

OEM Executive Briefing Sept 23, 1999

## IBM **WebSphere** Application Servers

John Schiller AIM Business Development

... get your e-business up to speed

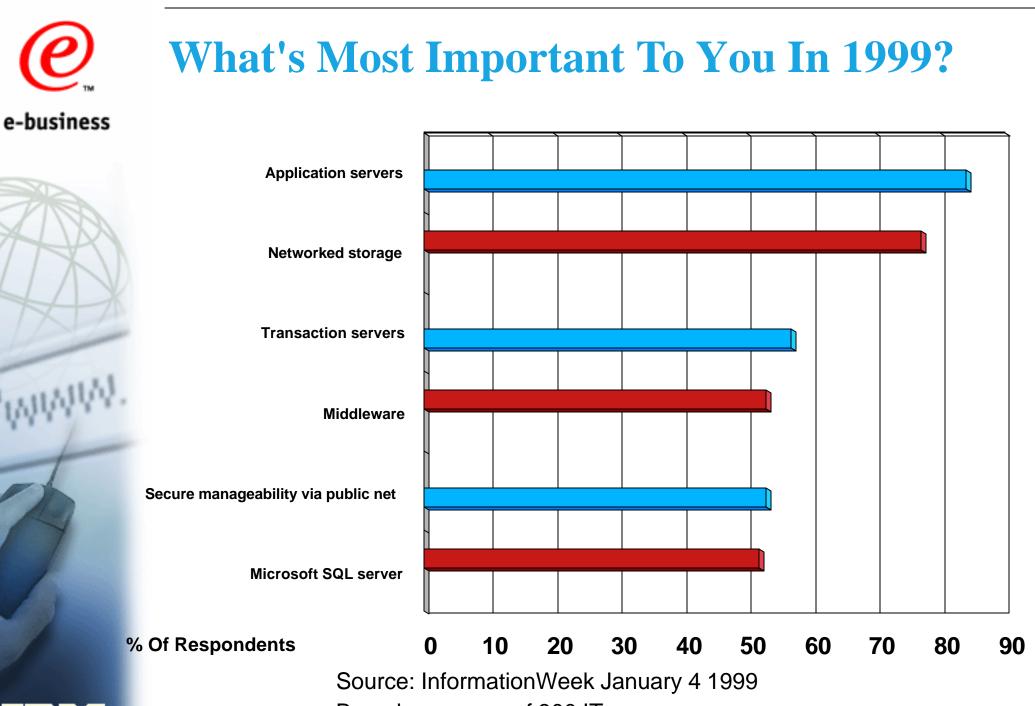
IBM.

#### Why are we here today?

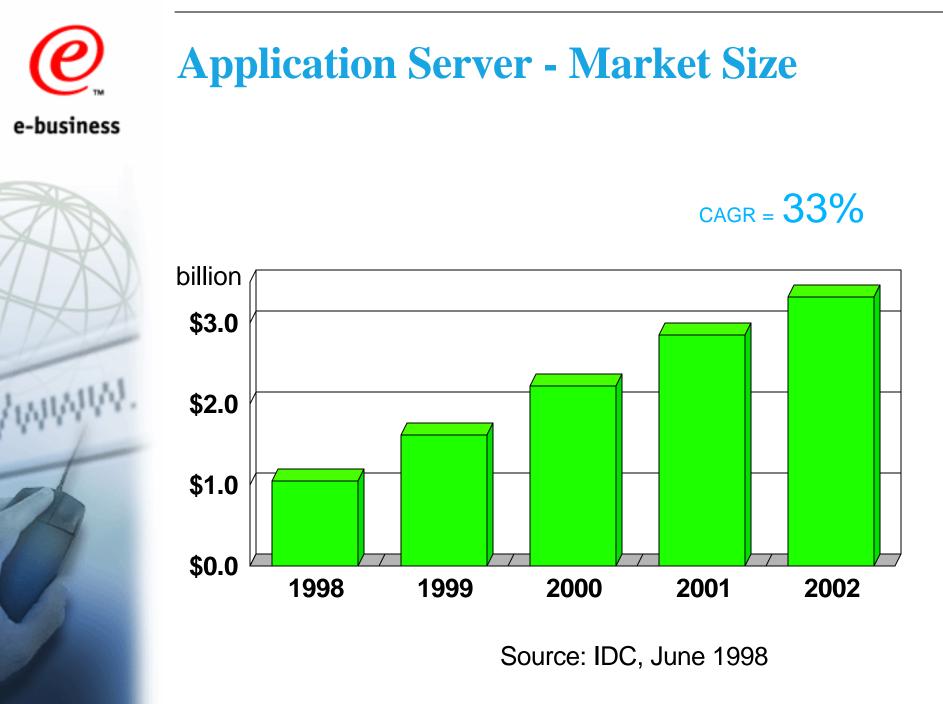
e-business



- Java business language of the internet
- IBM Java Leadership
- IBM created e-business mindshare
- IBM has helped to transform 18,000 businesses to e-business
- WebSphere at the core of a comprehensive e-business strategy
  - end to end
  - software, services and hardware
- WebSphere is the answer to...
  - "I want to do e-business; what do I buy?"



Based on survey of 300 IT execs.



IIN.





#### Topics

- Role of Web Application Servers in e-business
- WebSphere Family Overview
- WebSphere Application Server, Standard Edition
- WebSphere Application Server, Advanced Edition
- WebSphere Application Server, Enterprise Edition
- WebSphere Performance Pack and Cache Manager
- Building WebSphere Applications
- Managing WebSphere Applications
- WebSphere Value Net -- Providing Opportunity



#### **The Pressure is Increasing...**

#### CEO and Board Demands

"Respond to mergers, other market opportunities"

**CFO Demands** 

"Better cost controls"



#### **User Demands**

"Systems that are easy yet always work"

#### Existing and New Customers

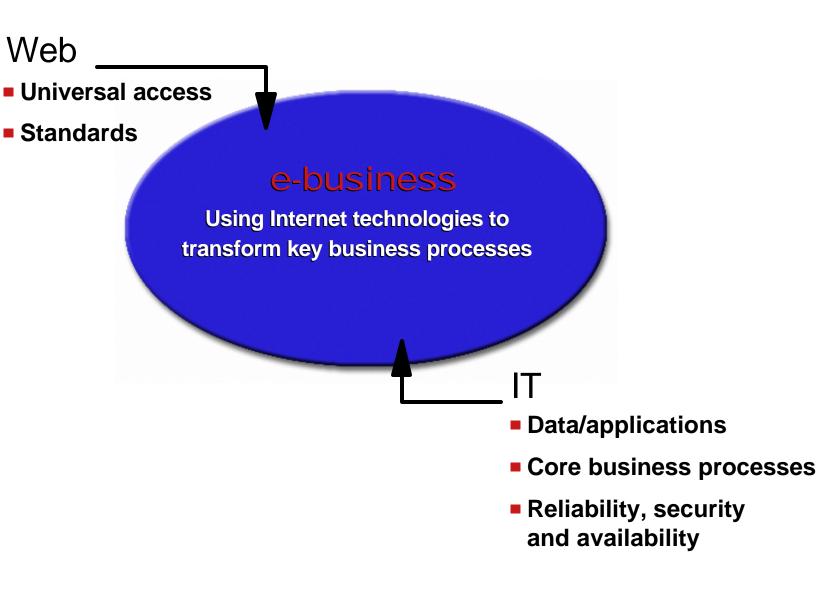
"What I want ... when I want it ..."

TDM.



