# The Cutting Edge of Web Applications

## How WebSphere's Next Generation Application Server Brings New Value to *Your* Business

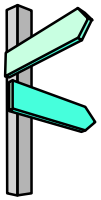
*2nd Quarter 2002*

**WebSphere** software

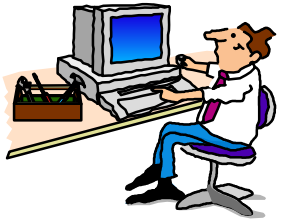
# A Version 5 Perspective

Key version 5 themes described at the May, 2002 launch...

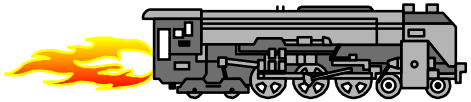
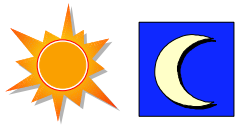
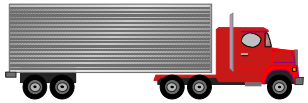
- A comprehensive, build-to-integrate platform...



- Highly integrated application development...



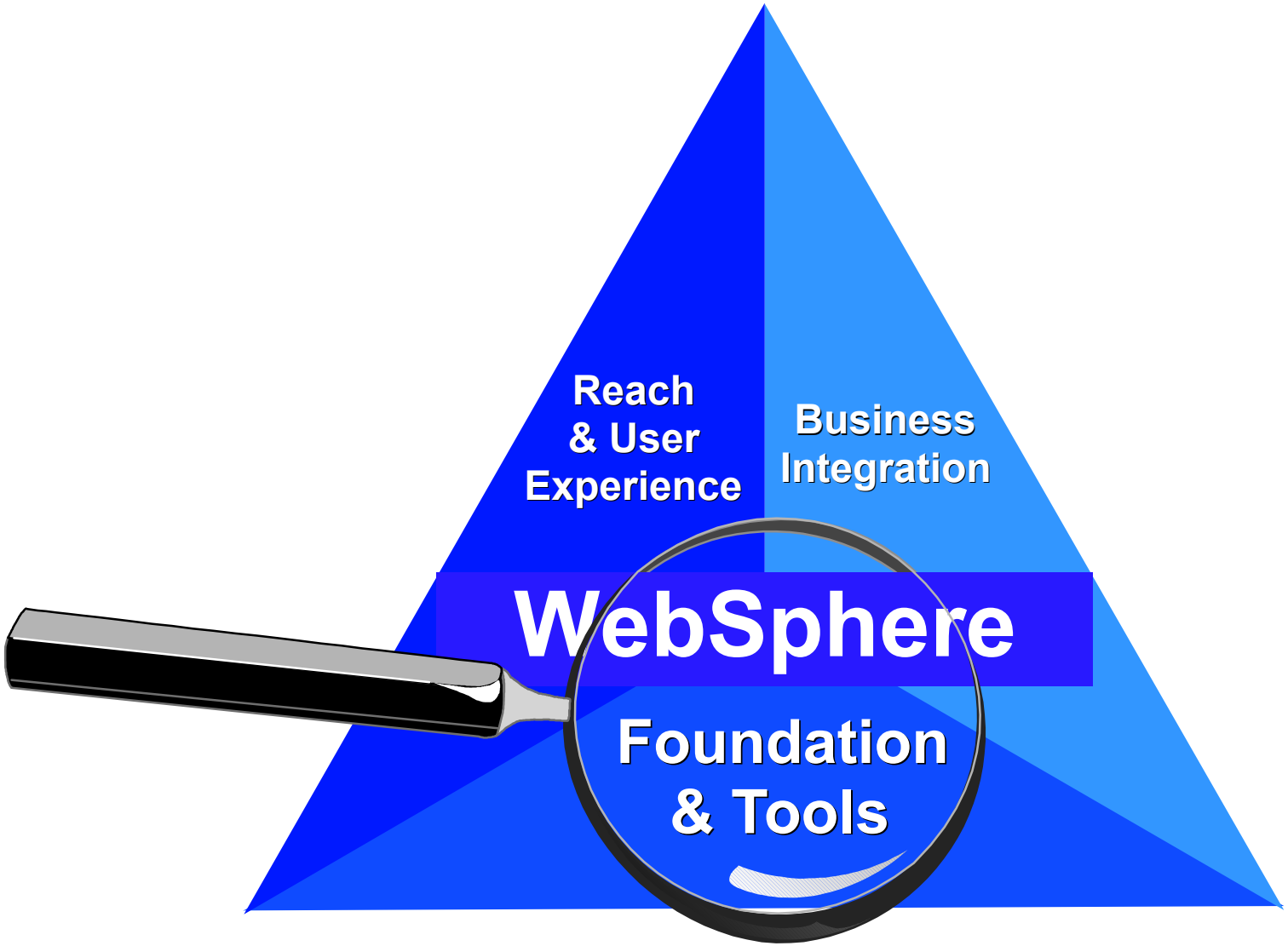
- Intelligent end-to-end optimizations...

- Agile deployment and administration...

