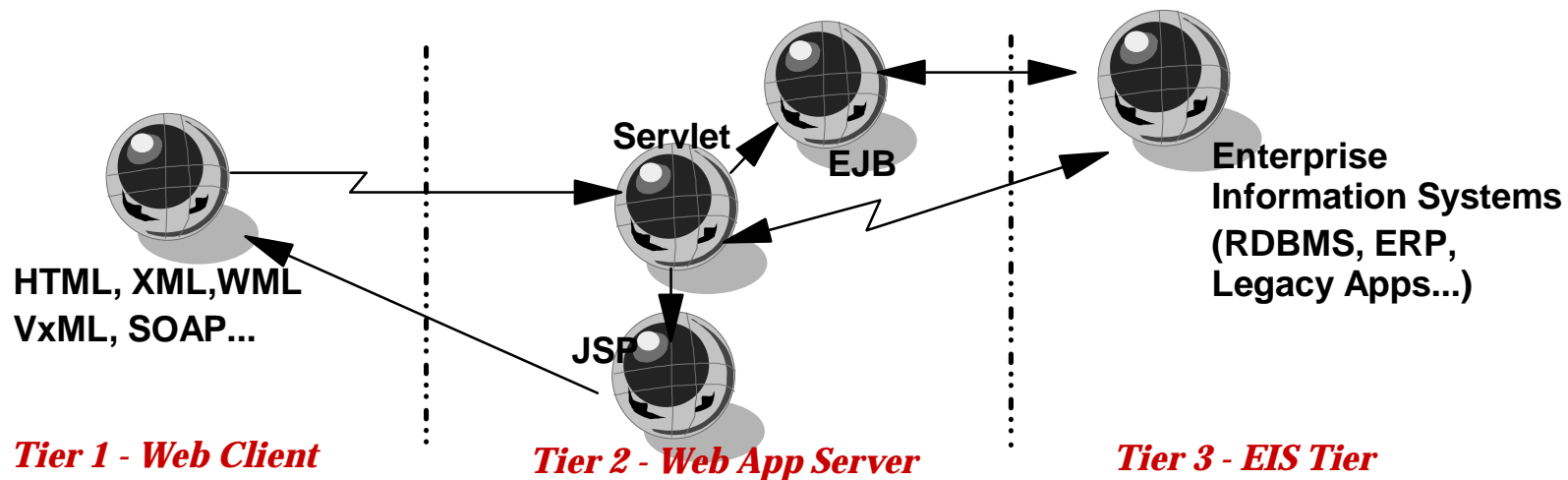
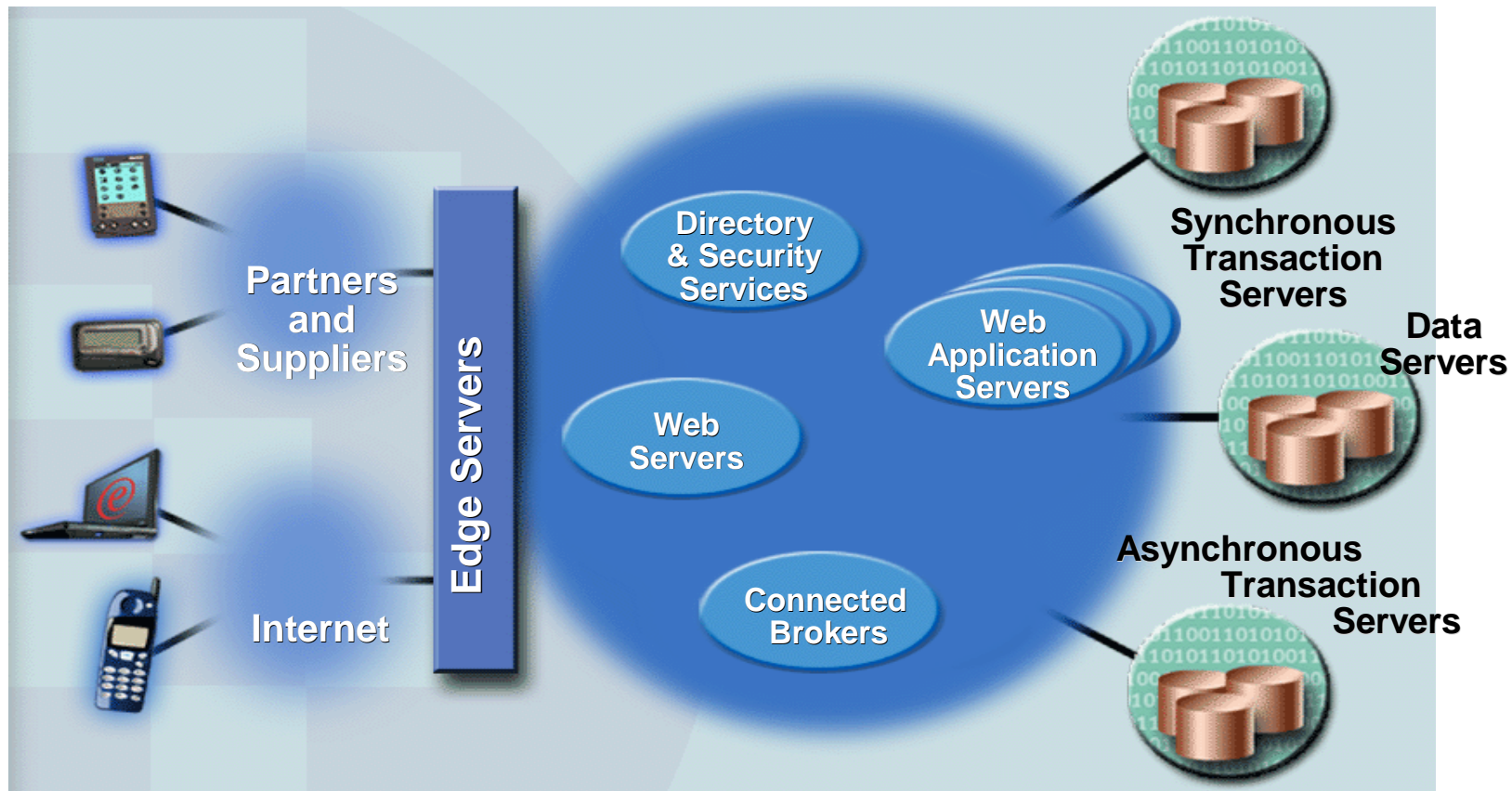