#### **The Emergence of e-business ...**

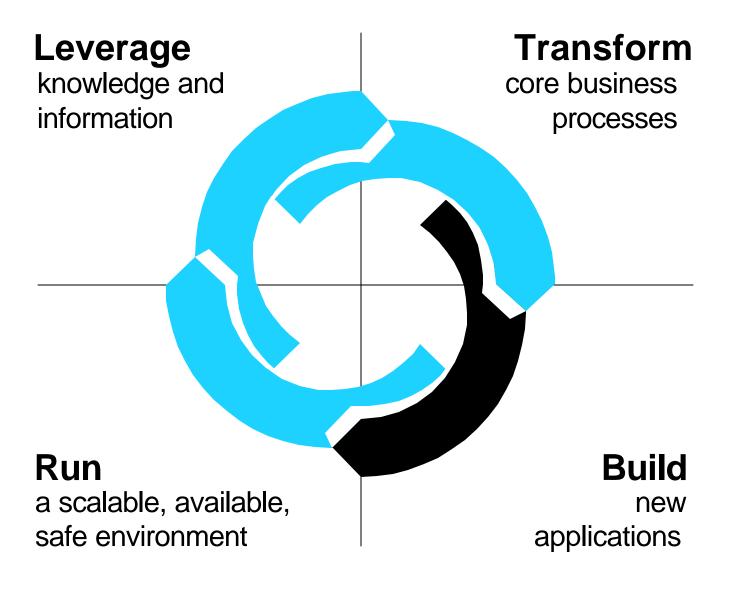






#### e-business Cycle



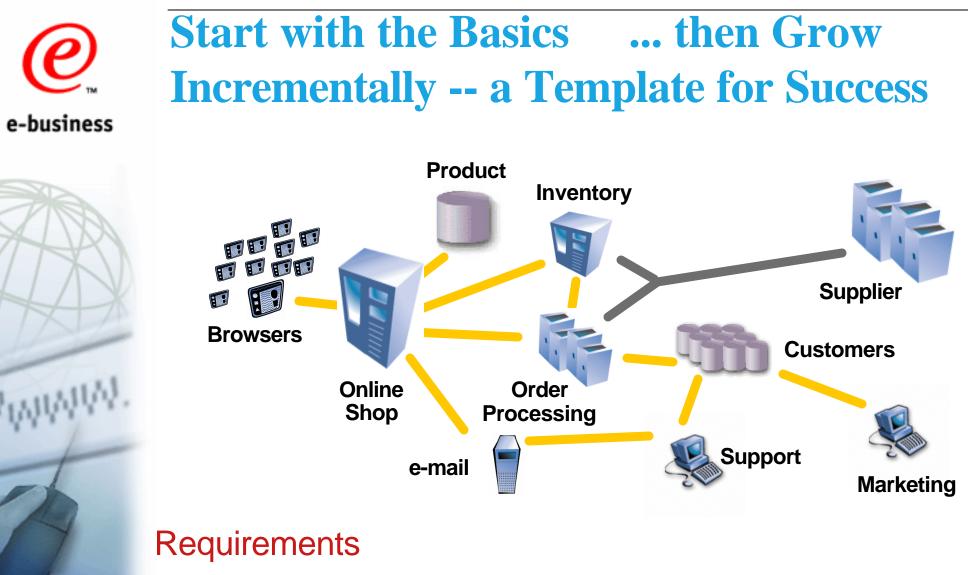






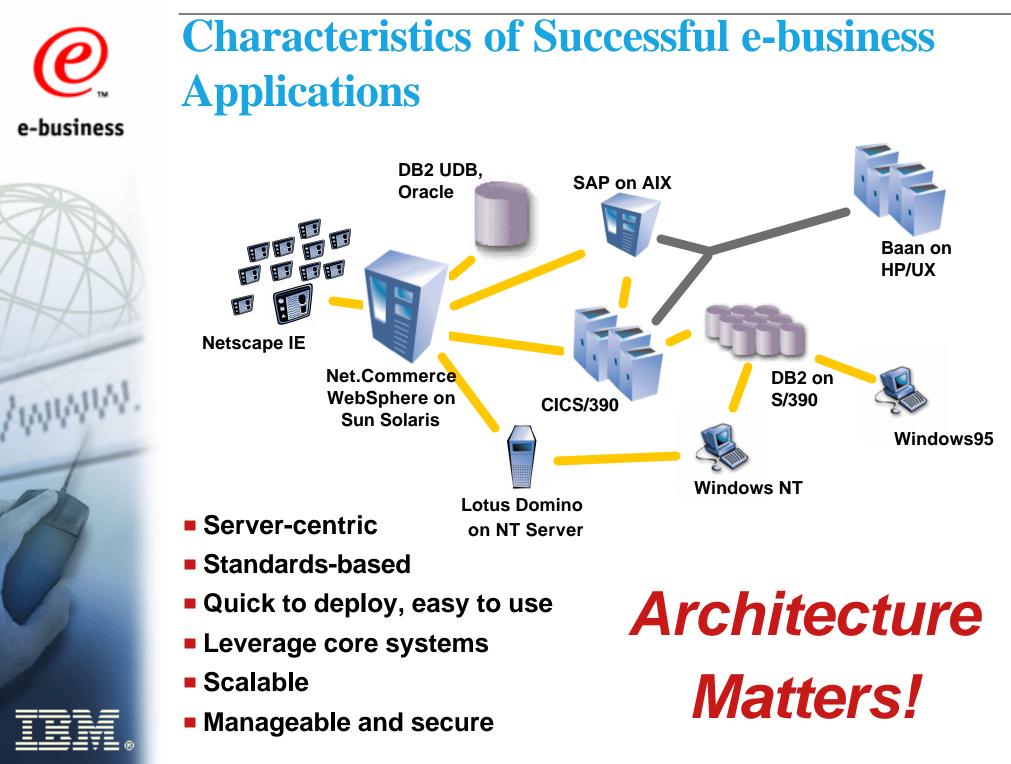
- You don't control the Internet
- The world is heterogeneous -- clients and servers
- Downtime will impact more than employee productivity
- More pressure will be put on development cycles than ever before





- 1. From static to interactive site
- 2. Start online shop
- 3. Add inventory check
- 4. Add order processing

- 5. Maintain inventory level
- 6. Add customer support
- 7. One-to-one marketing
- 8. Accommodate growth



#### **Anything new here?**

e-business



- Well, no...
  - distributed computing
    - 3 tiered...

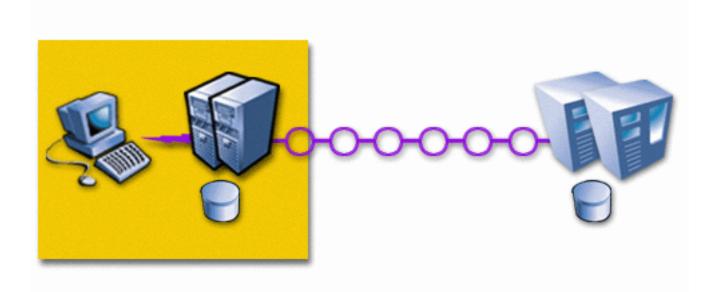
#### Well, yes

- opening up existing applications to new customer base
  - new ways of doing "old" things banking, brokerage
- driving new applications and new businesses
  - auctioning, priceline.com
  - anybody can play
- fundamentally changing the business and computing landscape
  - ...and customer is the new driver



#### **Architecture Option: Client/Server Model**



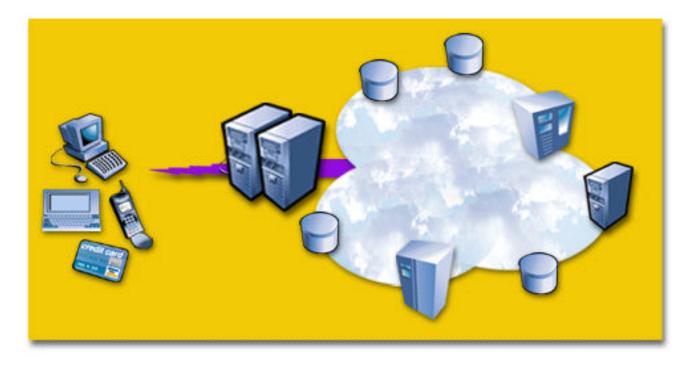


- Requires homogeneous clients
- Clients, servers must be built, deployed simultaneously
- Applications are configuration dependent
- Integr'n with other data sources, transactions not easy



#### **Better Option: Client to Services Model**





- Supports any client device
- App's are built independent of deployment platforms
- Provides universal access to data, services across all types of networks
- Workload can be optimized across servers





#### Web Application Servers Enable the Client to Services Model for e-business ...

- Turning Web site visitors into customers
- Reducing operational costs, increase revenue
- Improving customer satisfaction
- Shortening sales cycle
- Creating competitive advantage



#### What is a Web Application Server?

- A mid-tier, middleware application server connecting a web client to back-tier databases, transaction systems, and applications.
- Beyond simple database-to-web publishing ... to High-performance database access and applications
- Multi-discipline development environment ... including Web-management and advanced tools
- Supports the evolution of multi-tier distributed applications
- Application frameworks
- Fail-over support with load balancing



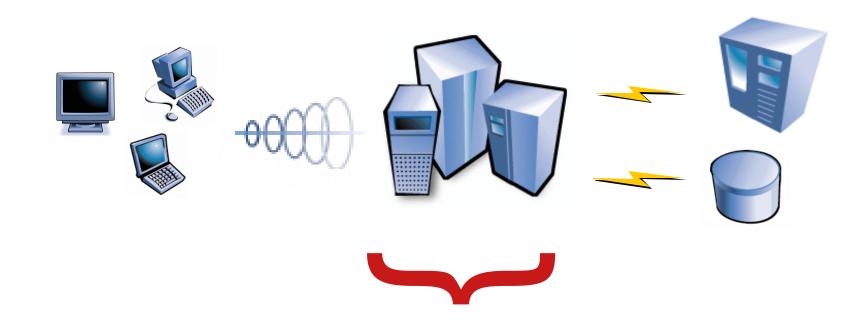
#### Web Application Server Benefits ... Zero-Cost Client-Side Deployment