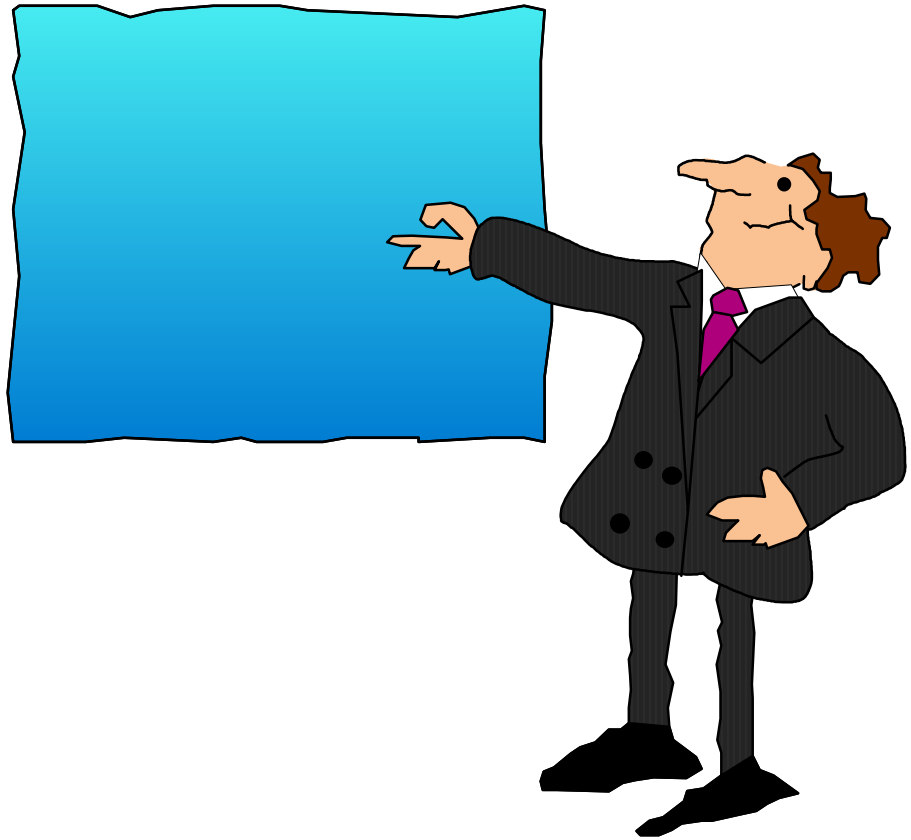
# Session Objectives

- Review the role that WebSphere Application Server and WebSphere Studio play in an e-business solution
- Consider how WebSphere can benefit *your* business