Emerging Architectures

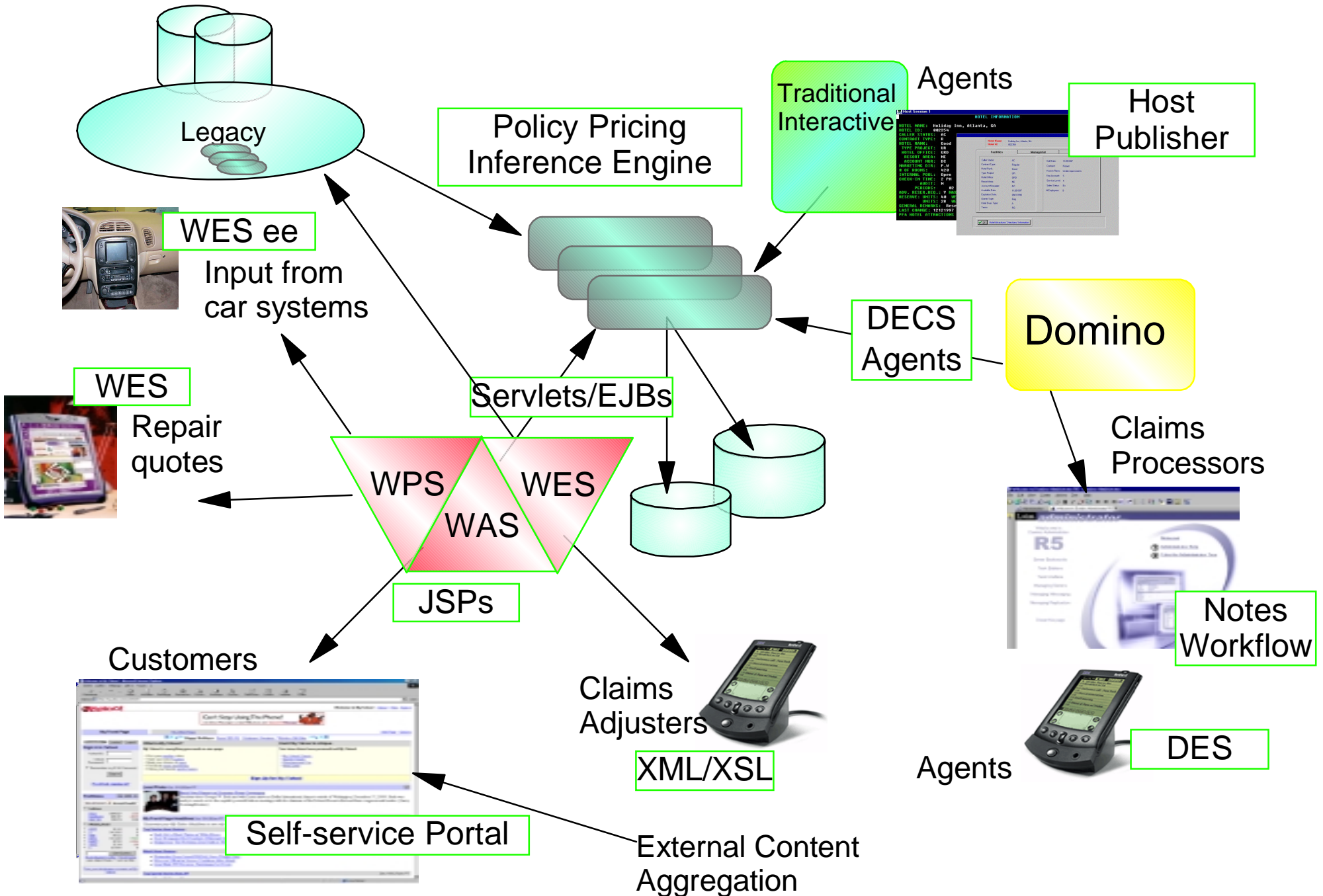
Mobile e-business - an extension of the e-business architecture with some very interesting twists:

- Browser-based - request/response
- Wireless messaging & intelligent notification
- Integrated vs. stand-alone data synchronization
- Voice request & notification
- Wireless portal
- Wireless device & subscriber management