- Deploy securely to any client
- Deliver rich presentation content
- Manage centrally



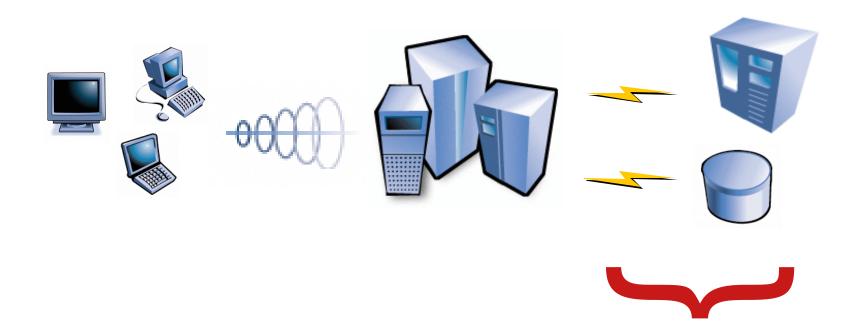
### Web Application Server Benefits ... Business Logic Centralized on Server



- Write new business logic
- Don't worry about the "plumbing"
- Enable/host Web transactions



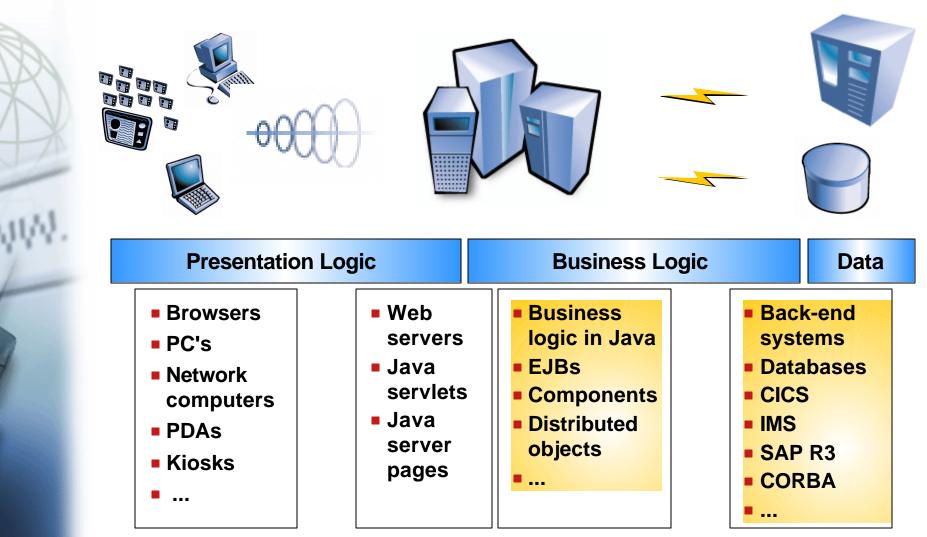
## Web Application Server Benefits ... Integration with Existing Data, App's



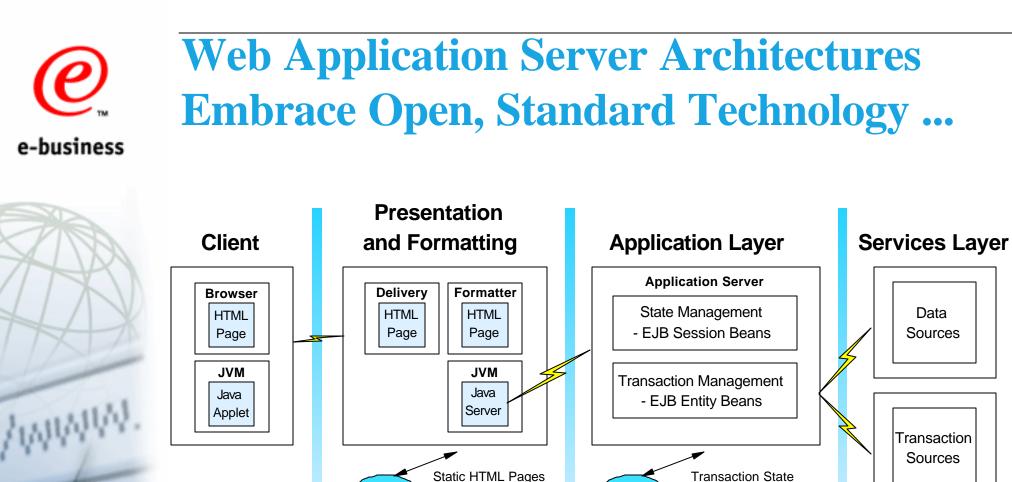
- Connect to any server
- Leverage existing investments
- Extend applications to the Web



### Web Application Servers Provide Tier Separation for Flexibility, Scalability ...



IRM



SHTML Pages

Java Applets

Java Servlets

JSPs etc...

HTTP TCP/IP RMI IIOP XML SSL JAVA LDAP X509V3 POP/IMAP SMTP

**Application State** 

Synchronous/

Asynchronous

TBM.





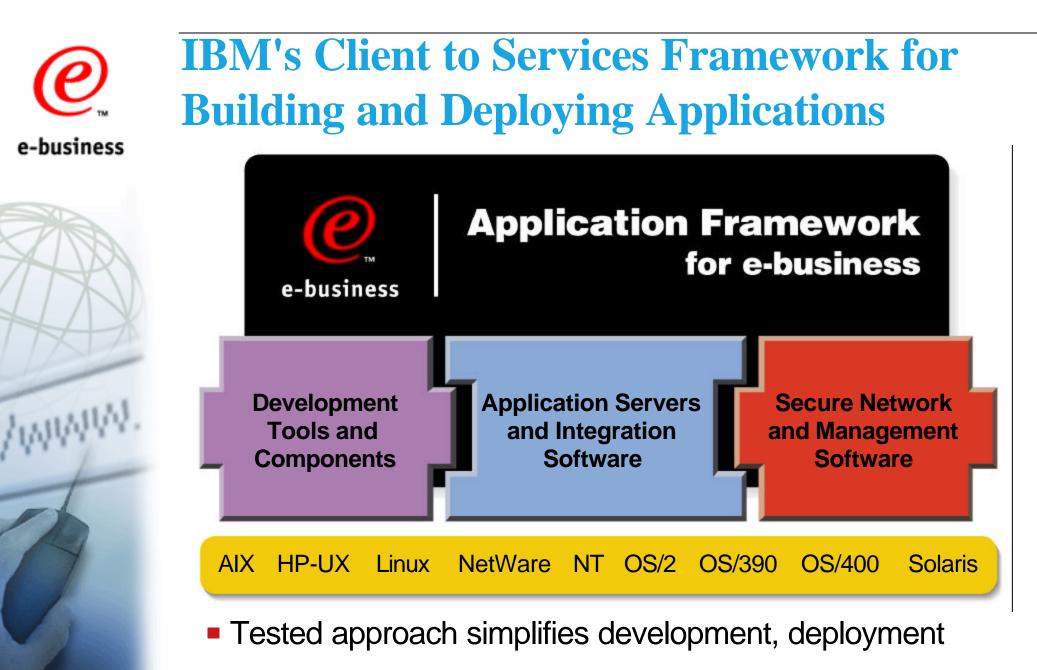
#### Topics

Role of Web Application Servers in e-business

#### WebSphere Family Overview

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- Building WebSphere Applications
- Managing WebSphere Applications
- WebSphere Value Net -- Providing Opportunity





- Rich product portfolio supports simple to sophisticated applications
- Based on cross-platform standards (Java, XML, ...)