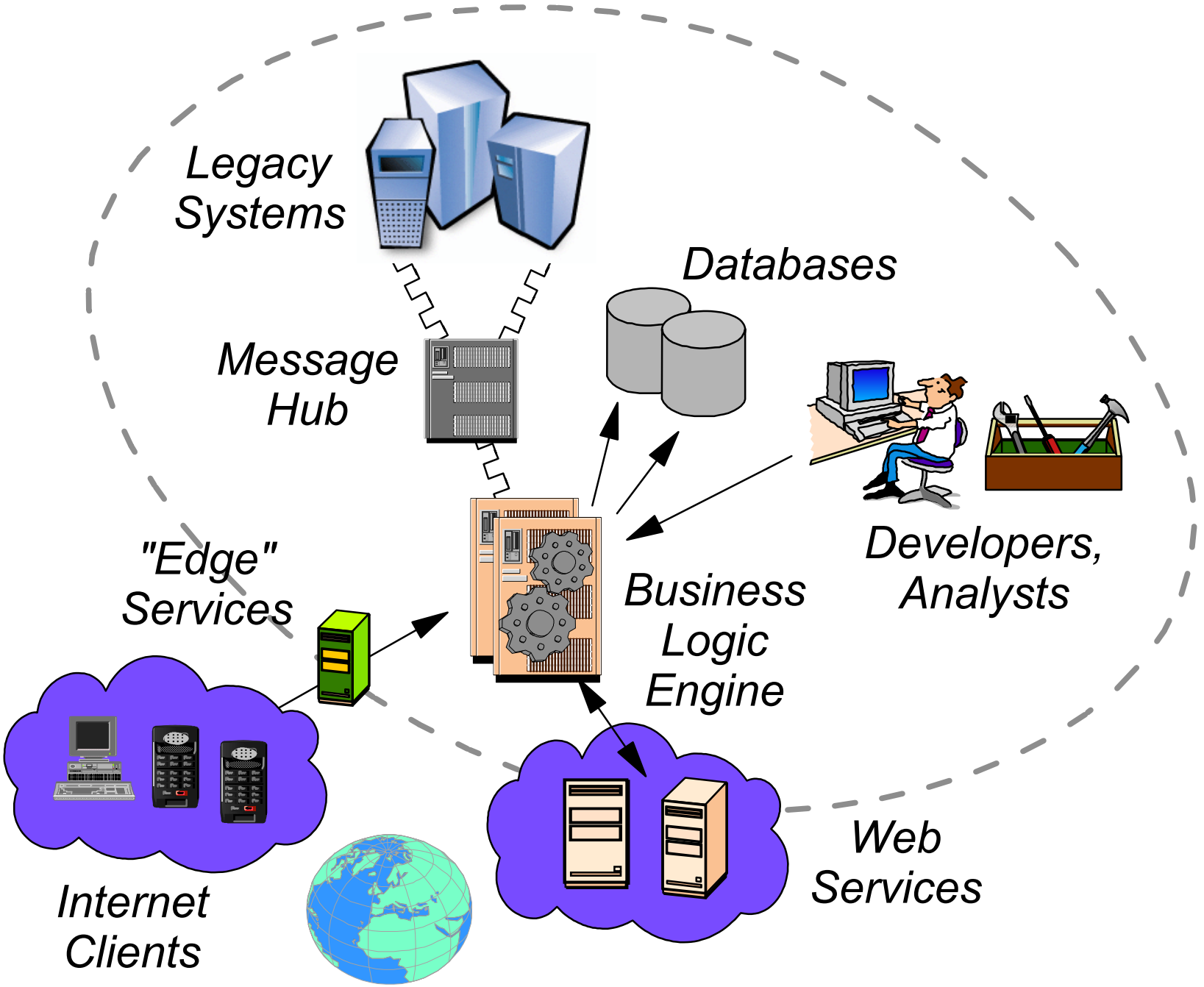


# Agenda

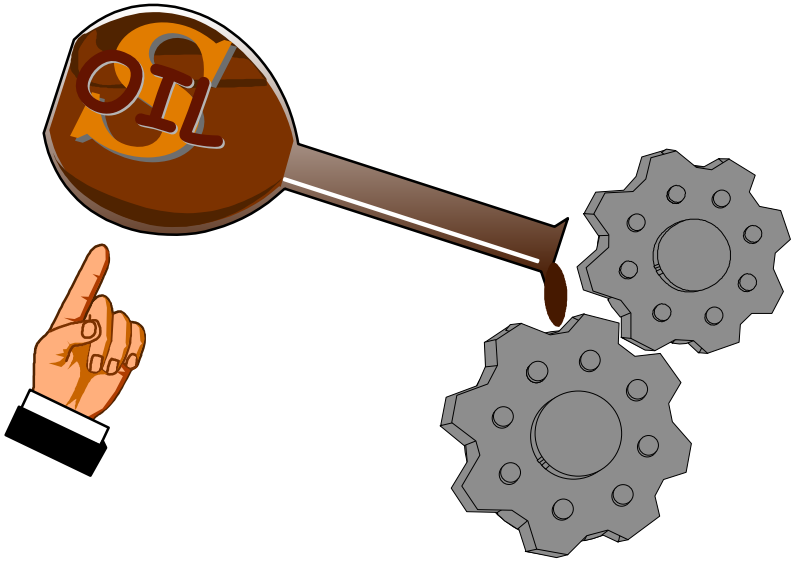
- The Evolving Role of Application Servers
- WebSphere Application Server Case Study
- WebSphere Foundation and Tool Offerings
- Next Steps