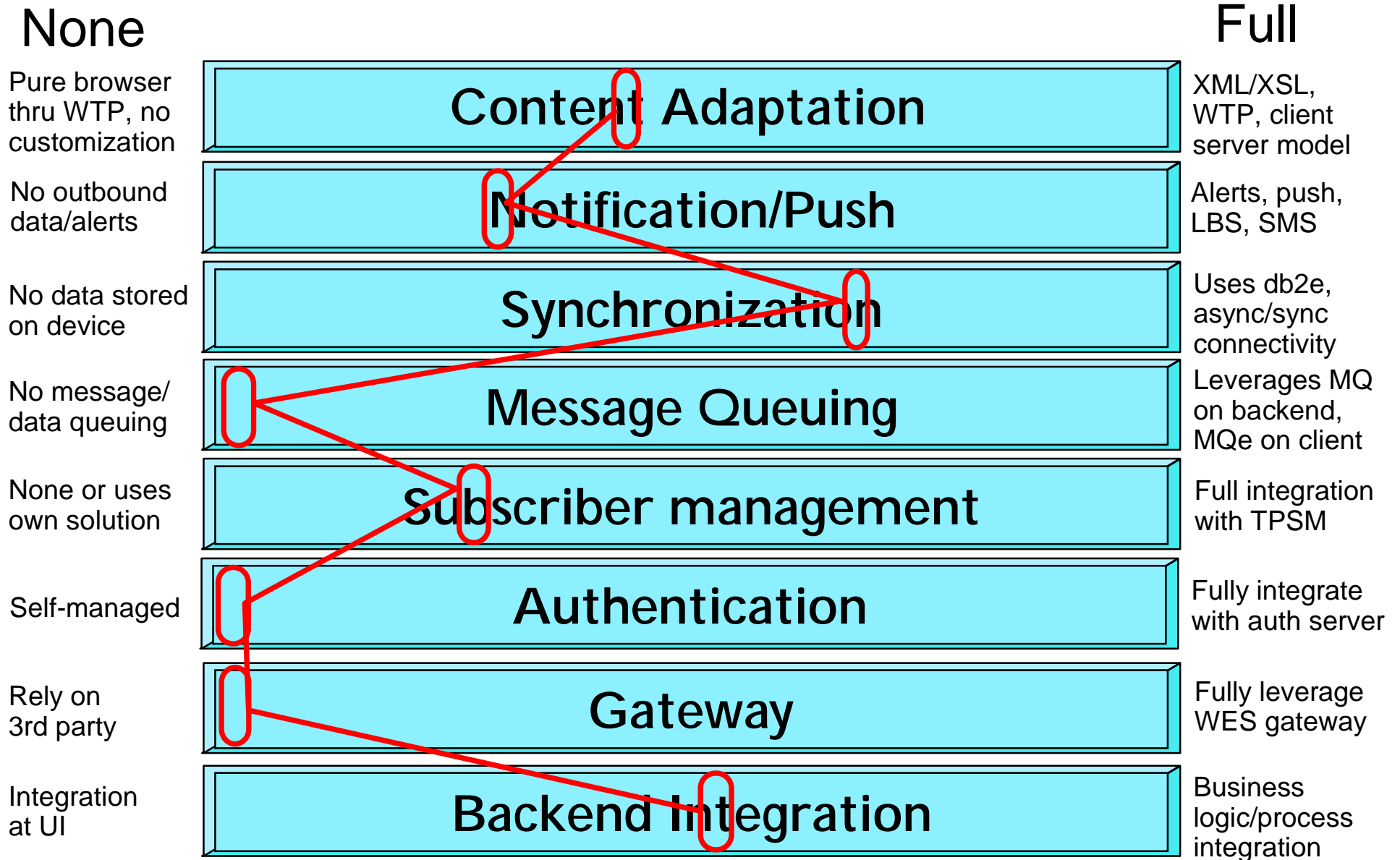
Web Application Architecture



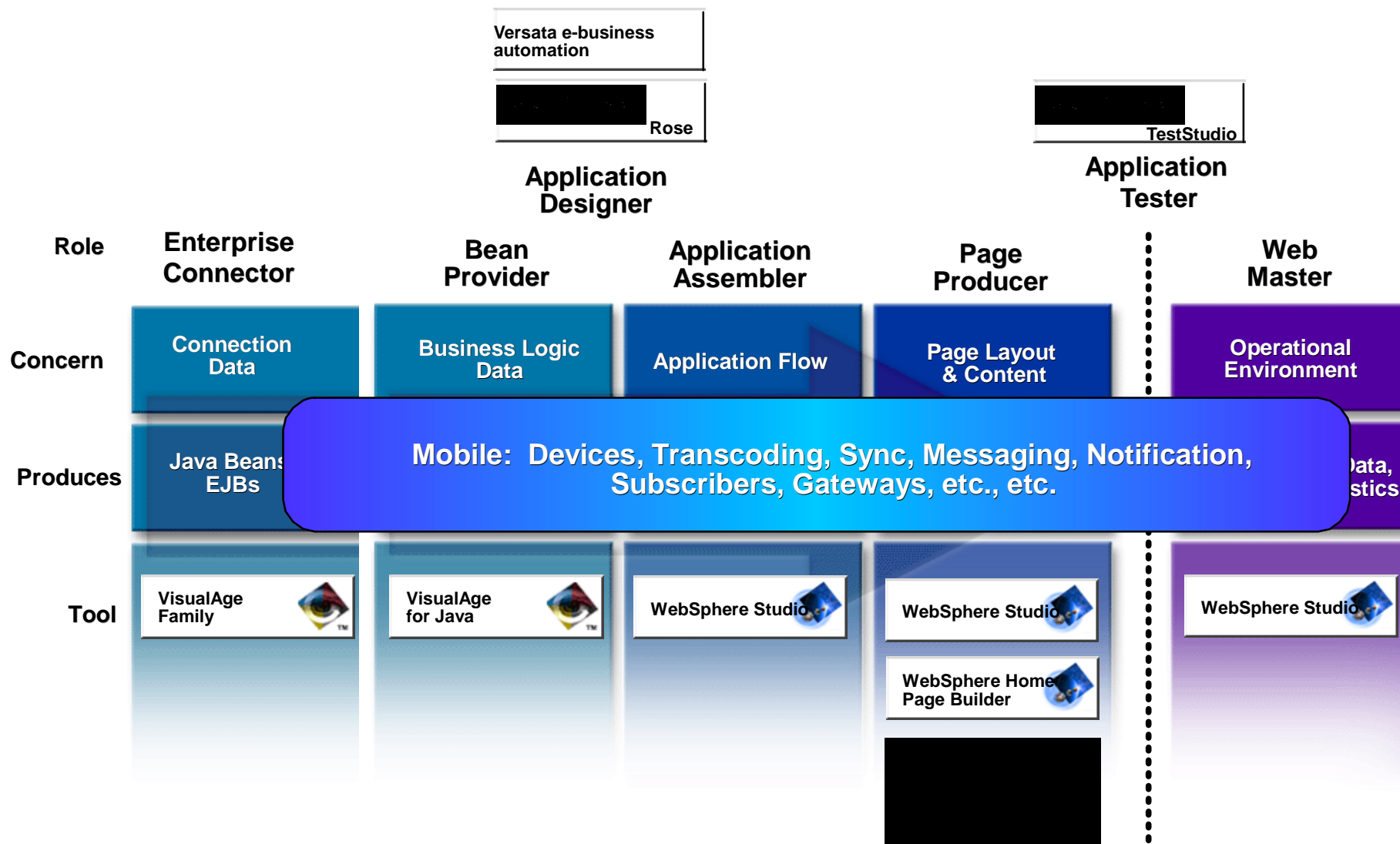
Insurance Application Transformation



Development Continuum: Go where you need to go... and how...



