

Java, XML, San Francisco and alphaWorks



Agenda

Components of IBM's e-business infrastructure

- ▶ Common Programming Model
 - Java, XML, PKI, LDAP
- ▶ Buy, Build & Assemble
 - IBM SanFrancisco
- ▶ IBM's e-business for developers
 - alphaWorks, developerWorks



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The Programming Model Matters



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Application Framework for e-business

Development
Tools and
Components

Application Servers
and Integration
Software

Secure Network
and Management
Software

NT OS/2 AIX HP-UX NetWare Linux Solaris OS/400 OS/390

- **Our common programming model**
 - **Java, XML, PKI, LDAP**
 - **Component-based Development**
 - **Using e-business to attract developers**

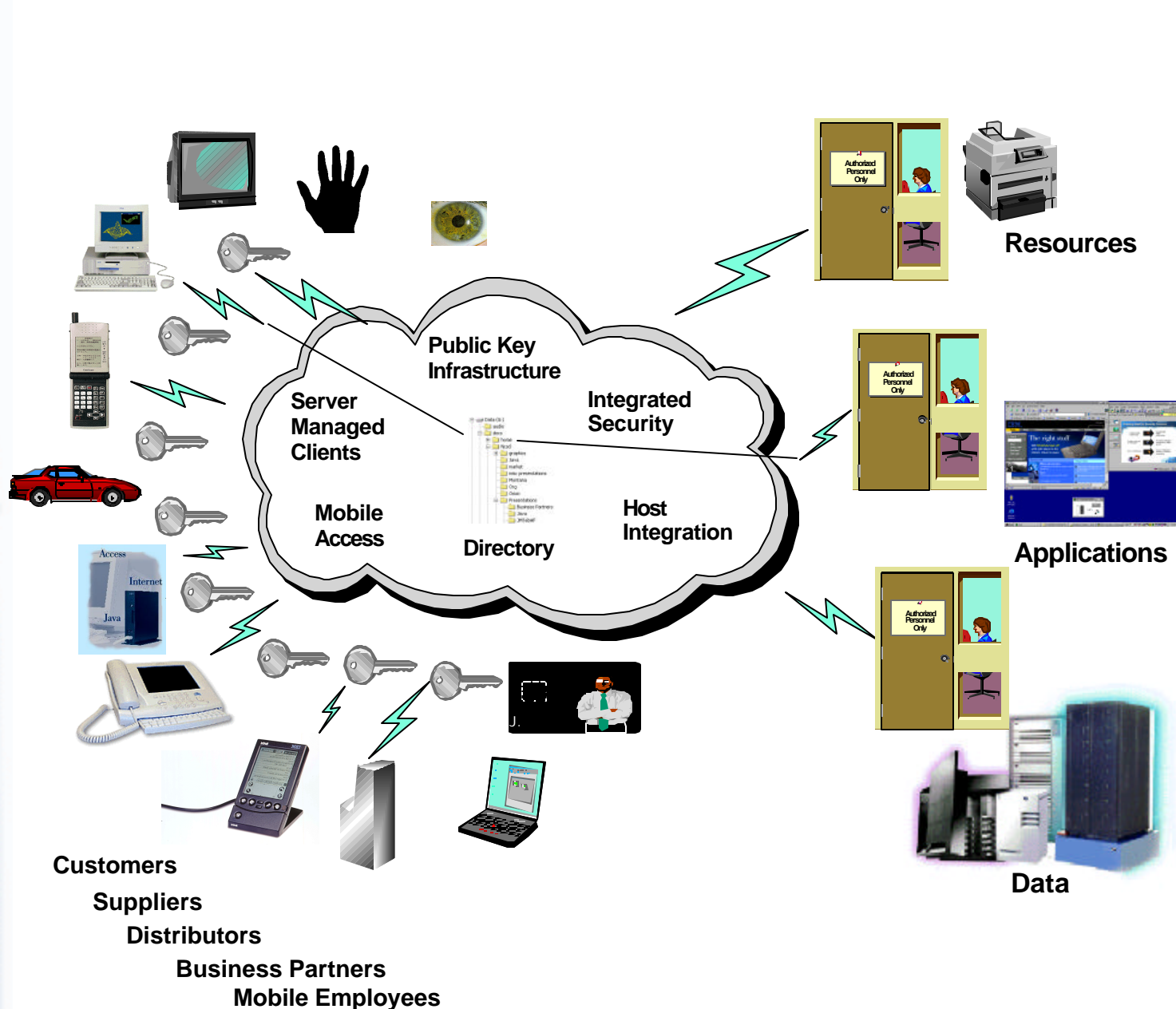
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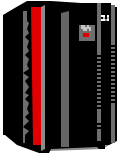
Infrastructure for Trusted, Manageable e-business

1M Businesses, 1B People, 1T Devices



Mission-Critical Servers

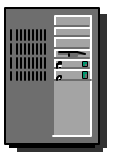
S/390



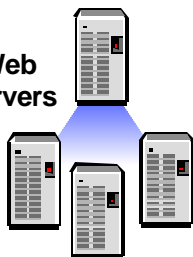
UNIX NT



AS/400



Web Servers





Components of Infrastructure



■ Key infrastructure elements

- ▶ **Portable Code**

- **Java**

- ▶ Data Integration

- XML

- ▶ Security

- PKI

- ▶ Directory

- LDAP



IBM and Java: Programming for e-business

■ Where we've been

- ▶ putting Java technology on a rock-solid foundation

■ Where we are

- ▶ enhancing and augmenting our products
- ▶ working with customers to create high-performance e-business solutions using leading software products

■ Where we're going

- ▶ taking Java vertical
- ▶ aligning Java and XML standards activities for industry applications

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Enterprise Acceptance of Java

- Over 100 million Java enabled seats
- More than 1400 shipping applications
- Over 700 thousand Java developers
- 1350 universities have Java courses today
- 1500+ books on Java programming/computing
- 10M+ downloads of JDK 1.1.x
- More programmers use Java to build Internet Applications that use C++ and Visual Basic combined

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All in 4 YEARS!



IBM and Java: 1999

■ Technology news

- ▶ IBM performance on Windows
- ▶ IBM virtual machine for Linux
- ▶ Real-time Java

■ Product news

- ▶ SanFrancisco
- ▶ VisualAge for Java V3
- ▶ WebSphere
- ▶ SecureWay On-Demand Server
- ▶ MQSeries
- ▶ VisualAge Embedded Systems for Java





IBM and Java: Strategic Priorities

- **Establish Java as the open industry standard for e-business applications**
- **Deliver best-of-breed software products to build, deploy and manage Java applications**
- **Deliver Java support for server hardware as robust as native programming models**
- **Establish IBM as the premier services partner for building and deploying Java applications**
- **Customers, customers, customers!**

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Infrastructure is More Than Just Java

■ Key infrastructure elements

- ▶ Portable Code
 - Java
- ▶ **Data Integration**
 - **XML**
- ▶ Security
 - PKI
- ▶ Directory
 - LDAP



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XML - another piece of the puzzle



XML brings data to the web, completing the necessary components for 90% of e-business applications.