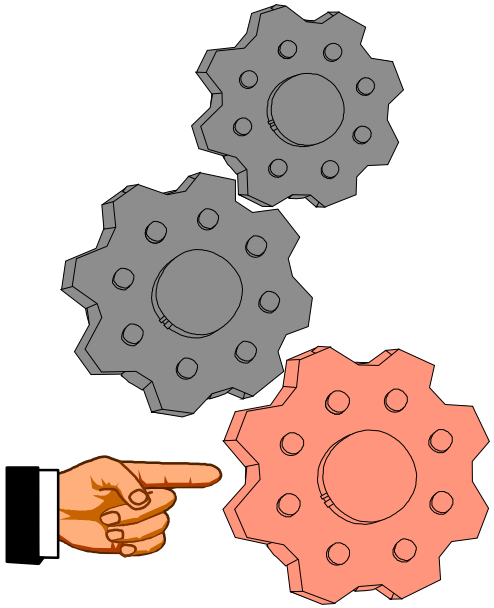


# Application Server Fundamentals



# Making Engines Work Better



*Optimizations*

Deployment Concern

- Administration-Based
- No Source Code Changes

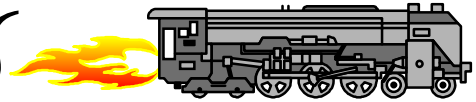
*Extensions*

Development Concern

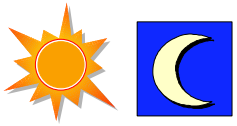
- Programming Model
- Associated Tools

# Business Value

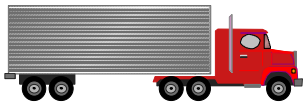
Optimizations



Performance



Availability

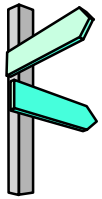


Scale

+

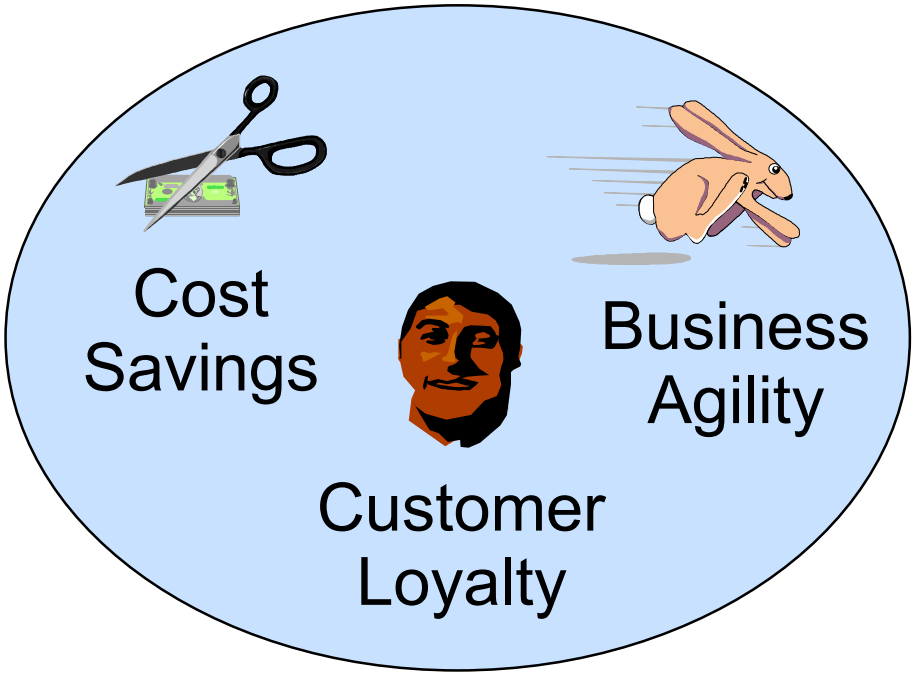
Extensions

Productivity



Flexibility

Integration



# Revisiting the Agenda

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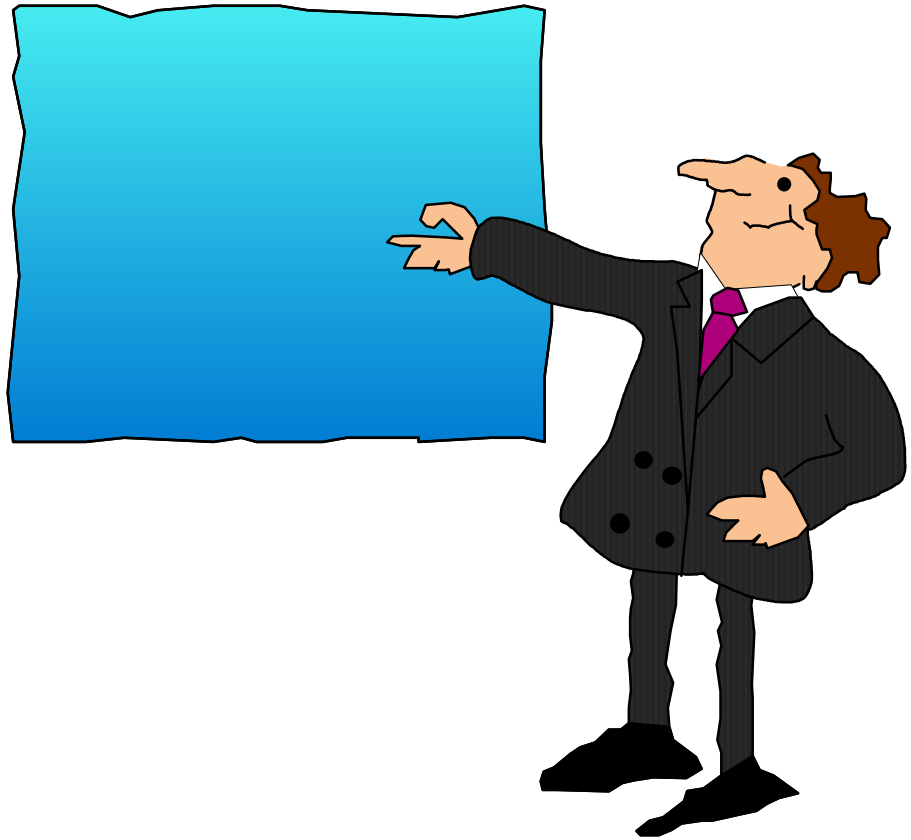
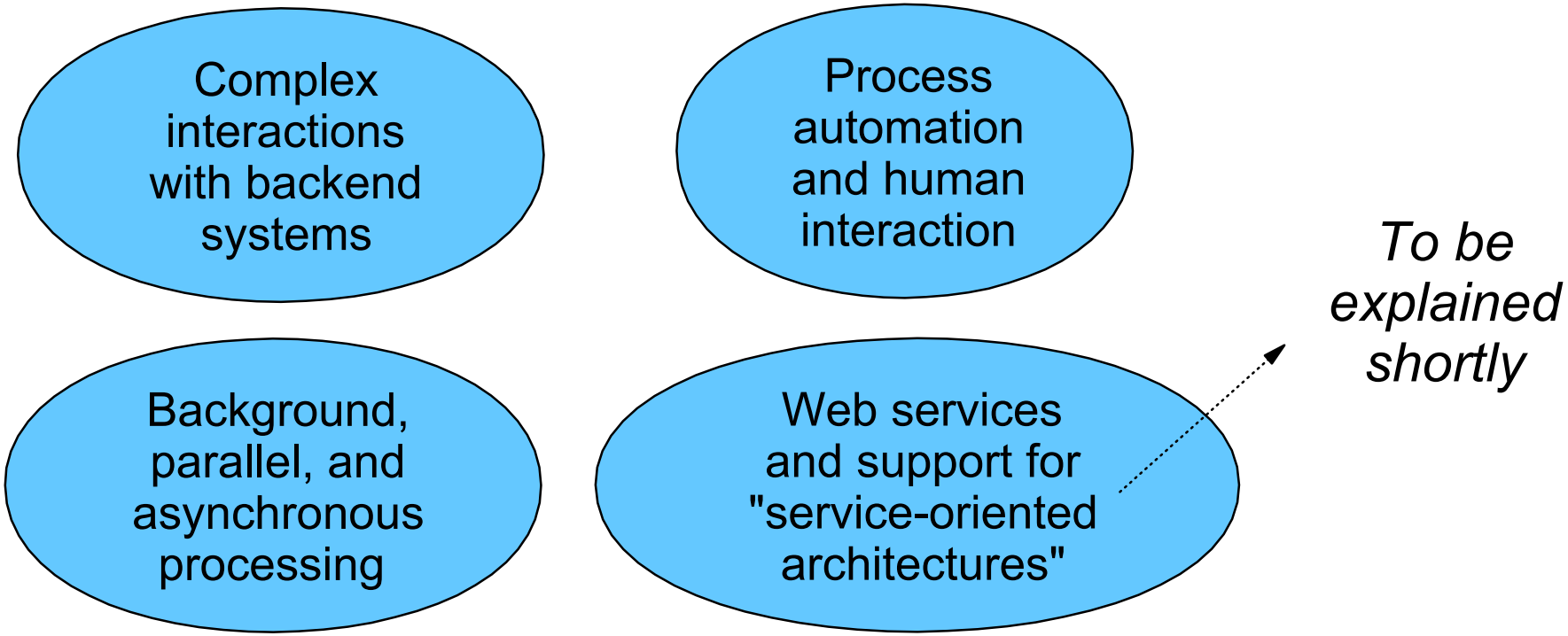