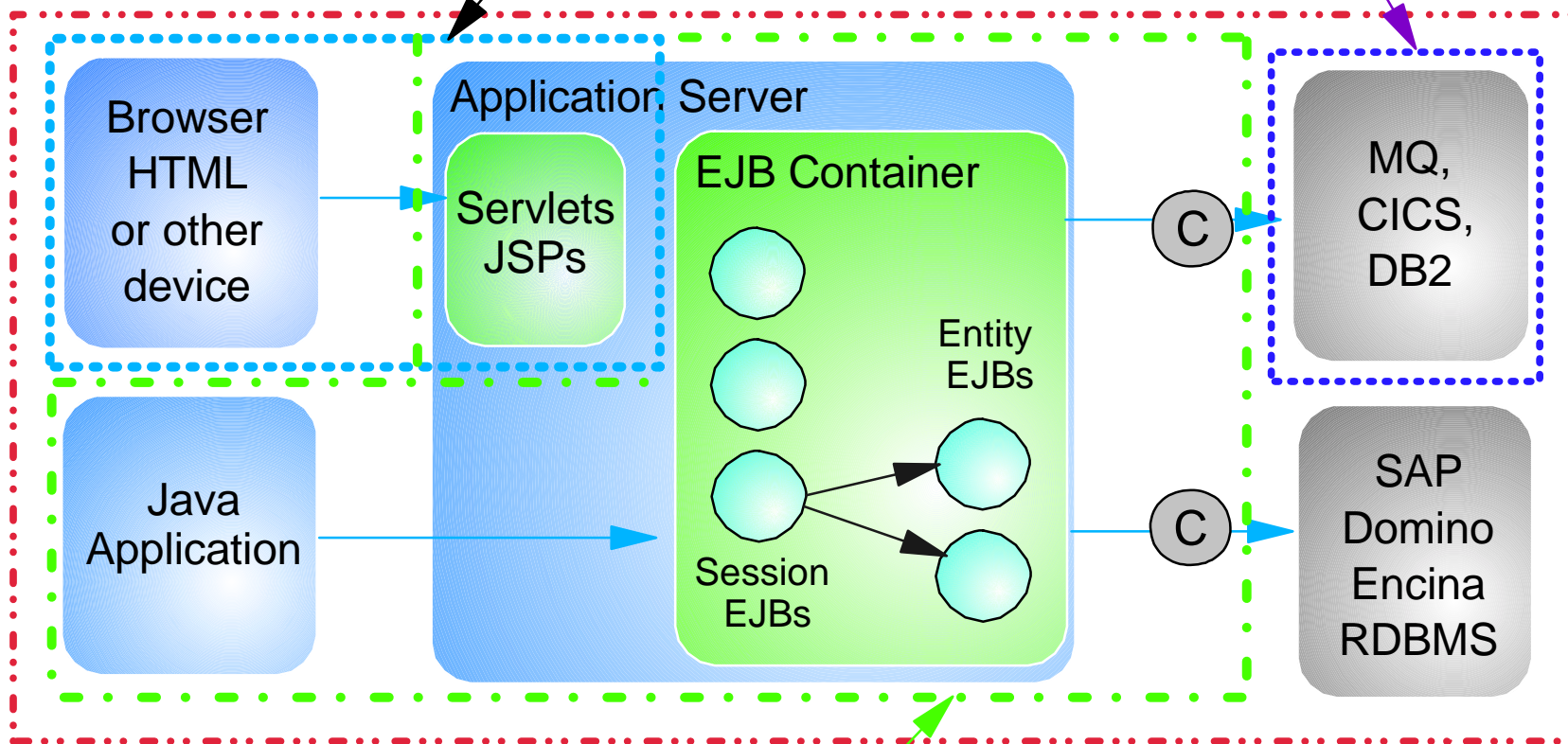
Expanding Roles / Tools



Web Application Development

Built by a web page designer in **WebSphere Studio**

Built in **VisualAge Java, COBOL / C / PL/I / RPG** by an enterprise developer



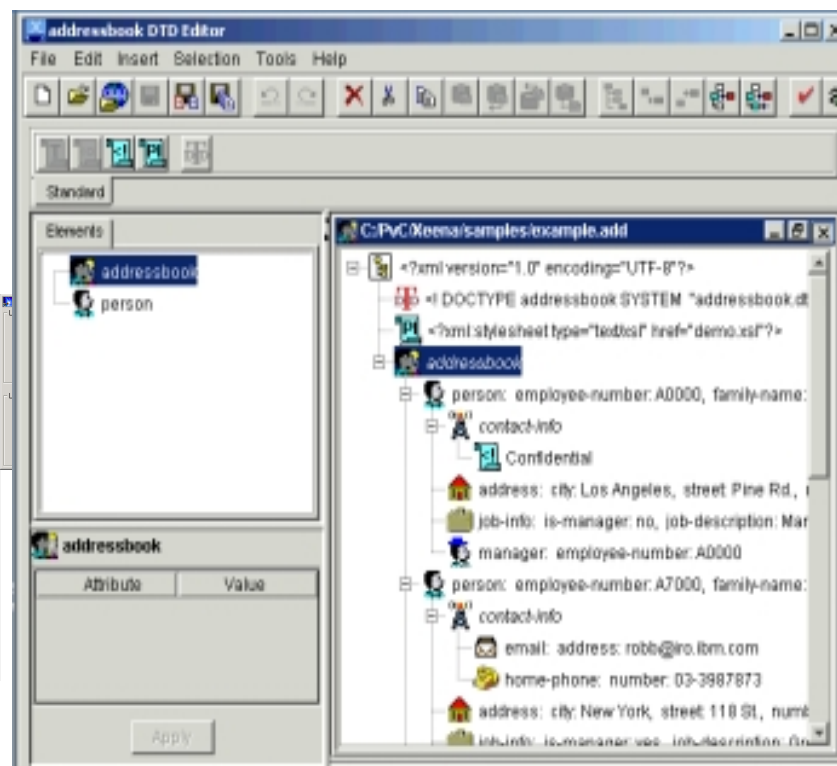
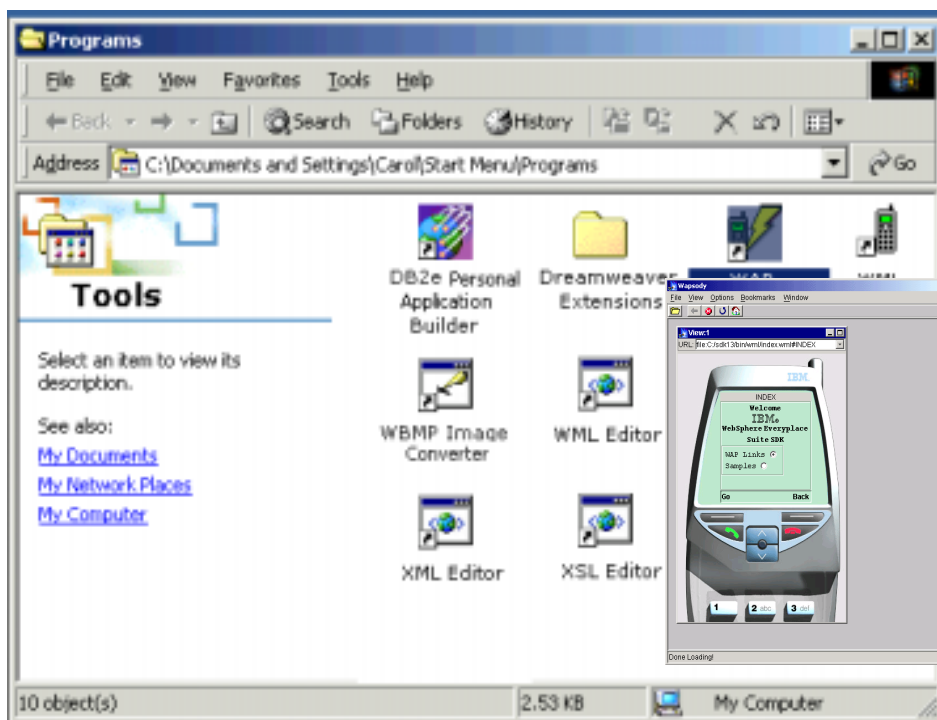
Built by a java logic programmer in **VisualAge for Java Enterprise**