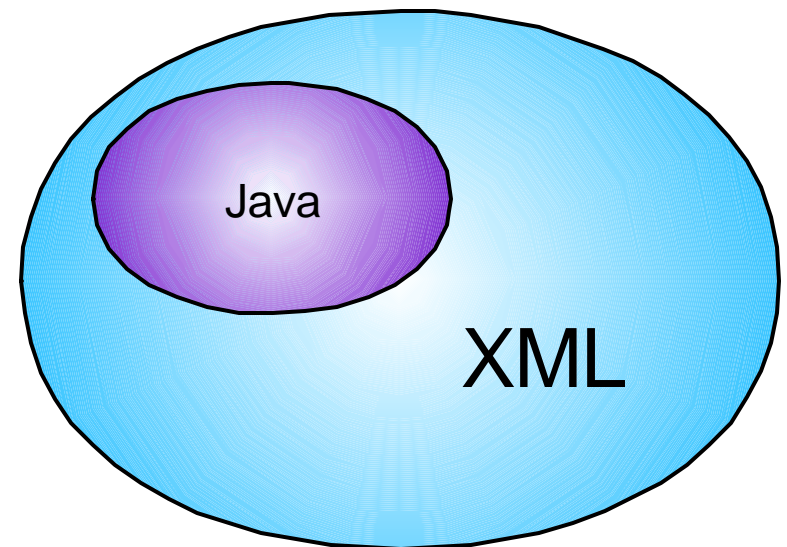
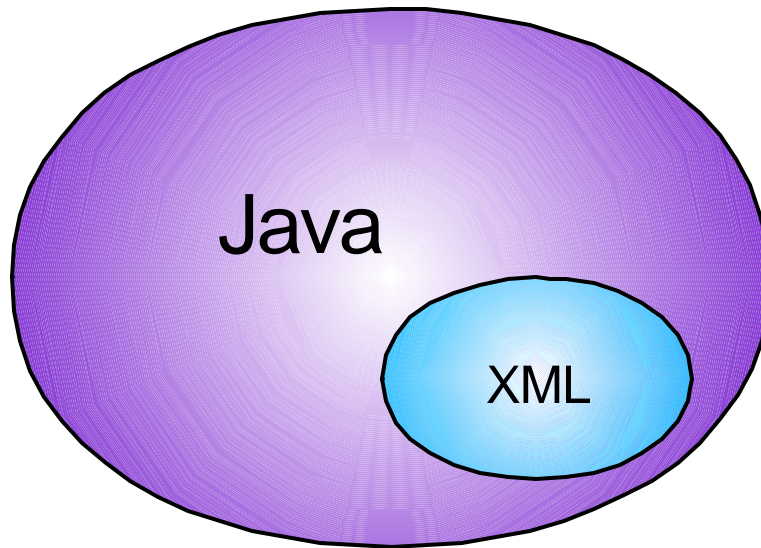
Web Communications (TCP/IP)
+ Web User Interface (HTML)
+ Web Programming (Java)
+ Web Data (XML)
= **e-business**
infrastructure

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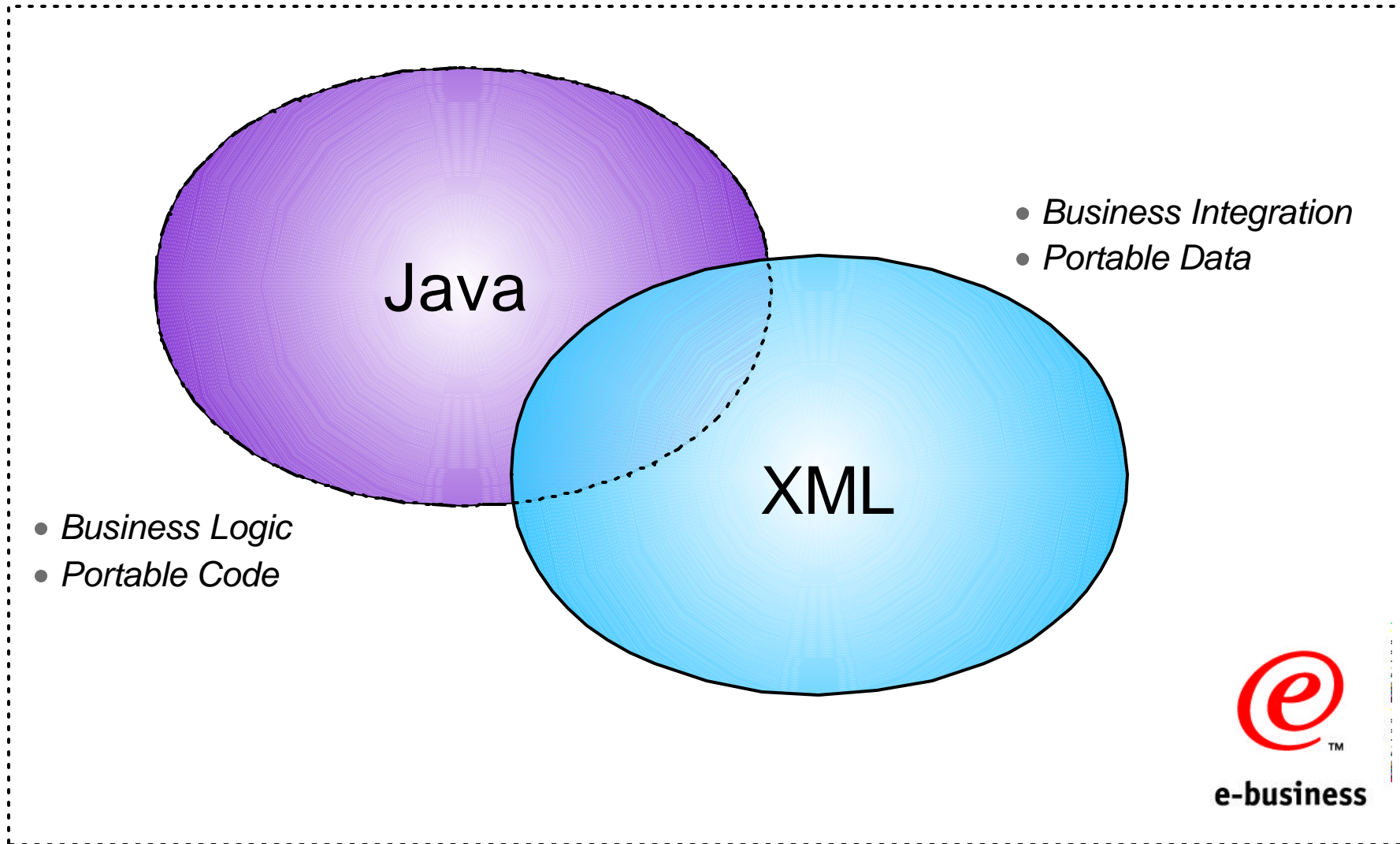
Java and XML: Two Worldviews





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Java and XML: IBM's Worldview



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XML turns data sources into a federation of information



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IBM's XML Strategy

- **Deliver XML based solutions which will help our customers and business partners build, deploy and manage e-business applications.**
 - ▶ Ensure strong, open standards
 - ▶ Enable our entire product line for XML exploitation
 - ▶ Build e-business solutions