#### **Supporting the Framework -- IBM Application and Integration Servers** e-business Application Framework for e-business e-business **DB2** Universal CICS TS Lotus Domino **IBM WebSphere** Database Transaction-intensive Rapidly develop and Speed transition from Best-performing Web/Java applications database for UNIX deploy collaborative publishing to Web-based and NT applications Speed transition from transactions publishing to Advanced capabilities Handles multimedia Web-based for managing work as well as For transactiontransactions and information flow intensive conventional data environments Support for distributed Optimized for Web Integration with business components database. ERP and Support for distributed applications transaction systems business components Delivers enterprise class reliability and availability

MQSeries Family — Application Integration Services



#### WebSphere and Domino -- Optimized to Serve Customer e-business Needs

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Optimized for collaboration and workflow

IIM Web Sphere

Optimized for distributed transactions and components



#### WebSphere Application Server Family --Key Usage Concepts

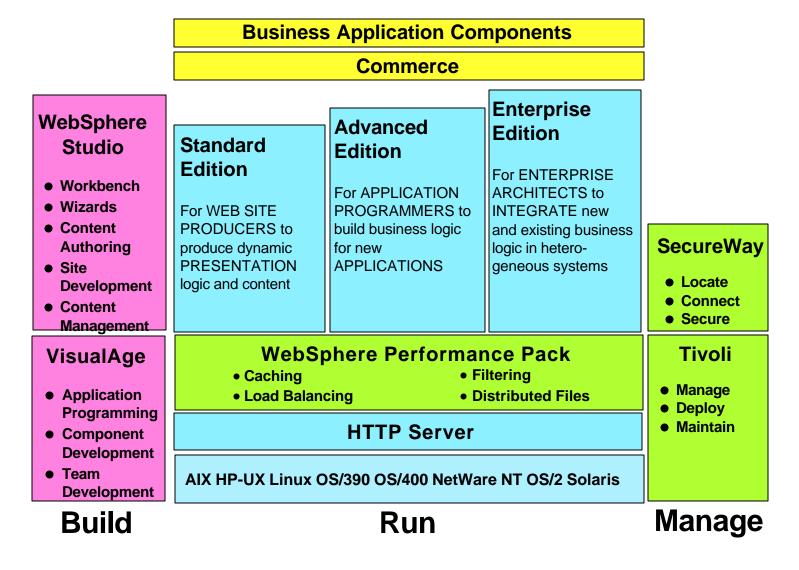
- Targets Web site producers, application programmers, enterprise architects -- enabling small to large e-businesses
- Enables a range of e-business solutions from simple Web sites to the most sophisticated Web-based e-commerce activity
  - Runs, builds, manages e-business applications
- Supports all emerging e-business applications
  - ► Web self-service
  - Customer relationship management
  - Supply chain management
  - e-commerce, subscription services
  - Business to business communications



# WWW

#### WebSphere Family -- Broad Function, Selectable Qualities of Service ...

#### Family of Complementary, Integrated Products

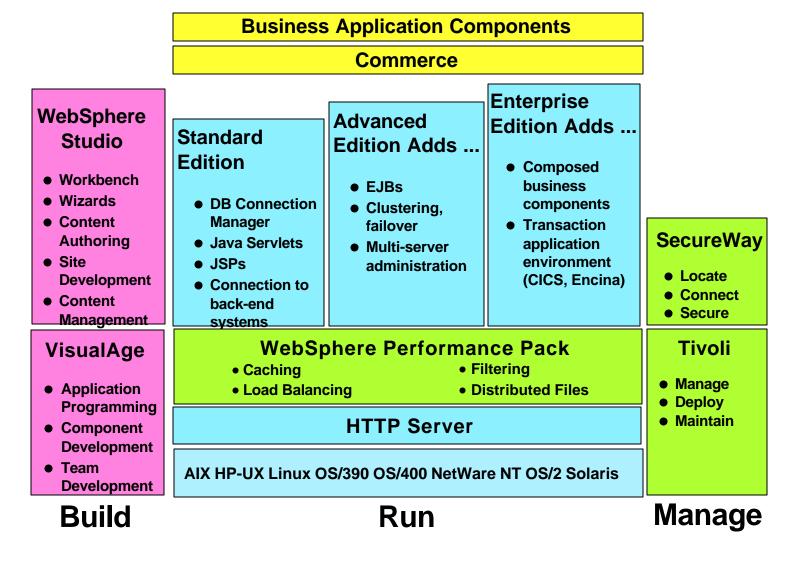




# WWW

#### **WebSphere Family -- Broad Function, Selectable Qualities of Service ...**

#### Family of Complementary, Integrated Products







- Accommodates broad range of user situations, investments, choice through family's multiple product entry points
- Protects existing, new IT investments
  - Builds upon open standards
  - Leverages existing data, system integration
- Lowers overall cost of software ownership
- Builds scalability, security, reliability into e-business applications







#### Why the WebSphere Family Is Right for You -- It Provides ...

- Market leading features and function
  - Multiplatform support (Windows NT to OS/390)
  - Unmatched Java commitment, investment
  - Most complete CORBA implementation in market
- Ability to leverage existing applications and data
- Product adherence to open standards
  - Leadership, partnerships with the open community
- Completeness of solution
  - Selectable qualities of service, performance, mgt
  - Good investment breakpoints
  - Scalability, portability, reliability
- IBM experience and commitment



#### WebSphere in the Press ...

"In terms of the products, services, partnerships, and general depth of experience in this market, IBM has to be considered the front-runner,"

-- InfoWorld Electric 17Sep99

"[WebSphere Enterprise Edition] is for the companies that are running our economies. ...They're delivering what is absolutely essential for e-commerce to really take off." -- Reuters 18Jul99 "WebSphere EE is an application server on steroids."

-- InternetWeek 13Sept 99

"... the race for best Internetcommerce vendor is on and running. Currently leading the pack in the early stage of this race is IBM."

- InfoWorld Electric 17Sep99

"And IBM through Novell will have a WebSphere market position that has no other rivals." -- Aberdeen Group Mar99

> "IBM through WebSphere is turning a garage full of great technology ... into a relatively coherent platform for application development that runs across their platforms."

> > -- InfoWorld Electric 19Jul99

TBN.





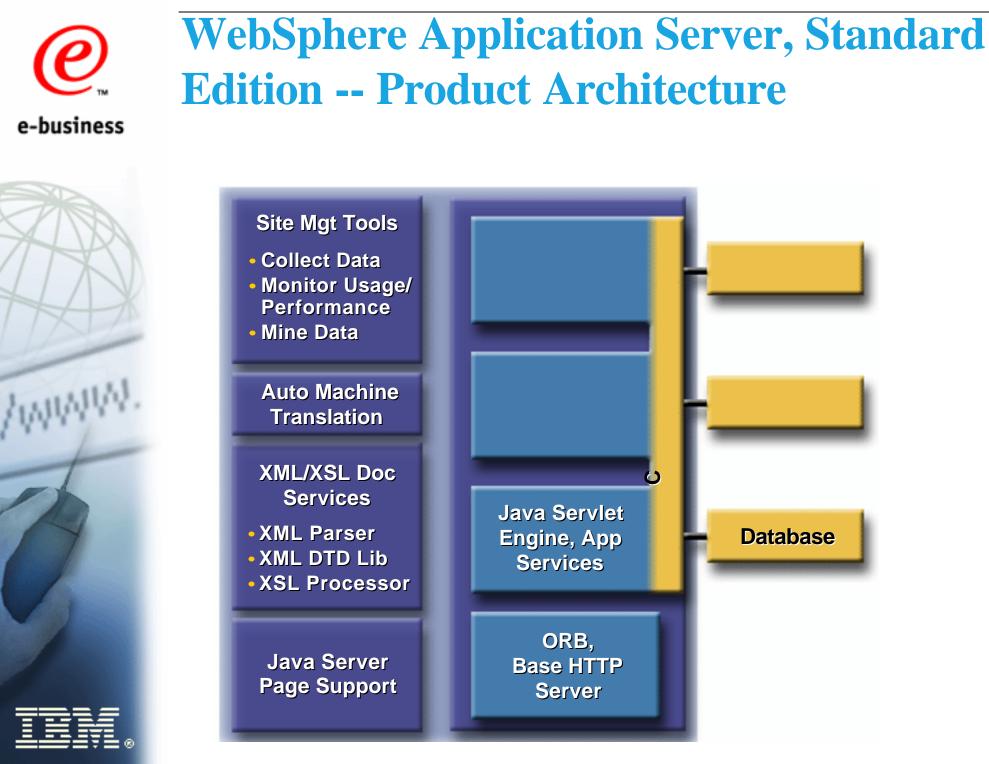
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#### WebSphere Application Server, Standard Edition -- Key Usage Concepts

- Targets Web site producers -- enabling them to produce dynamic presentation content / logic
- Transforms static Web sites to dynamic ones
  - Supports development, runtime for dynamic Web page content delivery
    - Java servlet run-time/services, Java Server Page (JSP) support, XML document structure services, high-performance database connection manager
  - Runs on a broad range of HTTP servers
- Connects Internet users to businesses
  - Manages access and interactions
  - Supports presentation logic for dynamic Webpages
  - Enables Web self-service application requiring database connectivity

TEM.