Built in **VisualAge Generator** by an enterprise developer

(C) EJB Connectors

WES SDK

- Provides components and tools. For example:
 - ▶ Location-Based-Services, WAP Push, WML, WMLScript and VXML samples; APIs are included for Push and Location Based Services
 - ▶ A WAP 1.2 compliant client/gateway emulator
 - ▶ Documentation and tips
 - ▶ Download WES SDK: http://www-3.ibm.com/pvc/tech/wes_sdk.shtml
- The WES Application Developers resource page:
 - ▶ http://www-3.ibm.com/pvc/products/wes/dev_resources.shtml
 - ▶ Includes access to WES SDK User Group for support and discussion

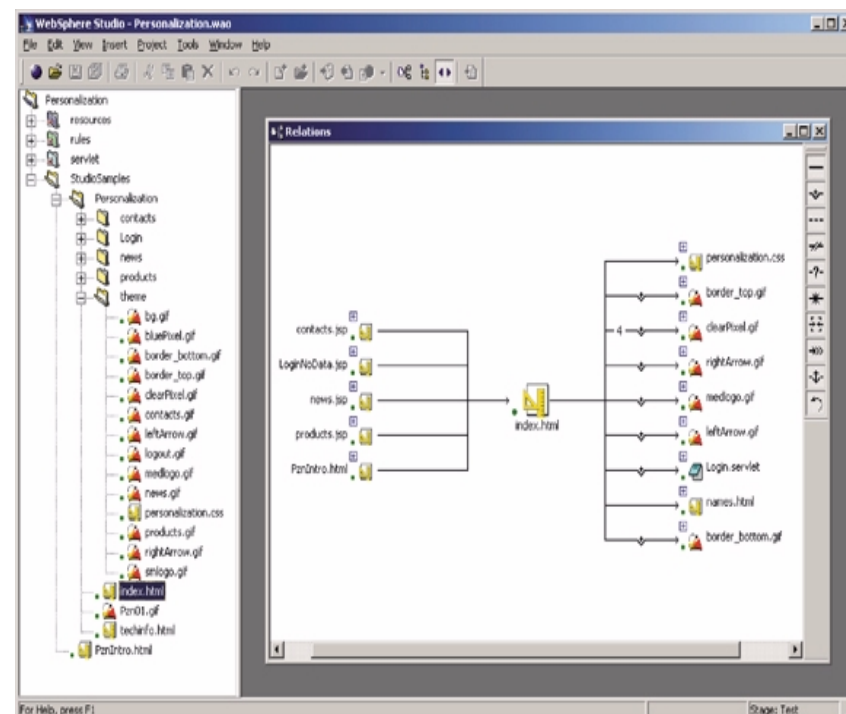
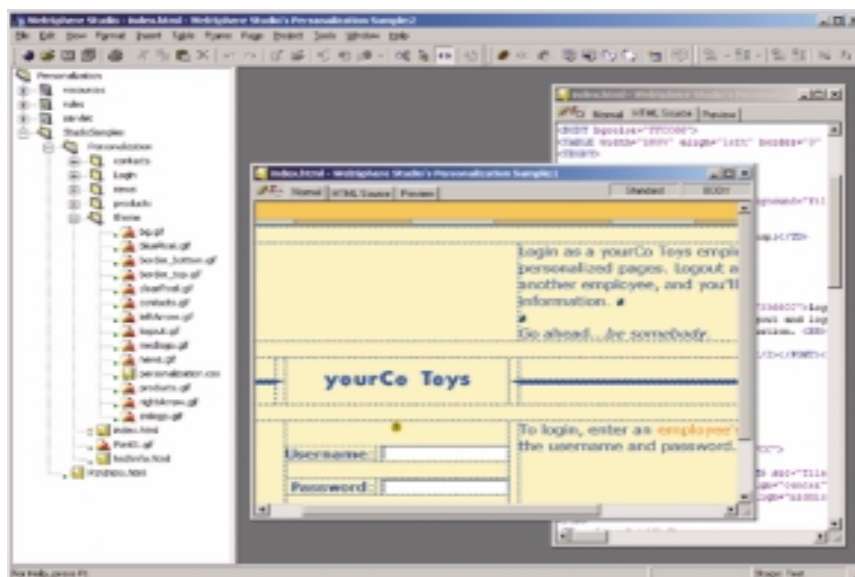


WebSphere Studio



- A Team-Enabled Web developer workbench
 - ▶ Site relationships view
 - ▶ Check-out/in to popular SCM
 - ▶ Publishing to HTTP and App Servers
 - ▶ Allows plugging-in other favorite tools
- Page Designer, Applet Designer, GIF Designer
- Studio Wizards: automatic generation of
 - ▶ Servlets, JSPs, HTML, WML, VoiceXML, CompactHTML
 - ▶ Web services
 - ▶ SQL database queries

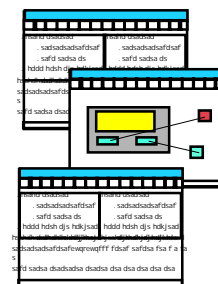
- Built-in Personalization Tools
 - ▶ Personalization rules, user profile, and content definition
- Web Page Analysis tool (Page Detailer)
 - ▶ monitors users interactions, report performance metrics
- Includes WES SDK



VAJ Integrated Development Environment

Developer Workbench

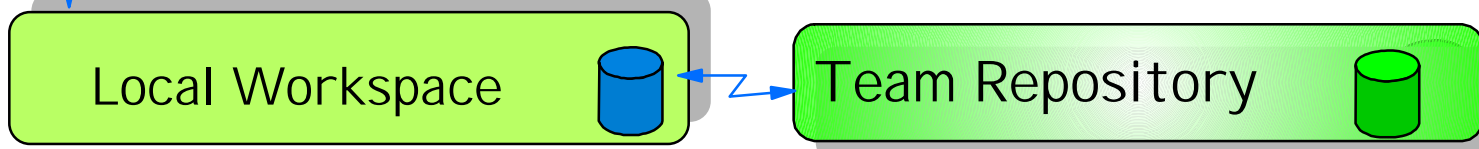
- Visual Composition Editor (VCE)
- Build JSPs, Servlets, JavaBeans, EJBs
- Editor, Incremental Compile, Debug, Consistency Checker
- Test and Debug Within Environment
- Version and Configuration Management
- IDL Development Environment
- SQLJ, Persistence Builder
- Tivoli Connection
- Enterprise Toolkits (AS/400, OS/390, Remote debug)



Enterprise Access Builders



Integrated WebSphere Test Environment



A peek into the future:

The Ultimate Development Environment

WebSphere Studio Workbench is an open-source application development integration platform, enabling cross-tool integration. It is a tool for building and integrating application development tools.