# Web Banking Online (WBOnline)

- Global finance company serving international customers
- Common business drivers

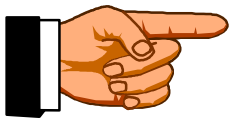
- Requires reliable, high performance infrastructure
- Fully committed to Java and J2EE for new applications
- Needs to leverage significant existing assets
- Diverse and complex processing requirements



# New Credit Card Application

Requirements:

1. *Obtain customer account information.*
2. *Determine if customer is "gold or above". If so, issue the card.*
3. *Determine the credit rating. If "positive", issue the card.*



Consider **Extensions** first, then **Optimizations**

To satisfy step 1, we need to navigate various CICS screens...

- So we need to connect...
- And drive multiple interactions...
- To produce a business result

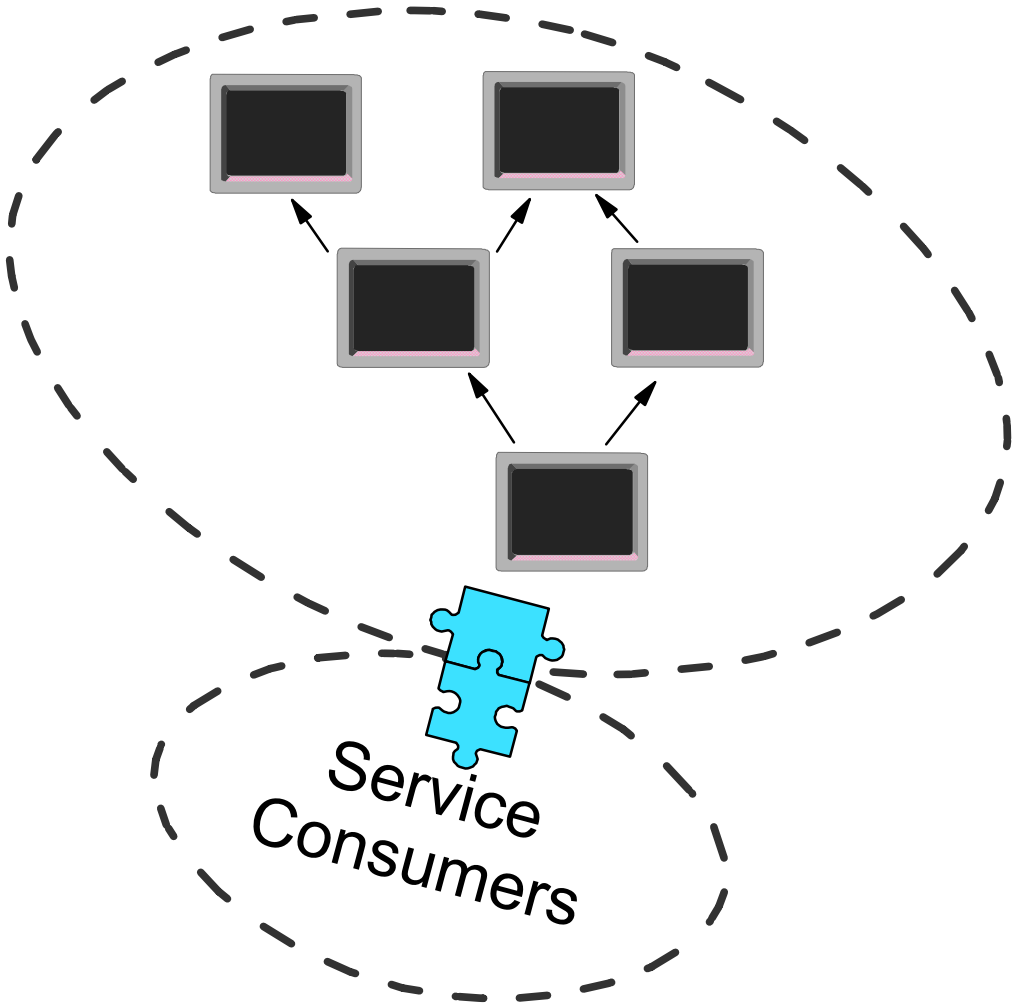
Why not define all of this as a reusable *service*?