#### **WebSphere Application Server, Standard Edition -- Key Benefits**

- Converts HTTP servers into functional Web application servers
  - Supports Apache, Netscape, Microsoft, Lotus Domino HTTP servers
- Provides standards-based Web application infrastructure
  - Facilitates portable, maintainable, reusable code development using Java servlets
- Is enabled for high-end Web server scalability and availability by WebSphere Performance Pack





#### WebSphere Application Server, Standard Edition -- New in Version 3

#### High-performance, pooled DB connectivity

- Session and state management across multiple servers
- XML server tools
  - XSL Processor, XML Parser twice as fast

#### Java Server Page support

- Extended with new query, connection tags
- Site analysis
  - Analyze Web logs from multiple platforms
  - Database to provide scalability, customizable reporting
- Auto-translation of Website content on the fly

#### Management

- Security (LDAP, SSL improvements), SNMP instrumentation





- Covers simple sites on Windows NT through highly complex sites on S/390
  - ► More reusable programming model than ASP, COM
  - Can grow with WebSphere family (servlets, EJB's) to Enterprise Edition with the EJB model
  - Exploits industry wide innovation with servlets
- Manages high performance DB connectivity link
- Insulates app's from proprietary server extensions (ISAPI, NSAPI, ...)
- Is scalable to large enterprise high volume Web traffic with WebSphere Performance Pack





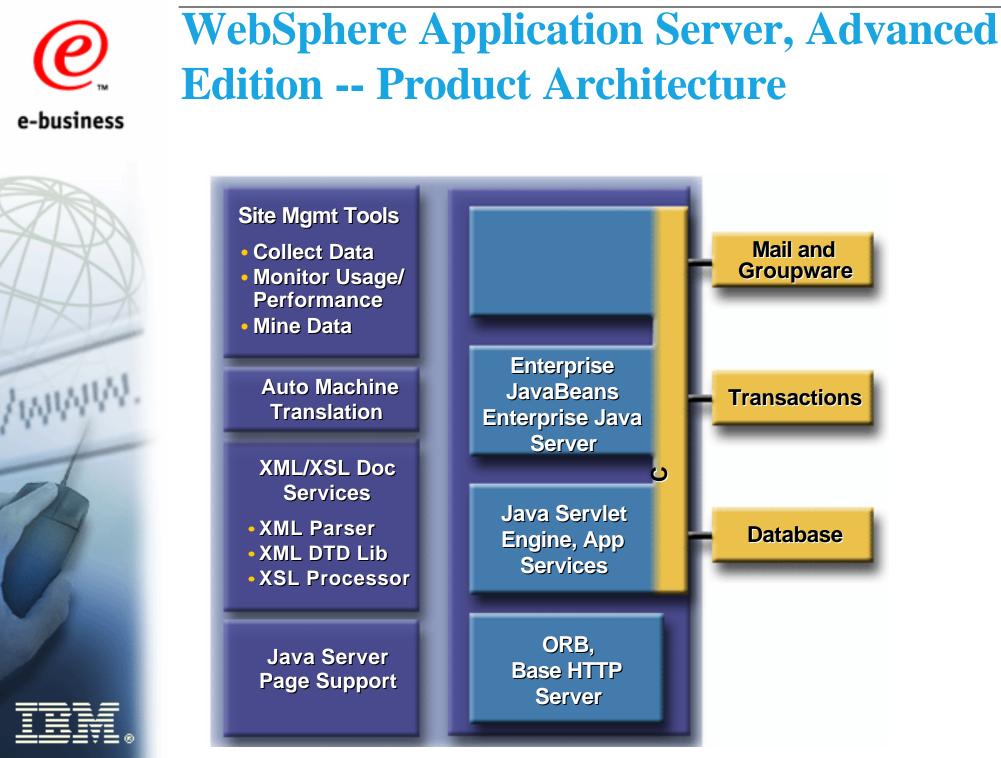
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# e-business



### WebSphere Application Server, Advanced Edition -- Key Usage Concepts

- Targets application programmers -- enabling them to build business logic for new e-business applications using EJB components
- Provides standards-based programming model
  - Supports all major EJB constructs
    - Session and Entity Beans, RMI/IIOP communications, containers
  - Supplies Enterprise Java Server services
    - JNDI, JDBC, JTS, ...
  - Manages workload across applications servers
  - Supports Web connectivity to leading transactional, DB systems
- Enables medium and large e-businesses and business-to-business communication
  - ► e-commerce, business integration applications





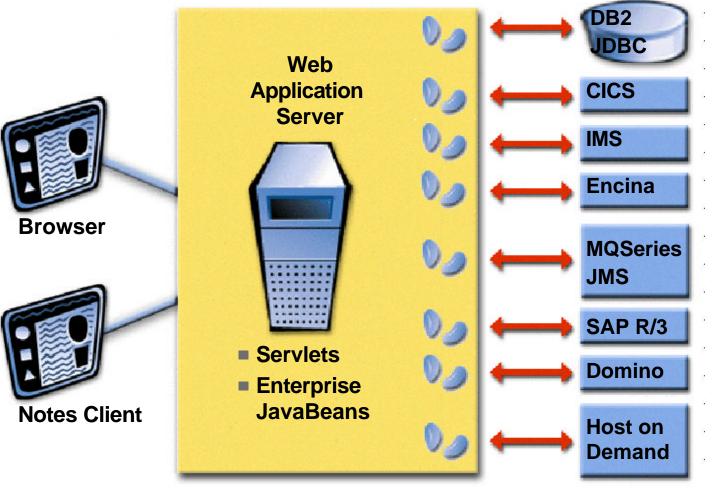


### WebSphere Application Server, Advanced Edition -- Key Benefits

- Standard Edition benefits +
- Adds standards-based, mid-tier reusable parts
- Connects to major DB and transactional systems
- IBM's experience promises highest quality implementation in the marketplace



### **Backend Connectivity in WebSphere Application Server, Advanced Edition ...**



- Web enables native connection to back-end systems
- Consistent developer interface -- with no changes to back-end application required

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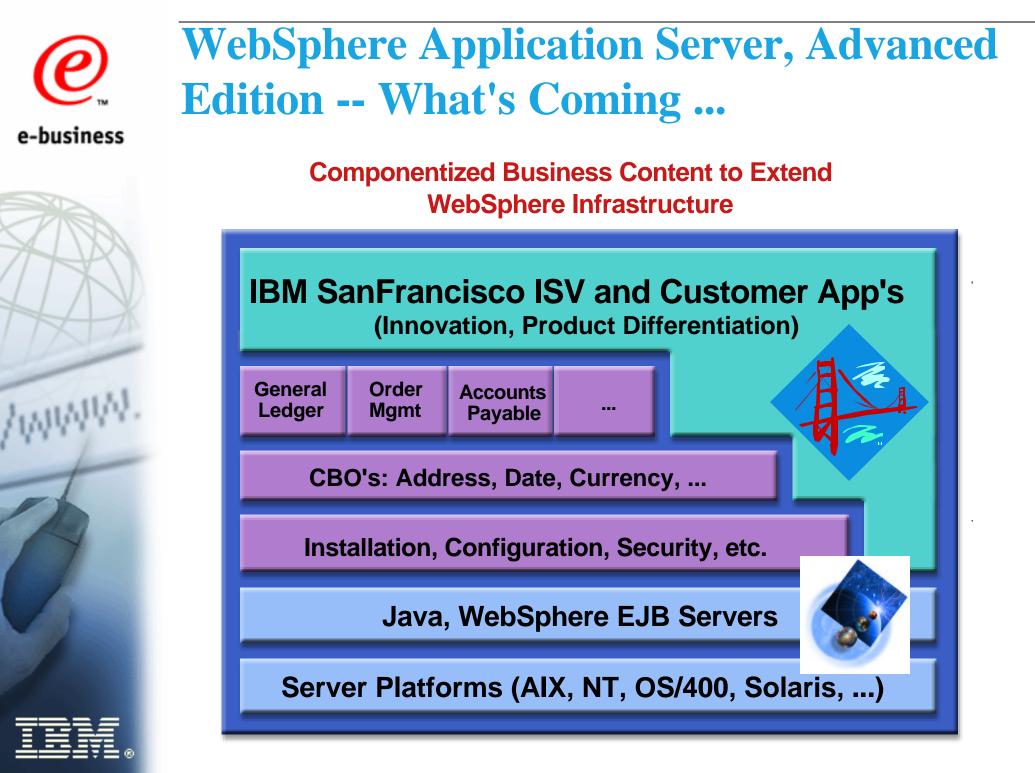




### WebSphere Application Server

### **Advanced Edition -- New in Version 3**

- Standard Edition enhancements +
- EJB server
  - Scalability features for EJBs, servlets and JSPs
    - EJB, servlet, JSP code all executes in the same runtime
    - Application-level load balancing
    - Application-level partitioning
    - Workload management for applications
  - Persistence supported through DB2 and Oracle
  - Improved security controls and management
    - User, group-level setup
    - Method-level policy and control
- Support for workload management and failover across multiple nodes







### Why WebSphere Application Server, Advanced Edition Is Right for You ...

- Supports heterogeneous server environment
- Offers robust security controls and application access protection
- Provides flexible, robust connectivity to remote RDBMSs via latest JDBC APIs
- Integrates with WebSphere Application Server, Standard Edition Java servlet engine as client
- Offers Tivoli® ready modules for management by Tivoli tools
  - Eases deployment and management
- Builds on IBM long-standing mission-critical transaction experience