Franchise Features

VisualAge for Java

- ★ Incremental Compilation
- ★ Dynamic Debugging
- ★ Code Assist
- ★ Unit Test Environment
- ★ Scrapbook
- ★ EJB Development
- ★ Enterprise Access
- ★ ...Other features

WebSphere Studio

- ★ Page Editing (HTML/JSP)
- ★ Link Management
- ★ Advanced Publishing
- ★ ...Other features

+

New Features

- ★ Vendor Plug-in
- ★ XML tooling
- ★ Web Services tooling
- ★ Pluggable JDK Support
- ★ New File based IDE
- ★ Flexible, Open Team Development Environment
- ★ Much more!

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The Ultimate
Development
Environment

Beta - 6/01

Workbench - 9/01



Development Considerations



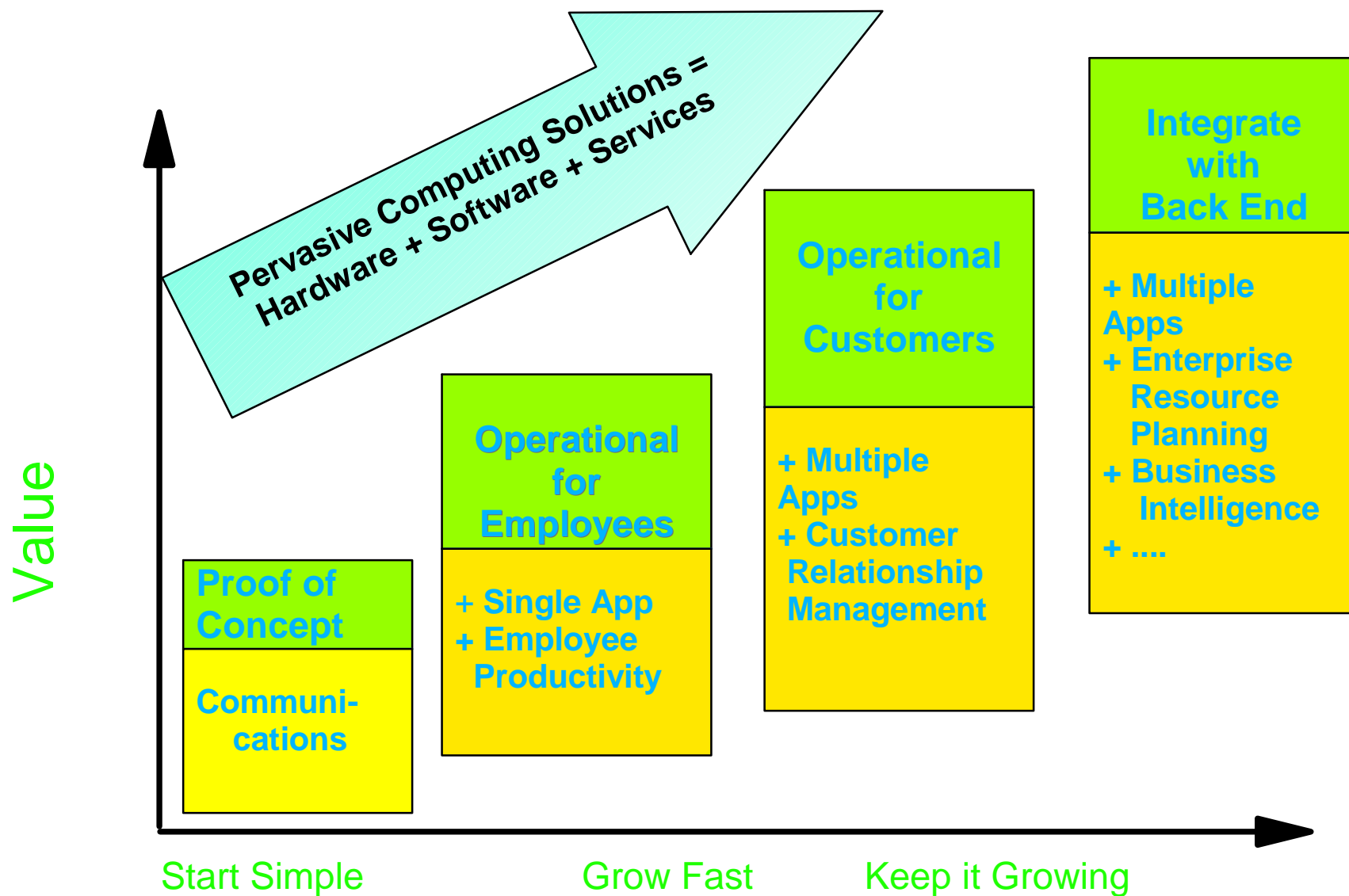
Targeting the Opportunity: Where/when will we see ROI?

- By 2004, according to a Gartner report, 70% of new mobile phones and 40% of new PDAs will have direct access to Web content and corporate networks.
 - ▶ The kicker is that the PC revolution was pretty much limited to PCs and Macs. The heterogeneity of palmtop hardware, software, and standards will make the previous management struggle look like kids' play.
- Forrester Research
 - ▶ 40% of the Fortune 2500 businesses in US have equipped or are equipping their workforces with wireless tools
 - ▶ 30% are considering it
- In US, mobile business investment is clearly driving m-commerce development. However, the scenarios are different in other geo's.
- It's all about information latency.