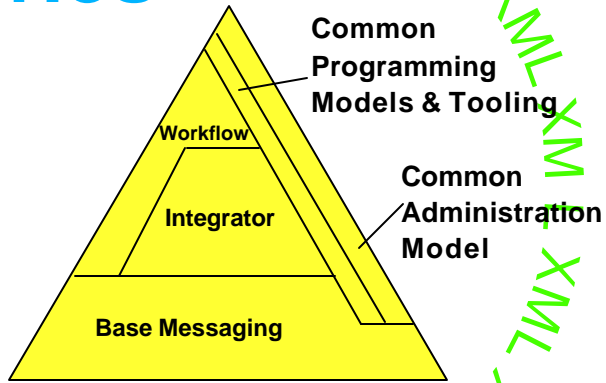
For more information, visit <http://www.ibm.com/xml>



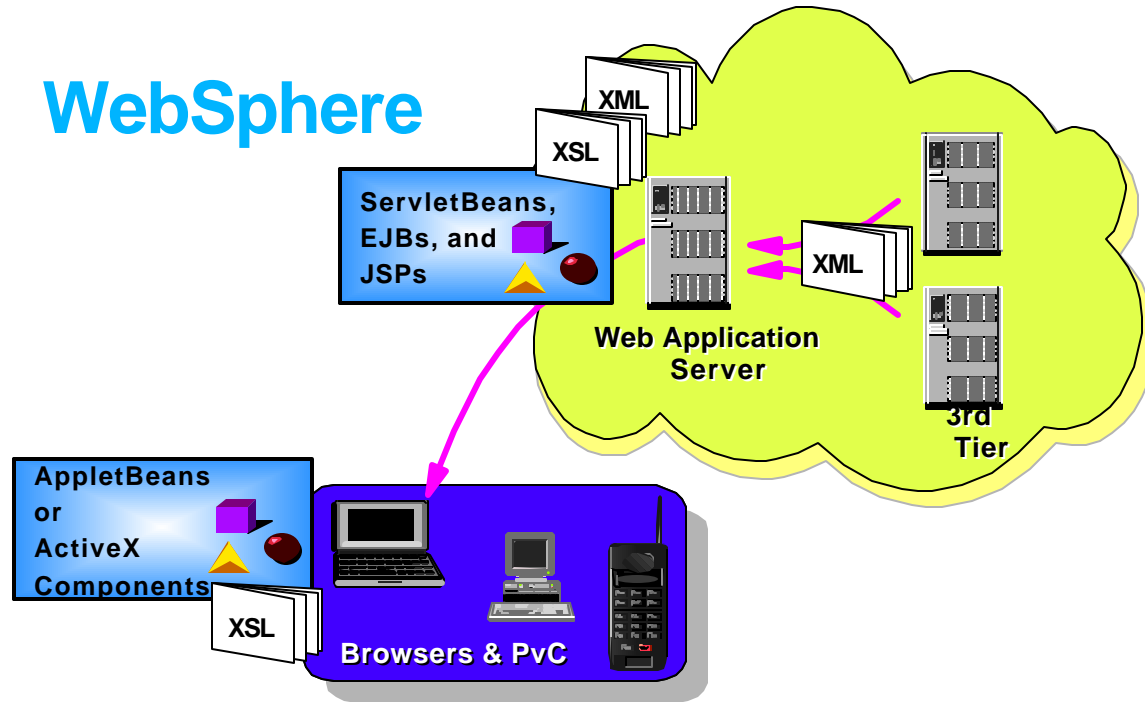
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Enabling our Product Line

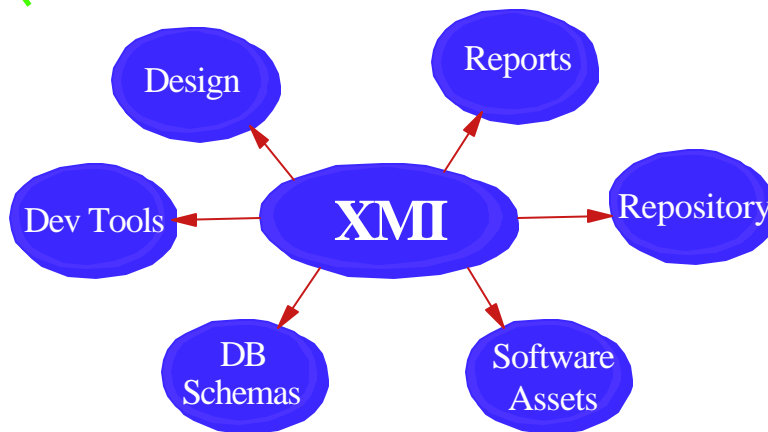
MQSeries



WebSphere



DB2



VisualAge

Domino





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XML in Summary

- **IBM has a strong focus on XML**
 - ▶ A key technology for e-business
 - ▶ We have 500 developers involved
 - ▶ alphaWorks is vehicle for alpha technologies
- **The next six months:**
 - ▶ Standards and technology refinement
 - ▶ Product and solution rollouts
 - ▶ Customer engagements
- **Ongoing:**
 - ▶ Industry vocabulary partnerships
 - ▶ Business-to-business solutions

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Components of Infrastructure

■ Key infrastructure elements

- ▶ Portable Code
 - Java
- ▶ Data Integration
 - XML
- ▶ **Security**
 - **PKI**
- ▶ Directory
 - LDAP

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For e-business to expand Security must evolve from "PROTECTOR" to "ENABLER" of e-business

Internal Focus
Access is granted to employees only.



External Focus
Suppliers, customers and prospects all need some form of access.

Centralized Assets
Data is stored in centralized hosts.



Distributed Assets
Data is distributed across servers, locations and business units.

Prevent Loss
Protect against confidentiality breaches.