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### WebSphere Application Server, Enterprise Edition -- Key Usage Concepts

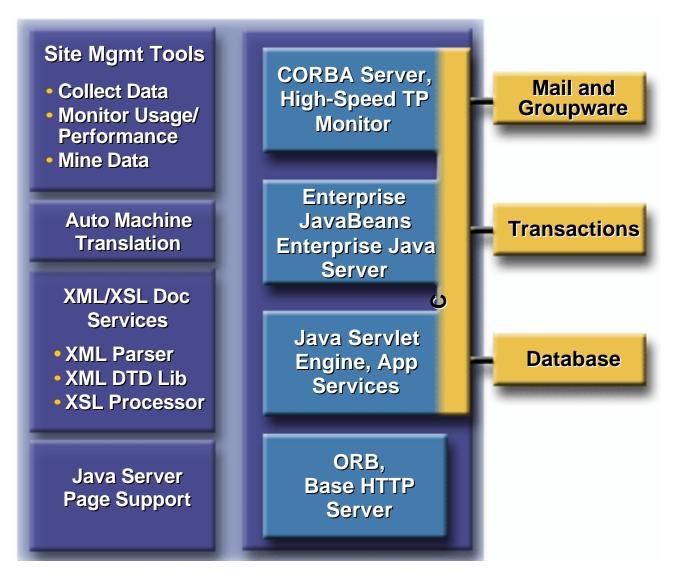
- Targets enterprise architects -- enabling them to integrate new and existing business logic in diverse heterogeneous systems
- Supports sophisticated business transactions
   Integrated, mission-critical applications
- Provides high-end enterprise scalability, manageability, robustness, performance

CICS, Encina TP monitor technology

- ► IBM Component Broker (CORBA, EJB) technology
- Enables the largest enterprises with integrated, persistent, business-critical transaction systems
  - Customers, shopping carts, vacations, shipments, financial portfolios, universal forms, households, ...

# e-business

### WebSphere Application Server, Enterprise Edition -- Product Architecture



48





### WebSphere Application Server, Enterprise Edition -- Key Benefits

- Advanced Edition benefits +
- Integrates with -- and exploits -- other enterprise applications and data
- Supports implementation, deployment using many languages (C, C++, COBOL, Java)
- Supports major enterprise programming models (high-speed TP monitor, CORBA, EJB)
- Provides sophisticated constructs for easing program complexity and tuning performance
  - Single-level store
  - Instance management
  - Connectivity and memory management
  - ► Cacha and auany canvica)





### WebSphere Application Server, Enterprise Edition -- New in Version 3

- First step integration of TXSeries, Component Broker, and WebSphere Advanced technology
  - Common install and IIOP infrastructure for interoperability between runtimes

### Component server technology

- Complete EJB 1.0 support (CB qualities of service)
  - Container-managed persistence, transaction coordination among legacy resource managers (CICS, MQ, IMS, Oracle, DB2)

### ORB Support for EJBs

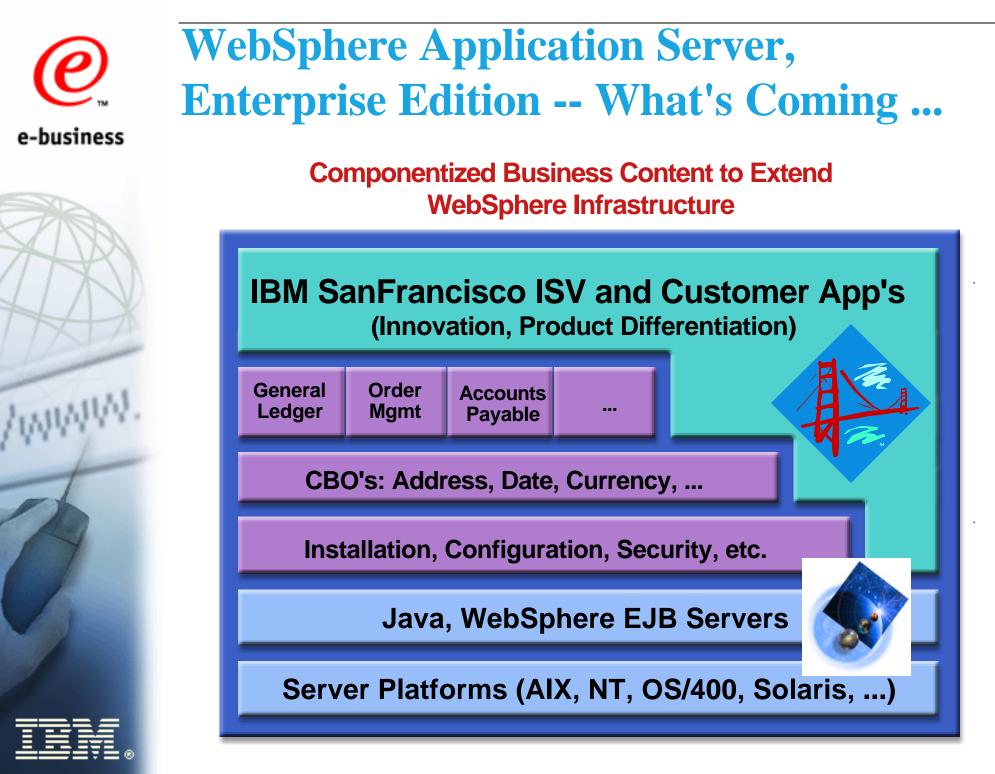
- RMI over IIOP (objects by value ORB)
- Security enhancements
  - SSL on AIX, credentials mapping
- SLIP install, backup and restore
- MQSeries application adaptor integration
- Sun Solaris support (in addition to AIX, Windows NT)





### WebSphere Application Server, Enterprise Edition -- New in Version 3

- Component server technology (cont.)
  - EJB development tools
    - Team support, usability enhancements
    - VisualAge for Java integration for creation and packaging of EJBs
    - EJB deployment support
- TP monitor server technology
  - CORBA-based CICS, Encina access (via common ORB)
  - 'Tivoli Ready' Integration
  - Integration of AppDevKit (COM wrappers)
  - EJB access to Encina applications



## e-business



### Why WebSphere Enterprise Edition Is Right for You -- It Provides ...

- Multiplatform support
  - ► Windows NT, AIX, Solaris, OS/390
- High performance, scalable transaction services
  - Proven in mission critical environments
  - Coherent, unified product line
- Simplified, consistent use of CORBA services
- Programming model supported by tools
  - High percentage of code generation
  - Multiple starting points; IDL, OOD model, Java interface, EJB Jar
- Multi-language support [C++ and Java]





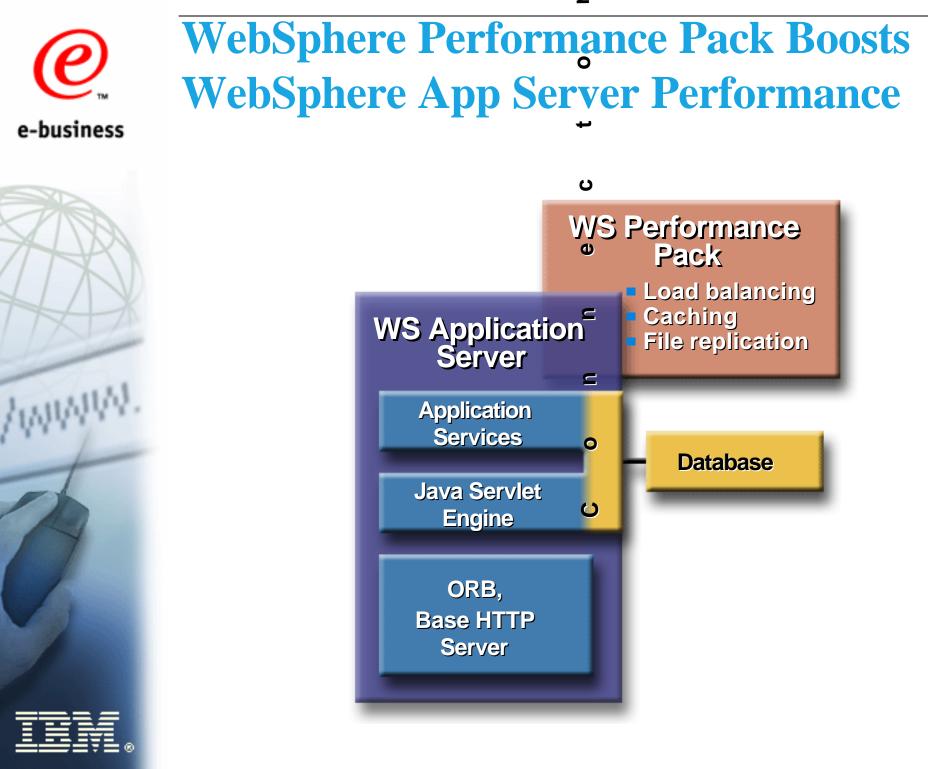
### Why WebSphere Enterprise Edition Is Right for You -- It Provides ... (continued)