Start here...run

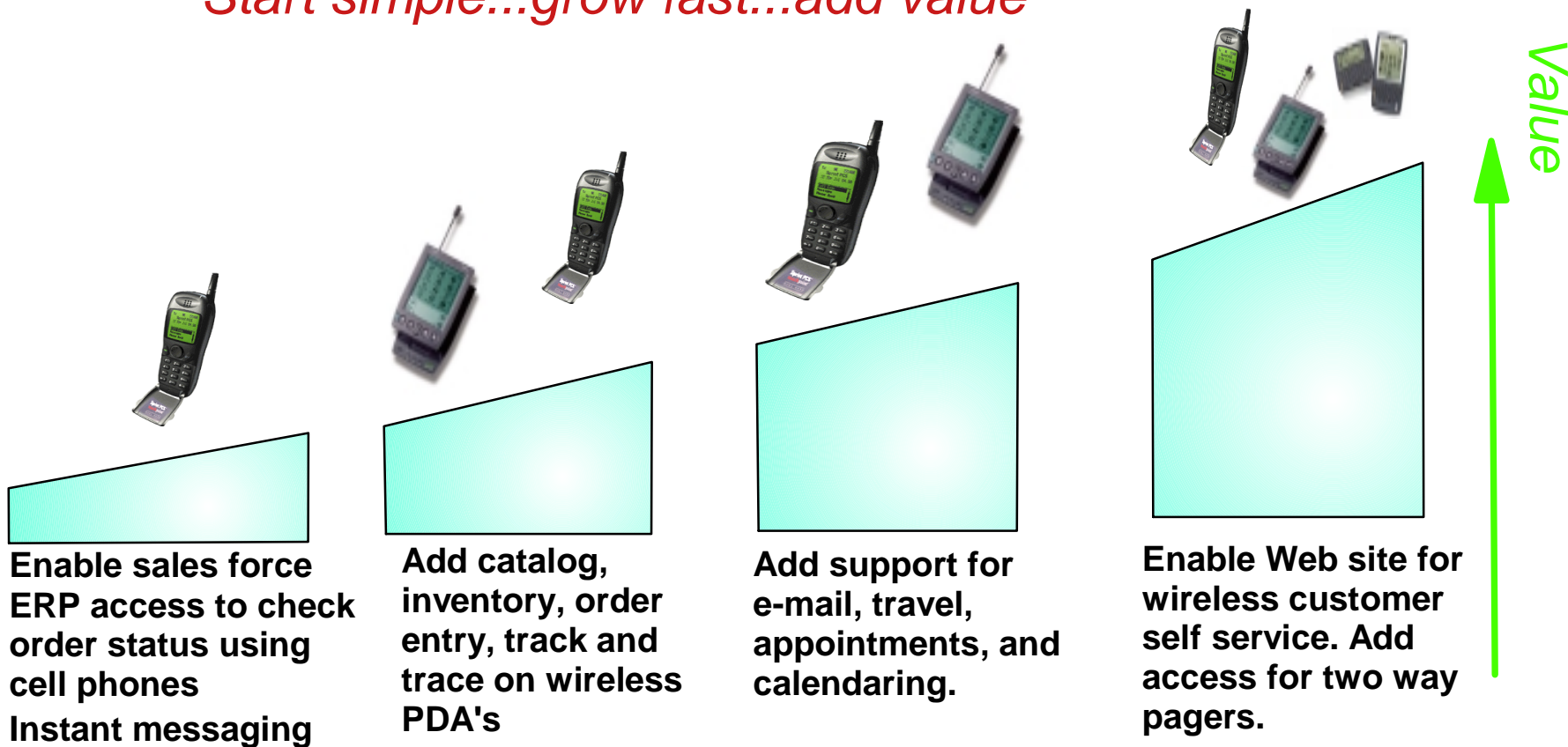
- Business model - influences technology choices
 - ▶ Geo-specific opportunities/challenges
- Security - what you have, what you know
 - ▶ Authentication on the device side
 - ▶ Encryption from the mobile device to the carrier
 - From the carrier to the service gateway
 - From the gateway to the wireless server
 - ▶ Authorization
- Bandwidth
 - ▶ What gets sent - or not
 - ▶ Transaction characteristics
 - ▶ Latency
- Class of devices to be supported
 - ▶ Future proofing your investment
- Languages/protocols
 - ▶ CHTML, HDML, HTML, VoiceXML, WML, XML, WAP.....
 - ▶ GSM, CDMA, TDMA, PDC, PHS, ISDN, PPP, ISP...
- Location/ownership of wireless servers

Pervasive Computing Roadmap ...



Implementation example for field force automation

Start simple...grow fast...add value



Development Continuum: Go where you need to go... and how...