Generate Revenue
The goal is to **enable** e-business

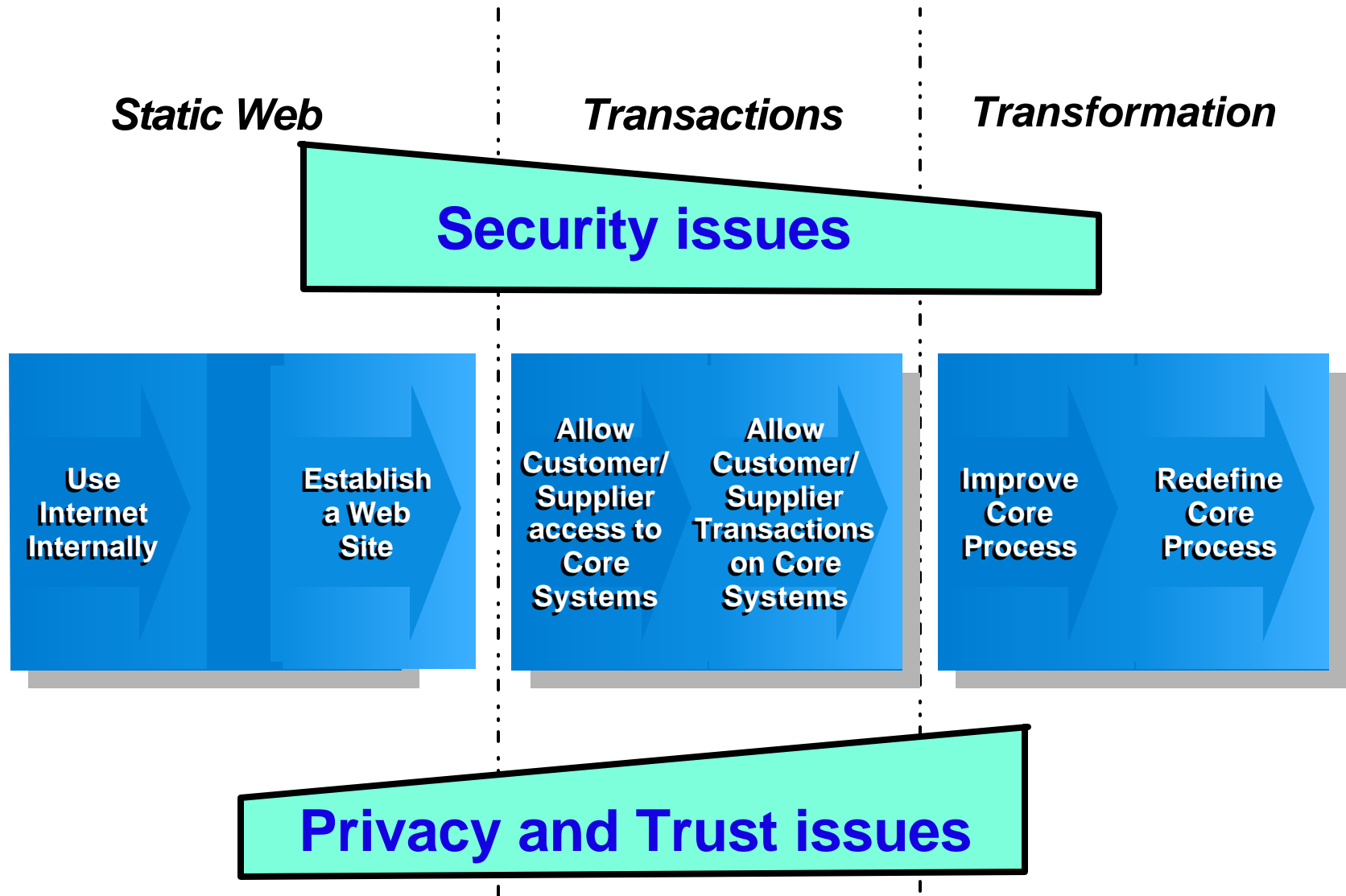
IT Control
Security management decides access.



Business Control
Owners of assets grant and manage access.

Security, Privacy, and Trust...

the building blocks of successful e-businesses





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Infrastructure is More Than Just Java

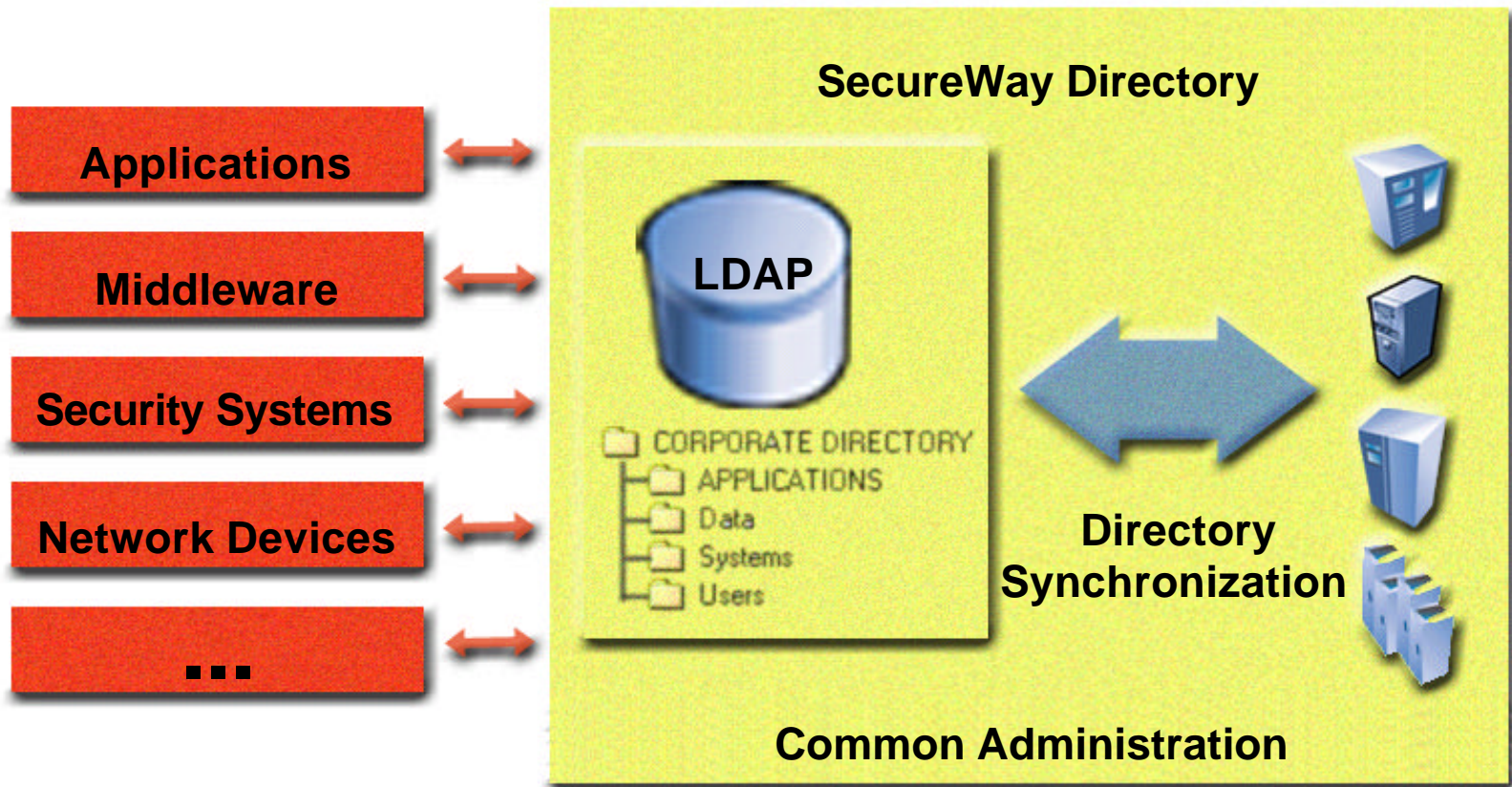
■ Key infrastructure elements

- ▶ Portable Code
 - Java
- ▶ Data Integration
 - XML
- ▶ Security
 - PKI
- ▶ **Directory**
 - **LDAP**