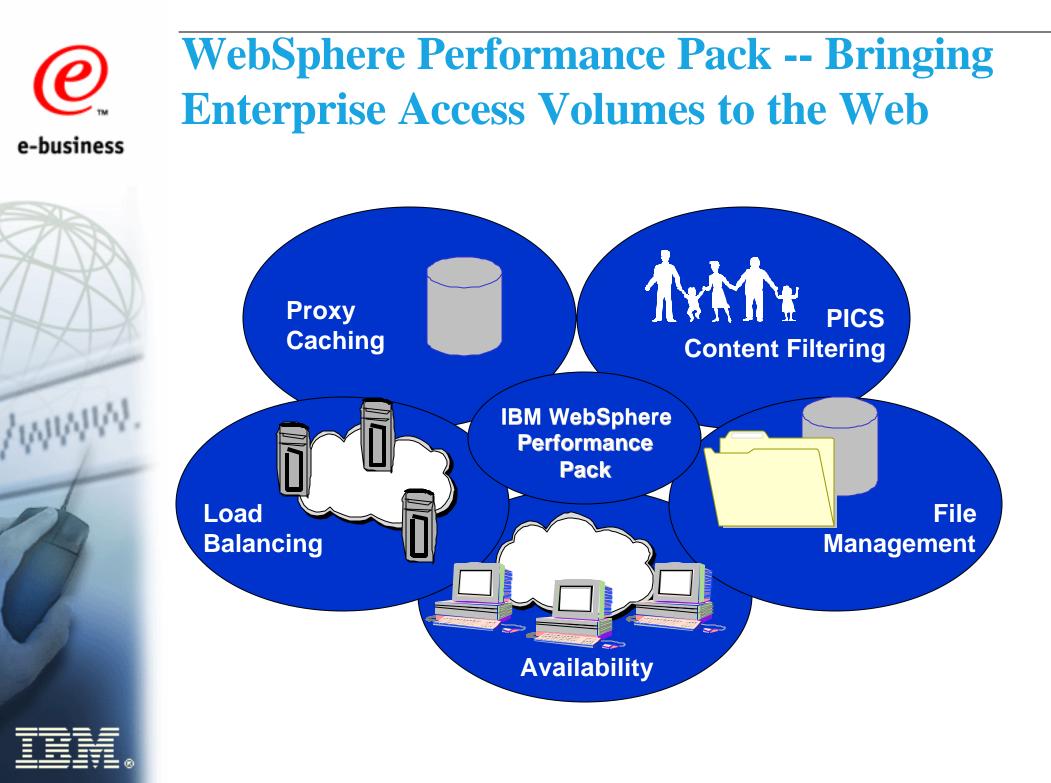
- Demonstrated delivery
  - 95% of the world's ATM transactions pass through IBM systems
  - IBM's transaction processing software is used by 99 of the Fortune 100 and 475 of the Fortune 500
  - CICS handles 20+ billion mission-critical business transactions per day
    - More hits than all Web servers combined
  - WebSphere Enterprise handles over 40% of Web-based stock trades
    - Includes the two most heavily used on-line trading sites





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### **WebSphere Performance Pack** ... the Results Speak for Themselves

One of the three fastest load balancers we tested, IBM's WebSphere Performance Pack, is scalable and secure, and sports a polished X Windows graphical user interface (GUI)."

-- Network World June 14, 1999

- Test results from The Tolly Group show IBM's high-performance network routing products established a new record (May 26, 1999)
  - High-demand e-business mainframe data access environment requiring extremely fast responses
  - More than 1,000 transactions per second
  - "IBM's high-performance routing products processed transactions up to 77 percent faster and are as low as one-third the cost of similar offerings from Cisco Systems."





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### **Development Tools and Components** e-business **Application Framework** for e-business e-business **Development Tools and** Components

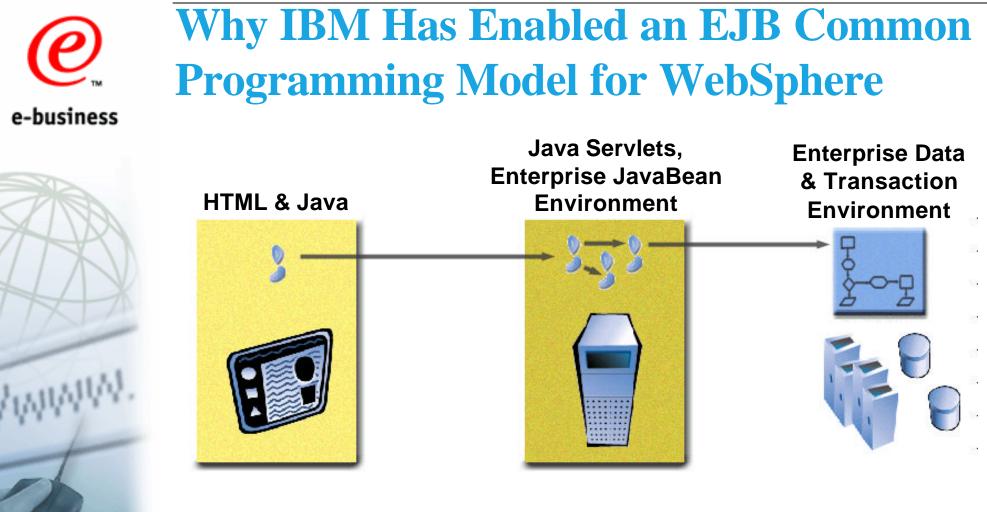
- Provide most effective way for customers, ISVs to build e-business applications
  - Fully integrated with IBM's application servers, supporting diverse developer skills and roles
- Extend and leverage existing application, data assets
- Ease development (visual programing, code generation)

# Image: Weight of the second systemImage: Weight of the second systeme-businessDirect

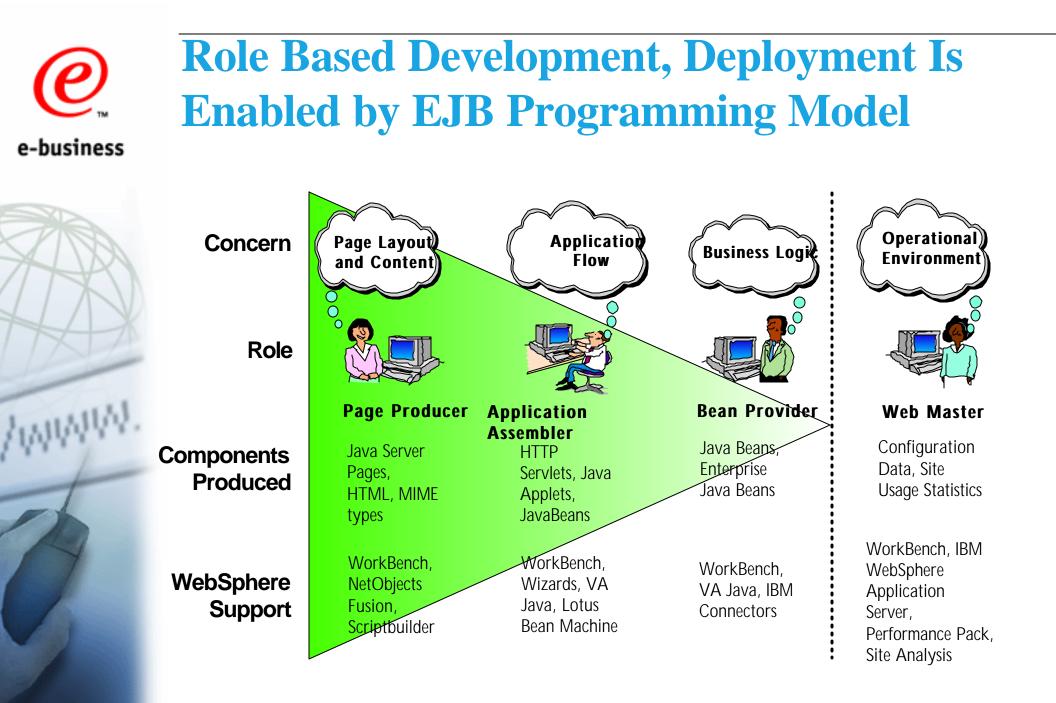
### **IBM Development Tools and Components Directly Support IBM Servers**



	e-business Applicat	tion Framework for e-business	
<ul> <li>IBM VisualAge</li> <li>Helps professional programmers extend existing applications and add new function</li> <li>Visual programming environment</li> <li>Supports major languages, platforms and team development</li> </ul>	<ul> <li>Lotus Domino Designer</li> <li>Customizable templates that speed deployment of collaborative applications</li> <li>Built-in services like workflow, content management and full-text search</li> <li>Visual development environment</li> </ul>	<ul> <li>IBM WebSphere Studio</li> <li>Provides integrated tools and workbench for developers using IBM WebSphere</li> <li>Wizards guide development of servlets and JavaBeans</li> <li>Site management</li> </ul>	IBM SanFrancisco and Lotus eSuite <ul> <li>Reusable business components accelerate delivery of applications running on e-business servers</li> </ul>