# Service-Oriented Architecture

*What if virtually any kind of software resource could be seen through the lens of a business service interface?*

Benefits:

- Faster assembly of new applications
- Improved consistency
- Greater leverage of existing investments



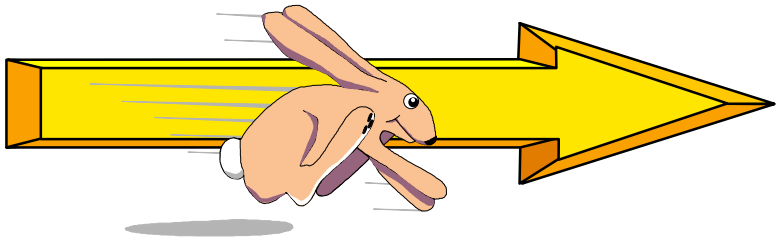

WebSphere Application Server and WebSphere Studio deliver this!

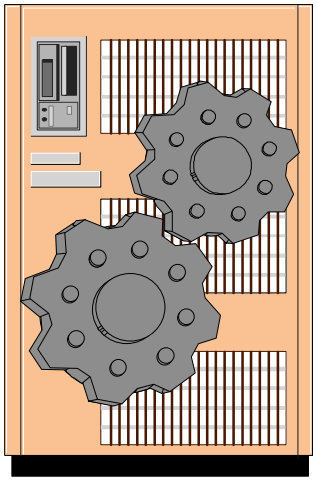
# Externally Manage Business Policy

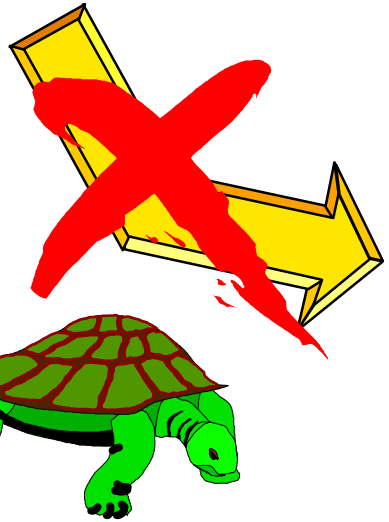
*2. Determine if customer is "gold or above". If so, issue the card.*

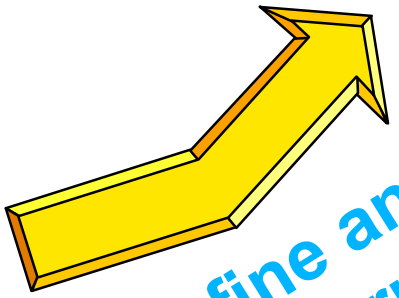
*Business Analysts*

**Maintain and schedule rules OFTEN**







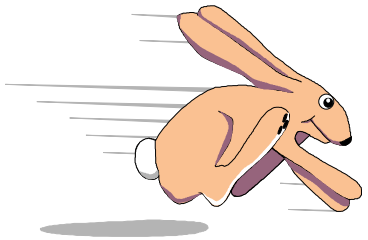


**Define and invoke rules ONCE**

*Developers*

# Why Externalize Rules and Policies?

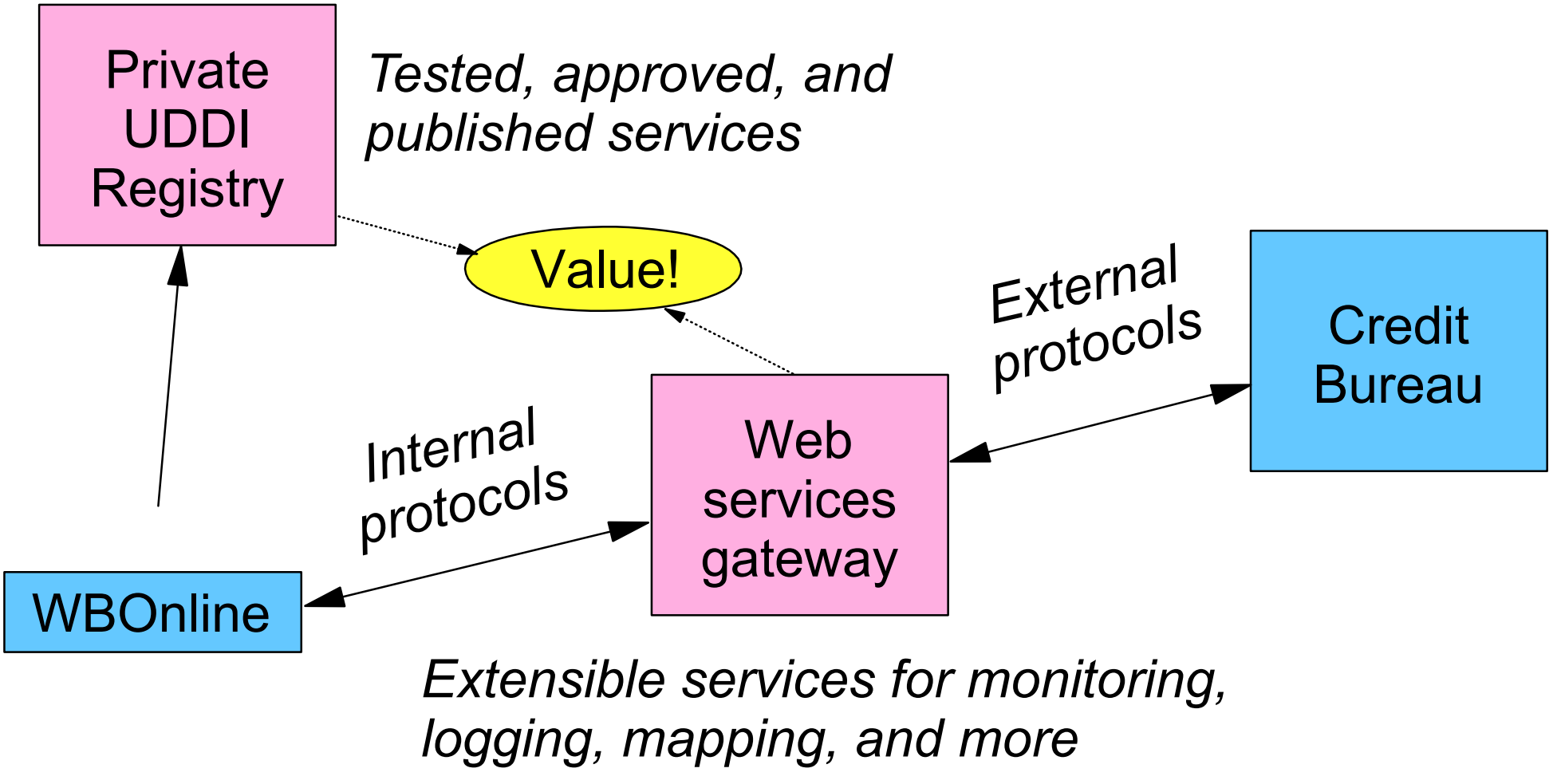
1. Explicit documentation of business practice decisions.
2. Clearer understanding of application behavior.
3. Reuse of policies across business processes.
4. Increased consistency of business practices.
5. Decreased maintenance and testing costs.
6. Improved manageability of business practice decisions.
7. Increased confidence in predicting the business impact of proposed changes.
8. Easy ability to identify and correct conflicting rules across the business.