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Locate: Directory



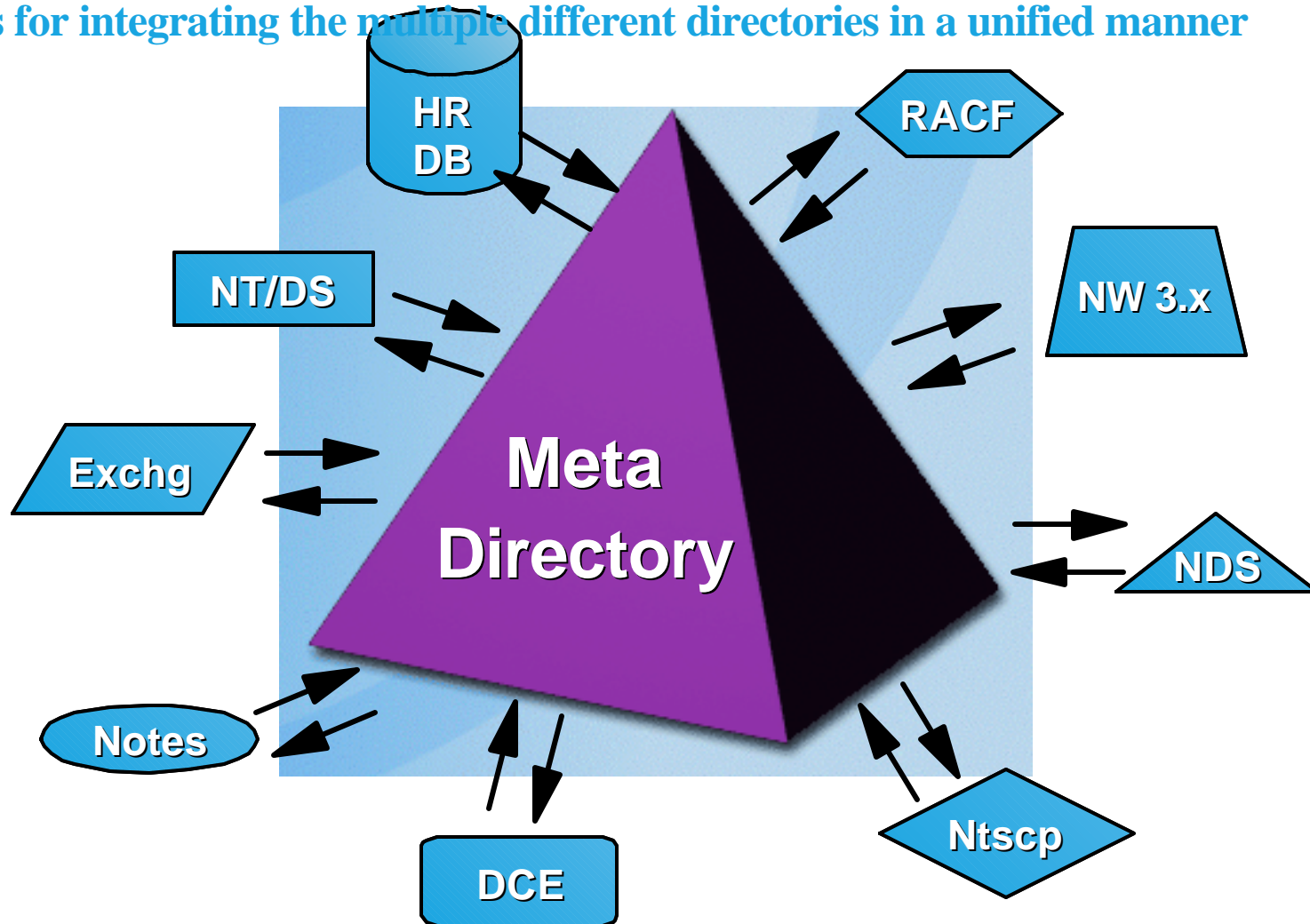
- **Allows creation of integrated, network aware e-business applications**
 - **IBM Middleware integrated via SecureWay Directory**
 - **Based on DB2 UDB for scalability and availability**
- **Directory synchronization with non-LDAP environments**
- **Enables enterprisewide directory management**



IBM Meta Directory

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- A common information model (the schema)
- Consolidated client access to information from all the connected directories
- A means for integrating the multiple different directories in a unified manner





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Infrastructure is More Than Just Java

■ Key infrastructure elements

- ▶ Portable Code
 - Java
- ▶ Data Integration
 - XML
- ▶ Security
 - PKI
- ▶ Directory
 - LDAP
- ▶ Management
 - Tivoli

■ **IBM using e-business to attract developers**

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alphaWorks

Speeding IBM Technology to Market

<http://www.alphaWorks.ibm.com>



Three Key Points

- 
- **alphaWorks makes key emerging IBM technologies available to the world at the earliest phases of development**
 - **alphaWorks allows developers around the world to partner with IBM on projects which may change the competitive landscape of your business**
 - **alphaWorks makes IBM's software development process more market-driven**



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alphaWorks Users

- **50,000+ visitors per week**
 - ▶ 11,000 downloads
- **Primarily early adopter developers, programmers, IT management, consultants**
 - ▶ Over 68% are college graduates, 37% have higher degrees
 - ▶ Represent various industries and company sizes
- **80% download & use technologies for "Idea Generation" and "Prototype Development"**

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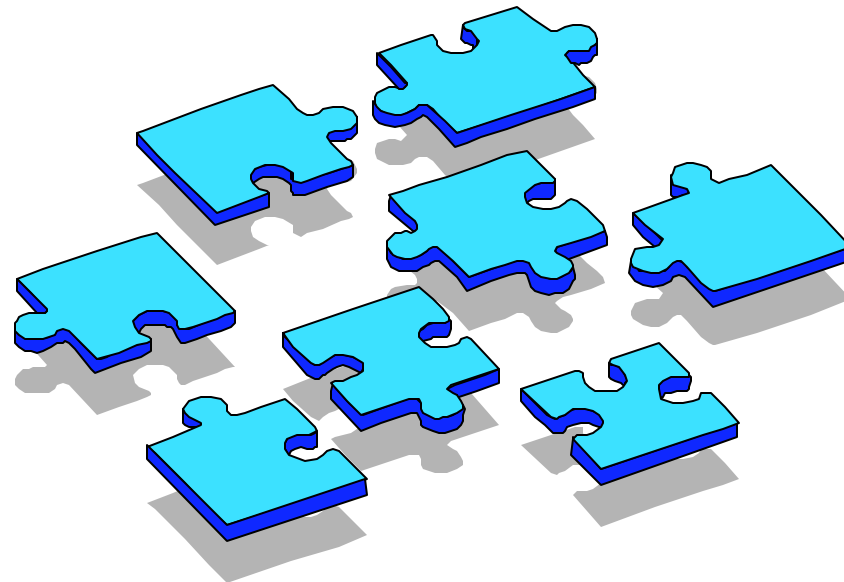
Portal into IBM mainstream

developerWorks™ BETA

- **www.ibm.com/developer**
- **In beta**
 - ▶ May 1,948,318 visits
 - ▶ June 3,565,975
 - ▶ July 3,248,616
 - ▶ August 3,780,512

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IBM SanFrancisco



Business Components in Java



www.software.ibm.com/ad/sanfrancisco



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IBM SanFrancisco is:



An **Industry Strength** Distributed Object Framework, with **pre-Built, pre-Tested**, Server-side **Business Process Components** (1100+) Designed to Build **Large-scale** Business Applications. ***Fast!!***

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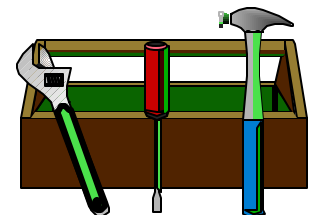


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"Built in the Market"

By IBM in Partnership with Software Vendors

- **Direct Partner participation and contributions**
 - ▶ 130+ Partners in reference and advisory groups
 - ▶ Partners participated in development team
 - ▶ Resulted in 50+ Patents
- **Tool vendor council**
 - ▶ 12 vendors enabling SF technology
- **ISVs and Companies using SF Toolkit**
 - ▶ 1300 Partners committed
 - ▶ 8000+ interested (evaluating)
- **Worldwide in scope & geography localization**