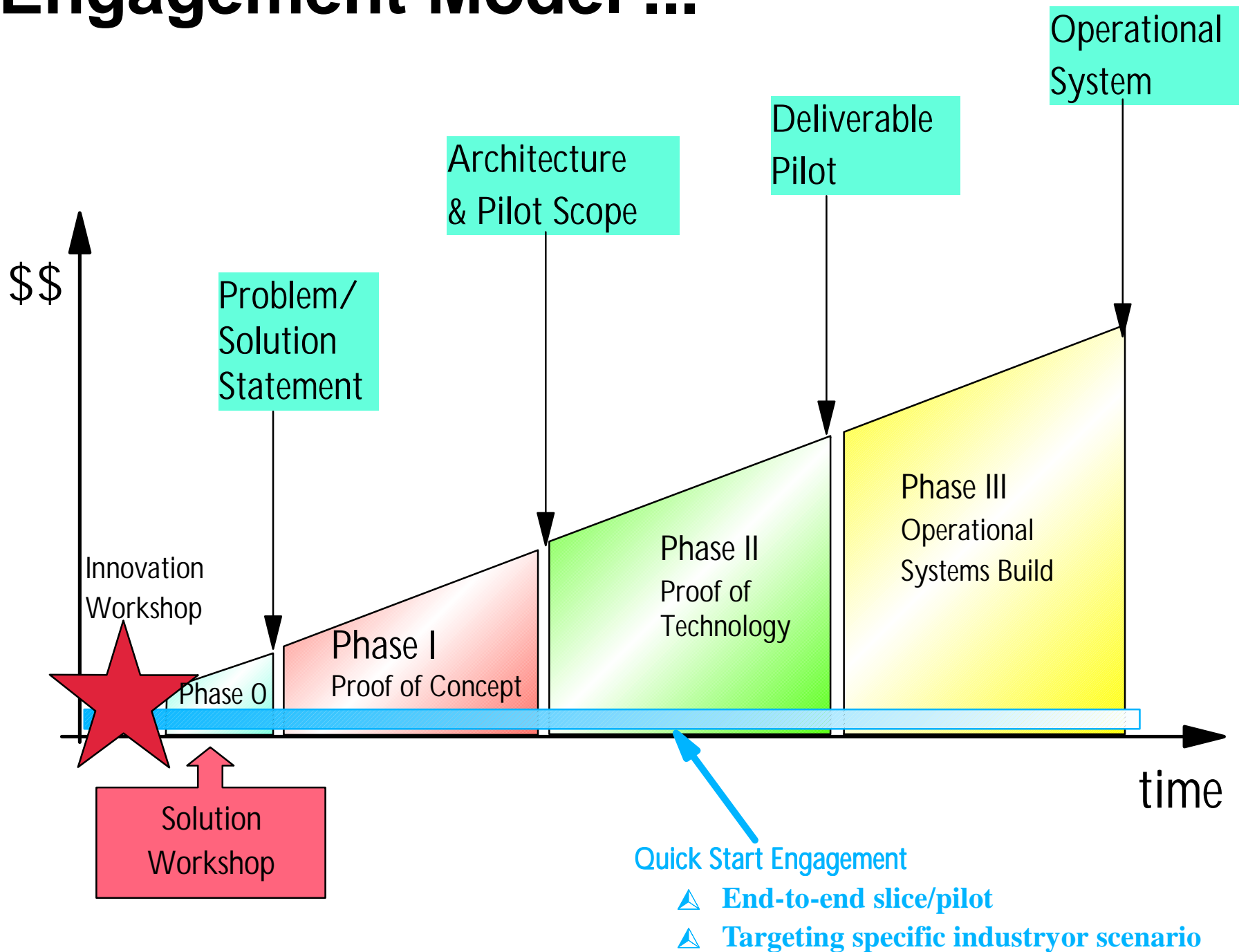
Transcoding
SMS gateway
SameTime

Custom client
Application mgt
Synchronization
Wireless client

Domino Everplace
Voice
Location awareness
Intelligent messaging

Wireless portals
End-to-end transaction
Authentication/Authorization
Device management
Assured message delivery

Engagement Model ...



Example: Quick Start Engagement: ERP

Target Audience

- Manufacturing and Consumer Product Goods Companies with mobile sales and service forces.
- Enterprises interested in extending extranets to pervasive device users

Business Benefits / Value Proposition

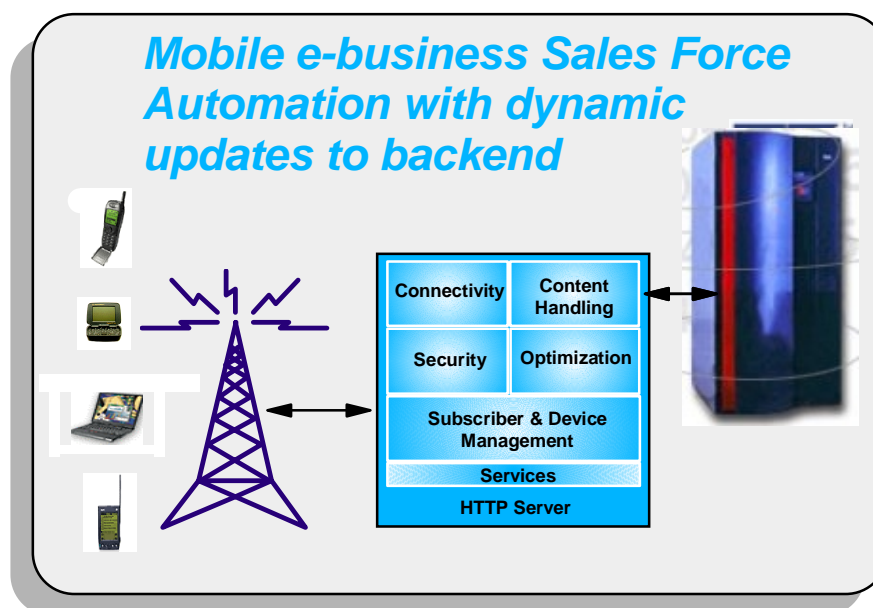
- Improved customer loyalty via enhanced service offering
- Additional customer reach, anytime/anywhere, new revenue stream
- Personalized customer service based on purchasing history
- Productivity improvement for mobile sales forces
- More dynamic order tracking for customer
- Low cost transactions

Sample Engagement Content

- WebSphere Everyplace Server
 - IBM Mobile Connect Server
 - IBM Websphere Application Server
 - Transcoding technology
- IBM DB2e
- IBM Access Builder for SAP R/3 for Java
- Customization & Integration services

Price

- Customize per customer
 - Initial customer workshop to define scope, set content, and IGS integration ceiling
- Example pilot price: Approximately \$250K dependent on scope, geography and content.



IBM: The Leading Edge in Mobile Computing

- Laser-Focus on Wireless
 - ▶ Investing in new technology, middleware and services
 - ▶ Partnering with key players to create a winning value net
 - ▶ Deploying wireless solutions through a dedicated sales force and channel partners
- IBM's Unique Advantage
 - ▶ Open end-to-end solutions; integrated with existing infrastructure
 - ▶ Expertise in developing and deploying vertical solutions
 - ▶ Over 400 pervasive computing engagements in the last 2 years
 - ▶ Solutions extendible to support new devices and applications
- IBM's Mission
 - ▶ Help our customers to exploit this next phase of e-business with IBM technologies and services

Websites

- Check out IBM Web sites for additional information:
 - ▶ Pervasive Computing: www.ibm.com/pvc
 - ▶ Internal PvC: <http://w3-1.ibm.com/pvc/>
 - ▶ Tivoli: www.tivoli.com/products
 - ▶ Lotus: www.lotus.com/mobile
 - ▶ PSG: www.ibm.com/ Enter: ThinkPad, WorkPad or NetVista
 - ▶ Quick Starts: w3.ibm.com/pvc/collateral
 - ▶ References: <http://w3.ncs.ibm.com/ibmref.nsf>
- Enroll in "e-business University for Pervasive Computing"
 - ▶ Topics include an introduction to wireless, security, systems management, development tools and technologies and trends
 - ▶ Begins with four free courses available over the Web:
<http://www.ibm.com/services/learning/global/product/pvc.html>
 - ▶ PartnerWorld: http://www.developer.ibm.com/tech/map/perv_road.html

For More Information - iBM's tools for e-business

- www.ibm.com/software/ad
- www.ibm.com/e-business
- www.ibm.com/framework
- www.ibm.com/framework/patterns
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