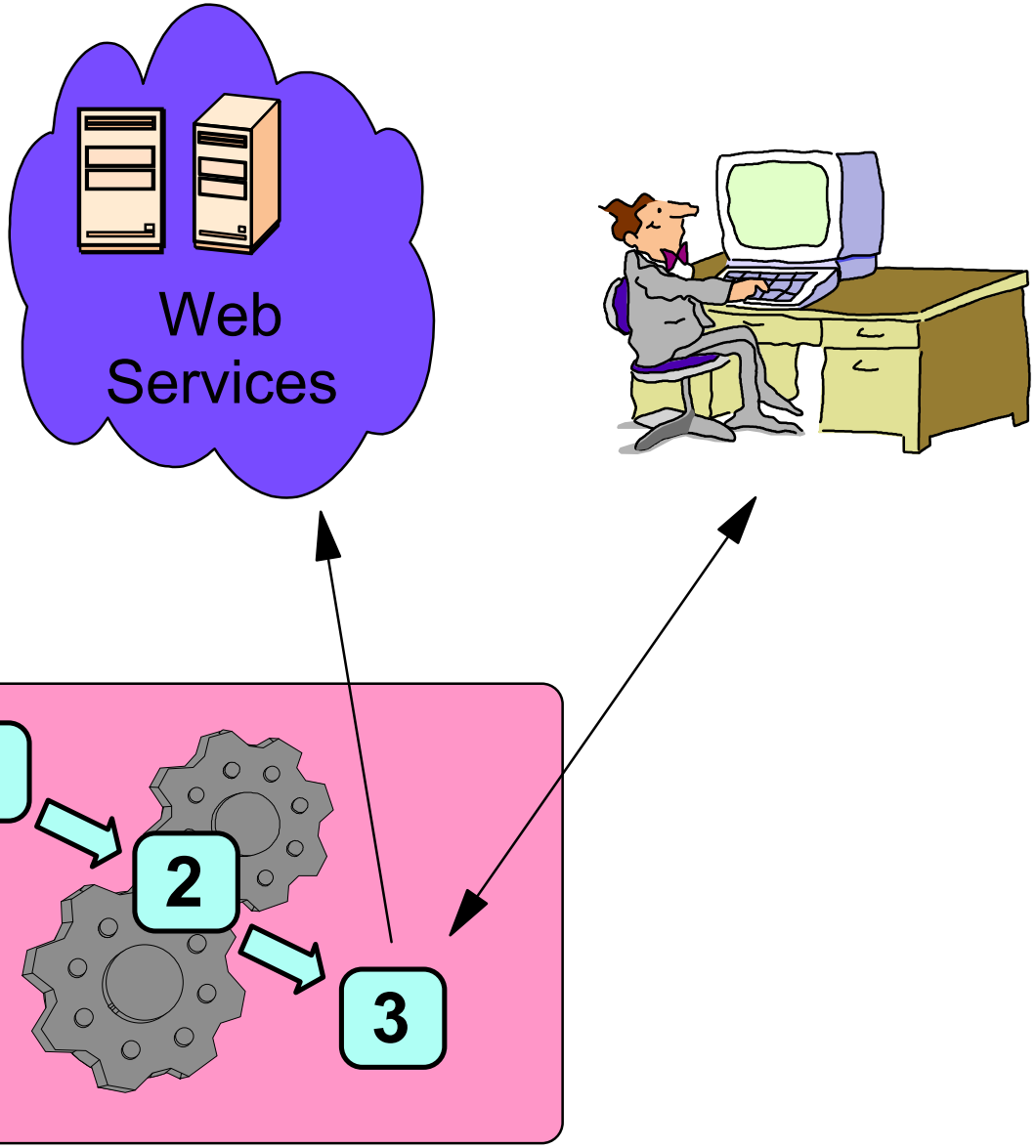
# The "Next Level" of Web Services

3. *Determine the credit rating. If "positive", issue the card.*

To satisfy this step, WBOnline needs to invoke a Web service provided by a business partner (a Credit Bureau)...