09/30/99



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SanFrancisco - Cross Platform

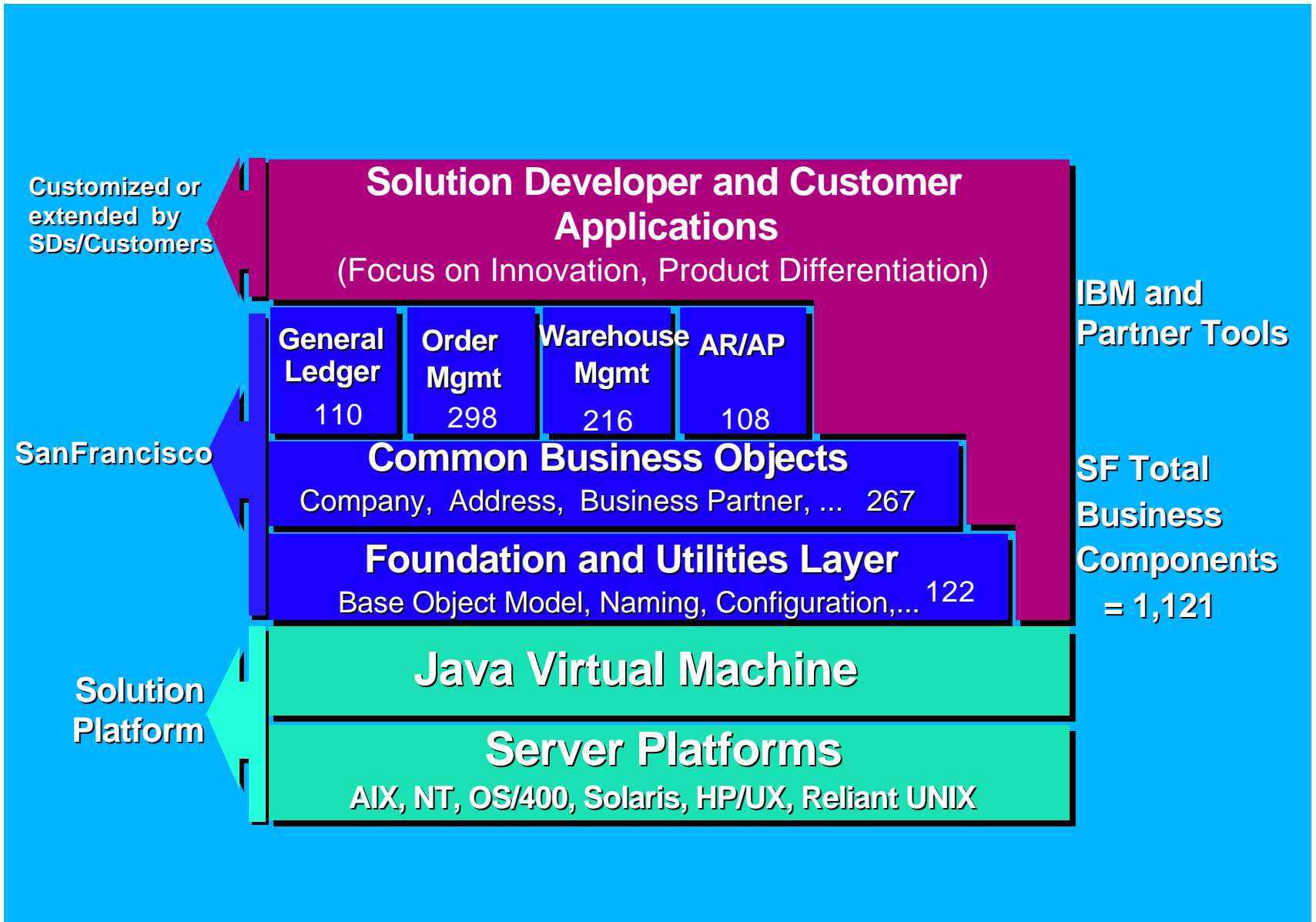
Clients	Servers	Operating Systems
HTML+Java Servlet HTML+Java Applet XML + Java Servlet Java applications Microsoft Visual Basic Lotus Notes . . .	RS 6000 AS/400 PC HP SUN Reliant Unix S/390* ** . .	AIX OS/400 NT HP/UX Solaris Reliant Unix OS/390* ** . .
Database	Development Tools	Licensees
POSIX flat files ODBC RDBs: DB/2 Oracle SQL Server OODBs* TBD . . .	IBM Inprise Semantec Synon Rational . . .	- San Francisco-enabled application solution provider or corporate developer - 1300+ - And growing! * Future Release ** Working Today





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Delivered with IBM SanFrancisco



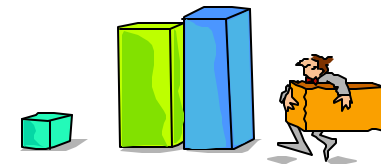
IBM SanFrancisco: Progress to date

■ Momentum in the Marketplace

- 1300+ Technology License Agreements
- 8,000+ Companies Evaluating San Francisco Code
- IBM Industry Involvement: Insurance, CRM, Government, & Process
- IBM Global Services Practices
- Adoption by Large System Integrators (SI)

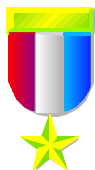
■ San Francisco Enhancements

- 1100+ Business Objects Available (Approx. 300 in SF1.1)
 - ▶ 122 Foundation Components
 - ▶ 267 Common Business Objects
 - ▶ 110 General Ledger Components
 - ▶ 298 Order Management Components
 - ▶ 216 Warehouse Management Components
 - ▶ 108 Accounts Receivable / Accounts Payable (Beta Release)



■ Awards & Recognition

- "Best Framework" (OOP'98 / SIGs Expo for Java)
- JOLT Product Excellence Award (SW Developers Conference & Expo)
- "1997 Technology Trendsetter" Award (MSA Laser Awards)