- Separate business logic from infrastructure logic
- Shield developers from underlying complexity
- Enable visual pgm'g (develop once, deploy anywhere)
- Allow transactional capability to be declared separately



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### WebSphere Studio -- for Quickly Creating Multiplatform Web Applications



### WebSphere Studio

Web Workbench
Servlet Wizards



Fusion
ScriptBuilder
BeanBuilder

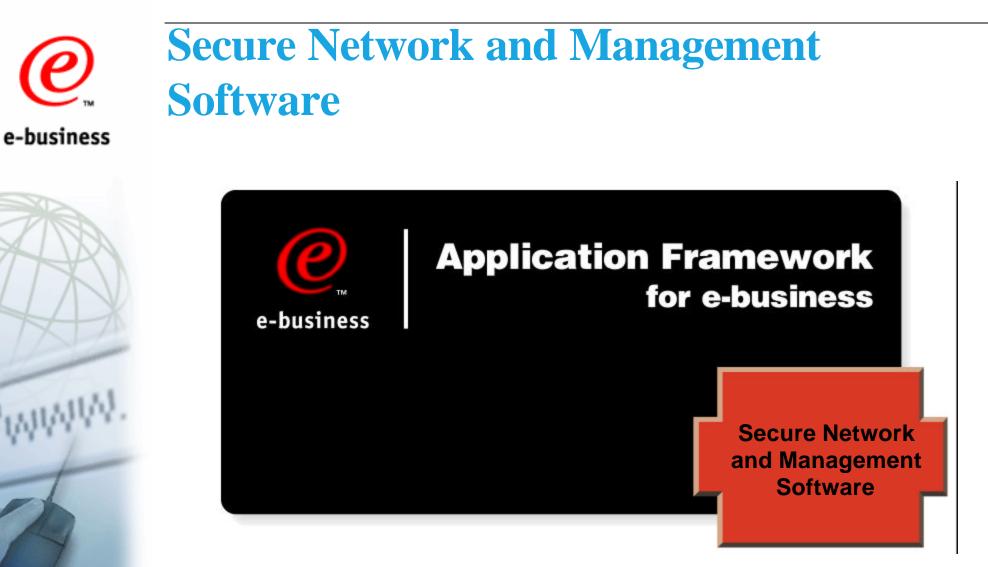


- Content authoring workbench
- View, edit, manage Web site content
  - Team view of Web site content
  - Wizards to get started quickly
  - Database query, connectors
  - Integrated HTML
  - Java integrated development
  - Wizards to create Java applets, servlets, JavaBeans, EJBs





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- Secure end-to-end environment for e-business
- Network integration simplifies access to information
- Application-centric management designed for e-business





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### WebSphere OEM Strategy

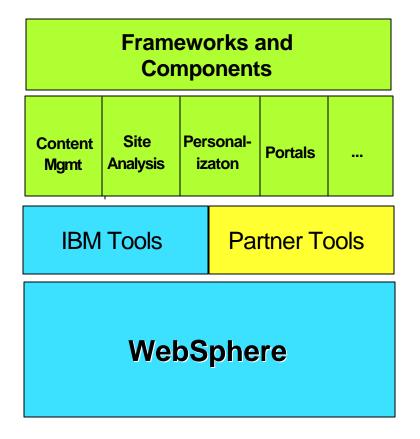
- Drives pervasiveness
  - ► WebSphere
  - Server-Side Java
- Enables you to deliver "complete" solutions
  - WebSphere/Plumbing
  - Technology/Piece parts
  - You focus on your business solution

e-business



### WebSphere Foundation ISV Partnering Strategy



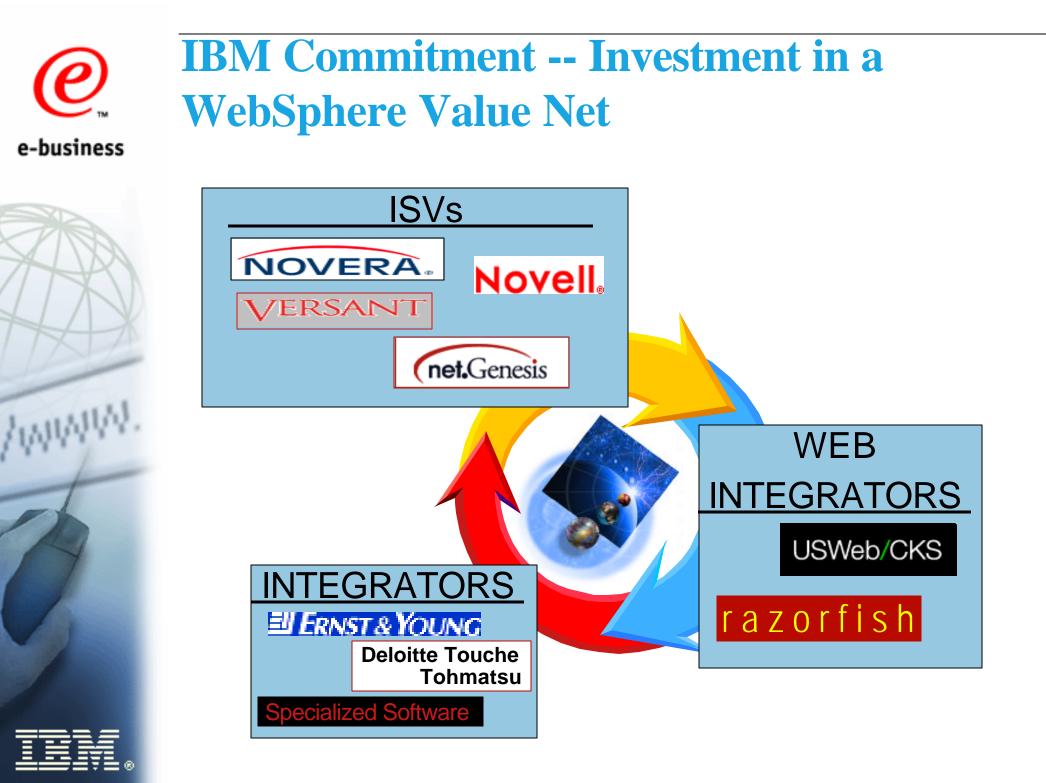






### WebSphere Delivers e-business Value to Customers, Partners

- Lowers overall cost of ownership
  - Link new solutions to existing systems
  - Embrace interoperability, enable change
- Minimizes risk in your development projects
   you focus on business we provide the plumbing
   Delivers scalability, security, reliability
- Leverages a consistent, powerful, cost-effective programming model



### **Some OEM Examples**

e-business



- Applications
  - Ericsson Messaging
  - ABB Utilities Management
  - Sagem Fingerprinting
- Technology
  - Netscape
  - ► Sybase
  - ► Iona
- Operating "Environments"
  - Novell



e-business

### WebSphere Partner Support ...

### Licensing

Flexible and Creative

### Education

- Web Based Training
  - Technical Training WebSphere Application Server
- Classroom training
  - IBM WebSphere Application Server, Studio, Performance Pack
  - IBM TXSeries
  - Solution Selling with Web Self-Service

### Certification

- IBM Certified Solution Expert IBM WebSphere Studio
- IBM Certified Solution Developer IBM WebSphere App Server
- IBM Certified Specialist TXSeries CICS Monitor
- IBM Certified Specialist TXSeries Encina Monitor
- IBM Certified Enterprise Developer IBM WebSphere App Server
- IBM WebSphere Performance Pack

### Technical Enghlement Sunnort

### **The IBM Advantage for Partners**

Scalability and flexibility across infrastructures and platforms

 Open standards opens partner solutions to multiple market segments.

The Application Framework for e-business protects investments and simplifies growth

- Partner solutions based on the Framework leverage customer investments by integrating with legacy systems.
- 3

e-business

- Faster, easier development through reusable components and integrated tools
  - Enable partners to bring solutions to market faster and reduce total cost of ownership.







### In Closing -- IBM's WebSphere Commitment to Customers and Partners

- Possess and describe a clear strategy
- Deliver capabilities customers want and need
- Make them simpler and more integrated
- Continue to focus on open, durable technology
- Continue to grow an economic "value-net Web
- Be the best -- and perhaps only -- company to put it all together