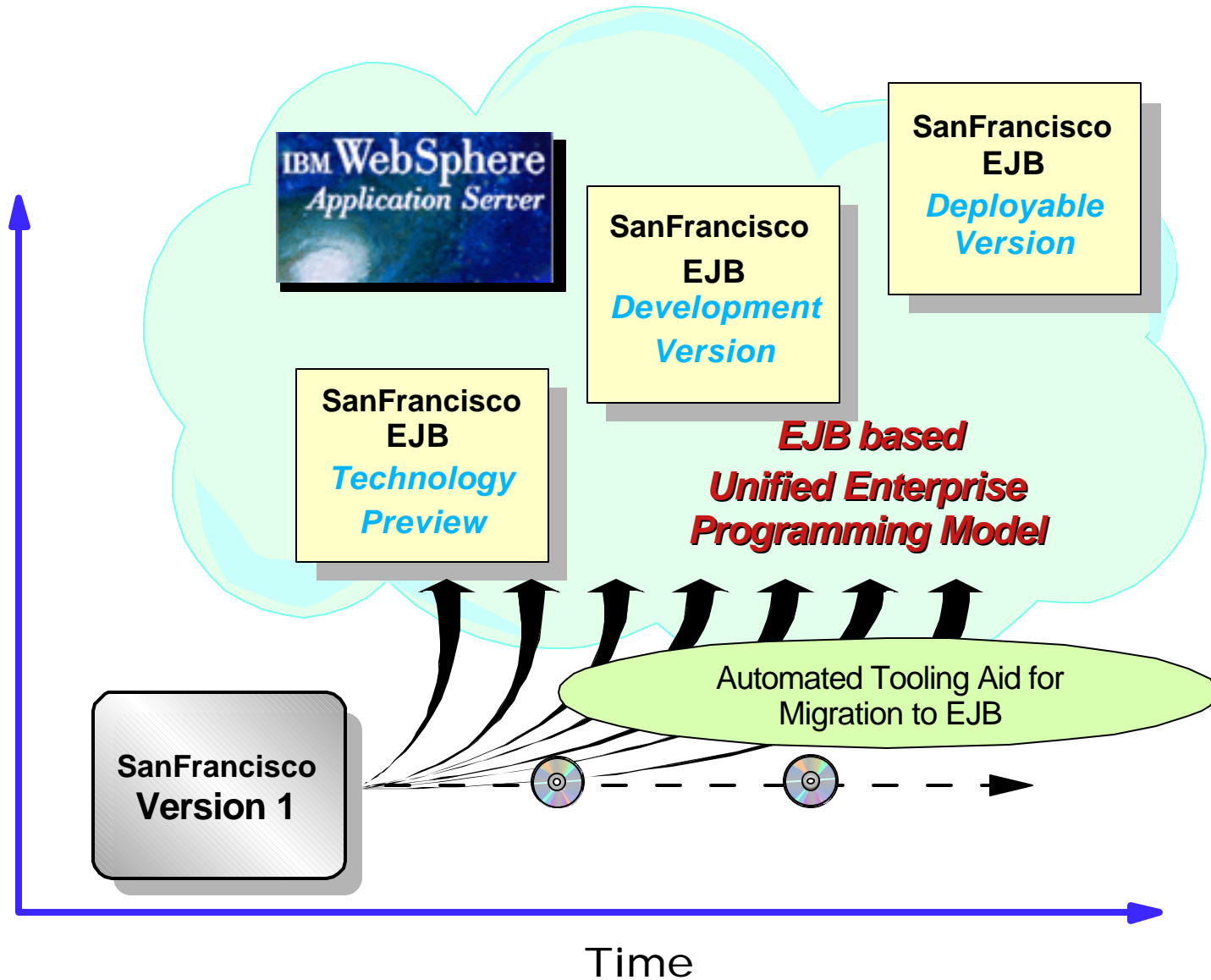


IBM SanFrancisco

Future Direction: EJB



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In Summary

- **IBM is the leader in translating the promise of technology into trusted e-businesses**
- **Java and XML are ready for mission-critical applications, and they're being used for them every day**
- **IBM's own e-business directed at developers is alphaWorks and developerWorks**
- **IBM SanFrancisco is viable today and integrating into the IBM App Framework for e-business**

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Web Resources

- **Portal into IBM's latest technologies**

- ▶ <http://www.alphaworks.ibm.com/>

- ***beta* Portal into IBM's e-business for developers**

- ▶ <http://www.ibm.com/developer/>

Traffic	May	June	July
developerWorks	1,948,318	3,565,975	3,248,616





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Backup Slides



IBM



IBM Developer Kit for Windows®, Java™ Technology Edition (Preview)

- 29% better on SPECjvm98 than Version 1.1.7
- 27% more messages per second on VolanoMark
- Runtime Environment for Linux®, V 1.1.6 Alpha gets equivalent VolanoMark results!

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New Java Virtual Machine for Linux

- **Reflects growing customer demand**
 - ▶ Linux represented 17% of new server installations in 1998 (IDC)
 - ▶ Over 1,000 downloads today alone!

- **Extends our JVM portfolio**
 - ▶ OS/390, OS/400, AIX, OS/2, Windows, 4690, etc.
 - ▶ 90% of Fortune 1000 companies use three or more operating systems


- **Part of IBM's broad commitment to Linux**
 - ▶ Hardware, software, services and support

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What Are the Benefits for Customers and Partners?

- 
- **Create end-to-end e-business solutions based on the most advanced technologies available**
 - **Leverage standards to ensure interoperability, investment protection, and lower cost of computing**
 - **Work with a partner who understands your business**



Why Do Businesses Embrace Java?

- 
- Java leverages existing IT assets to reduce the risk for businesses as they move to network computing
 - The Java programming model offers an open application model for multi-vendor heterogeneous information systems
 - Java expands market opportunities for reaching customers and suppliers

Hardware and Operating Systems are Foundations to Infrastructure

PC Servers

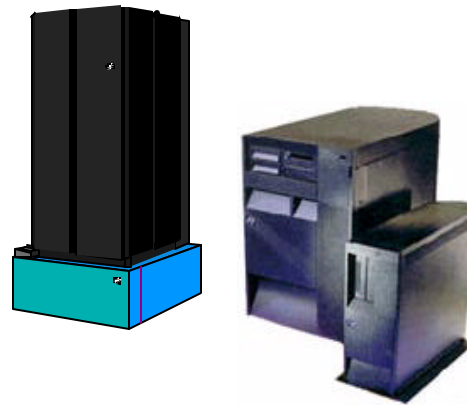
* 99% availability



- Preferred development platform
- Lowest cost for workgroups

Scalable Midrange

* 99.6% availability



- Scales seamlessly for high-volume applications
- Increased storage capacity

Enterprise Servers

* 99.999% availability



* Gartner Study

- Highest level of availability
- Lowest cost-per-unit of work



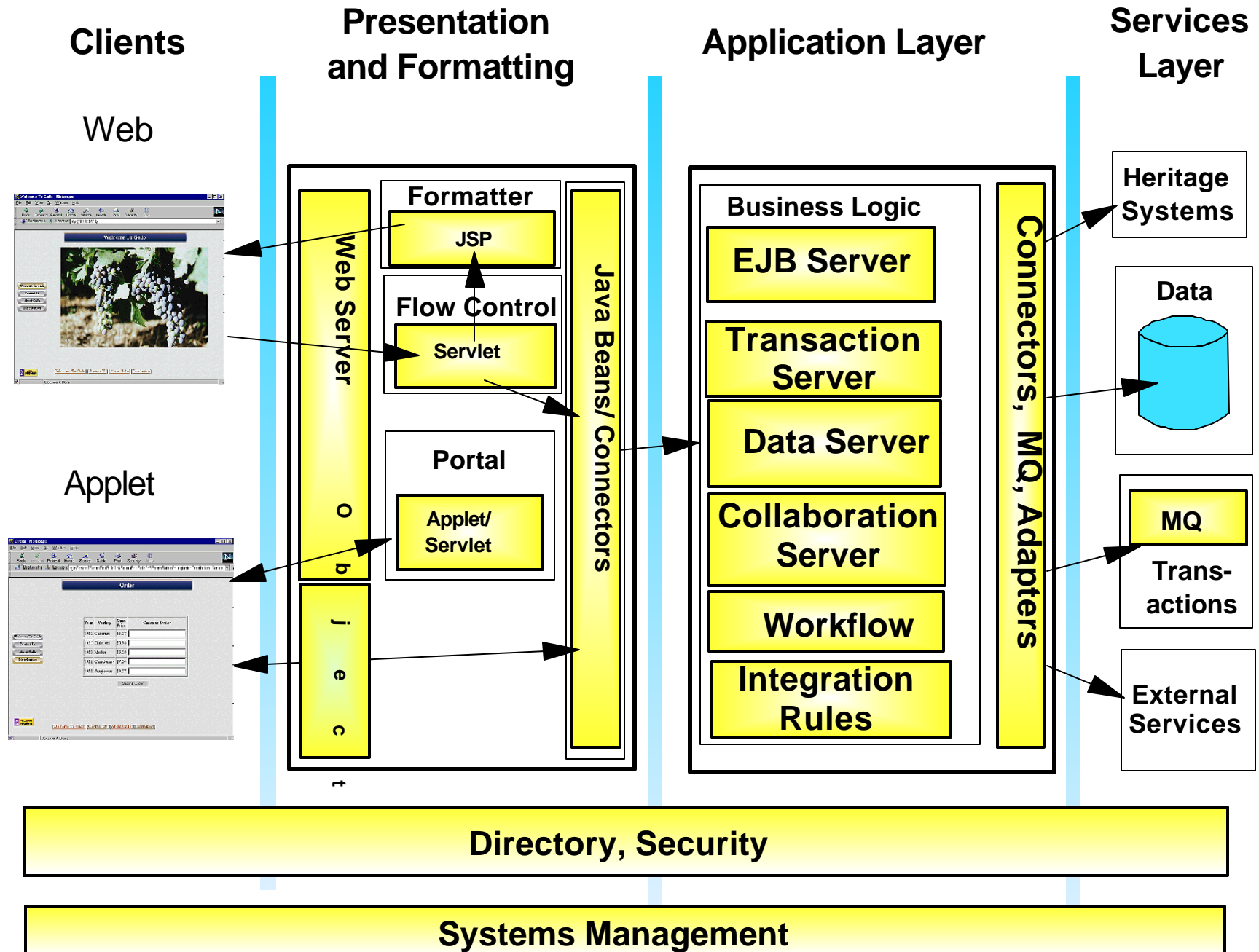
IBM's Embedded System Strategy





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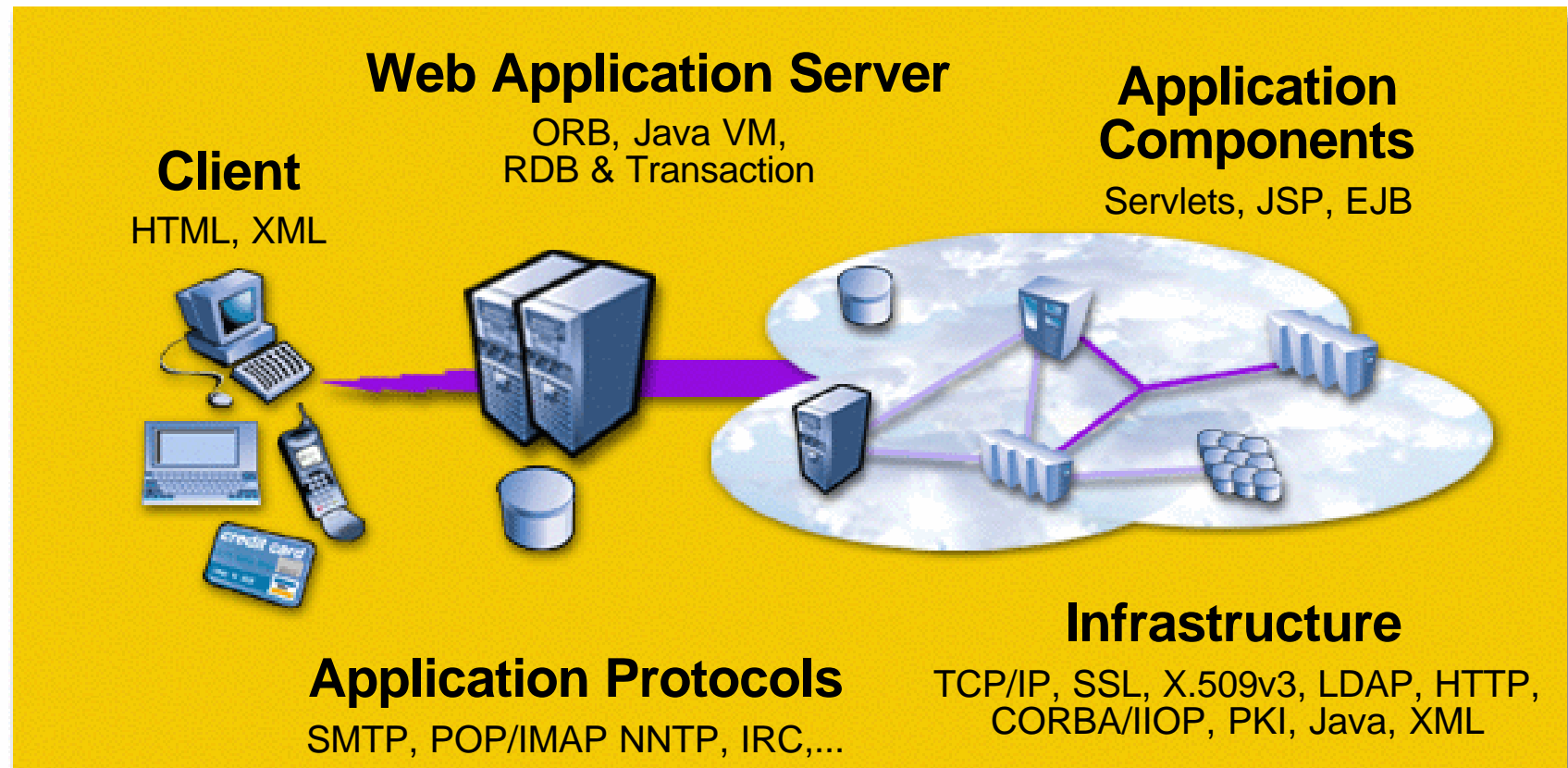
Application Framework Implementation





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Application Model you Choose Matters



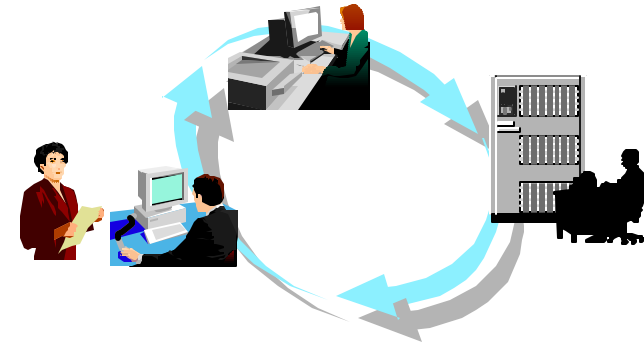
Industry Standards





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Privacy Strategy



■ Standards

- ▶ Increase IBM's support and involvement in the World Wide Web Consortium and PKI standards

■ Technology and Products

- ▶ Implement within IBM's servers (WebSphere & Domino) and browser (Notes 5), as applicable.

■ Public Policy

- ▶ Continue to pursue public initiatives to protect consumer privacy and to promote industry self-regulation or limited government legislation where appropriate or inevitable

■ Internal Practices

- ▶ IBM should lead by example, protecting the privacy of its own employees and that of its customers.

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