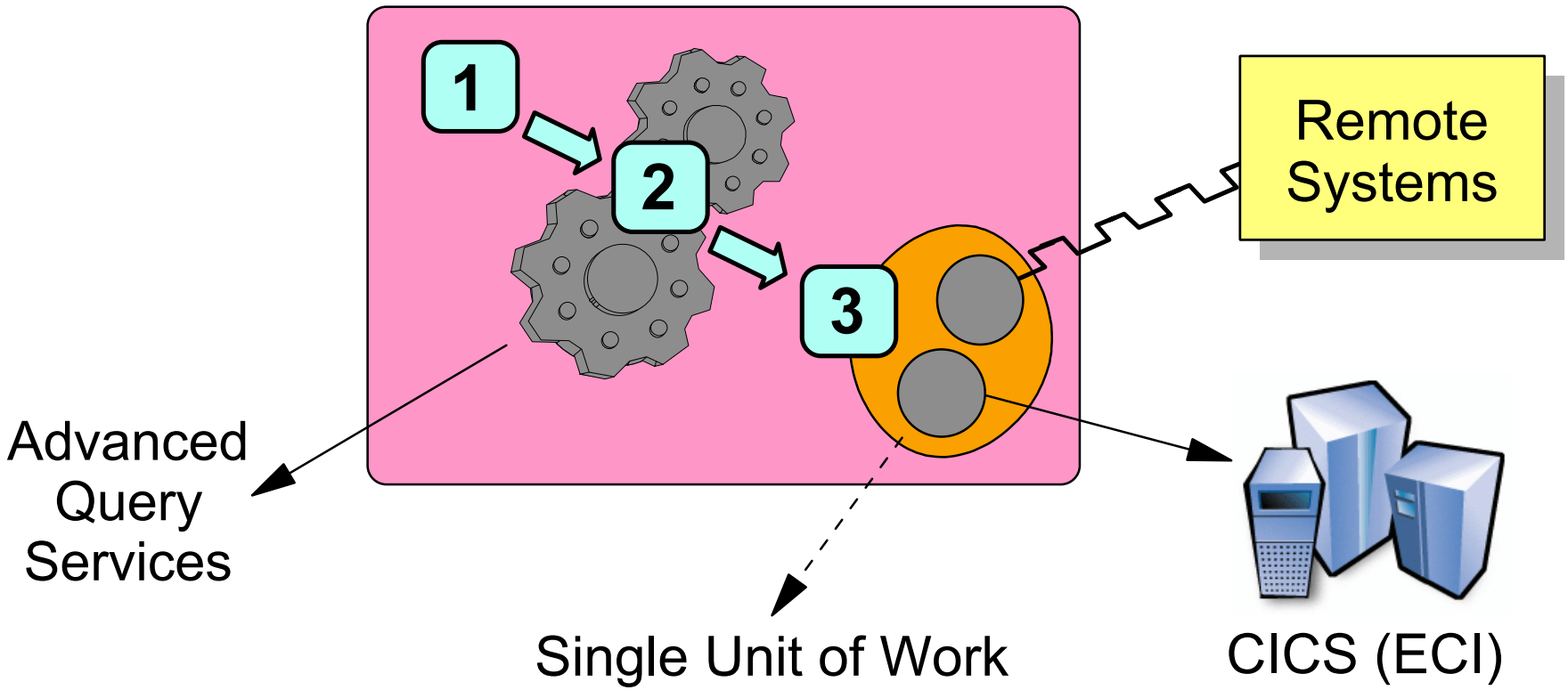
# Service Choreography



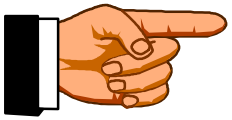

*Automating flows between application components...*

# Additional Useful Extensions

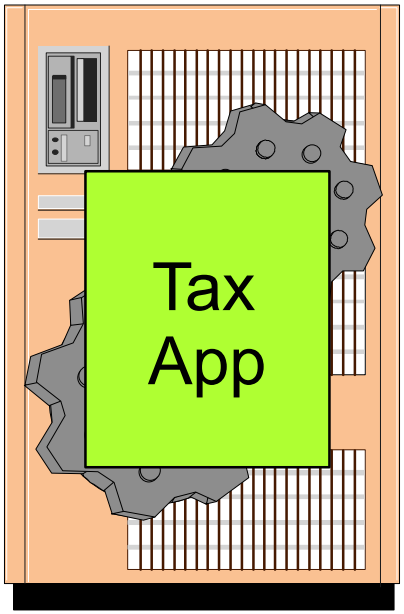
- Advanced messaging!
- Advanced transactions!
- Advanced component models!



# Year-End Tax Update Application



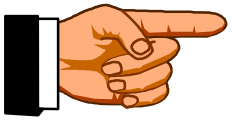
We are still focused on **Extensions**




- Background (or "batch") processing
- Parallel processing
- Asynchronous processing
- Deferred execution
- Scheduled execution

Unique Power of WebSphere Application Server!

# Travel Application



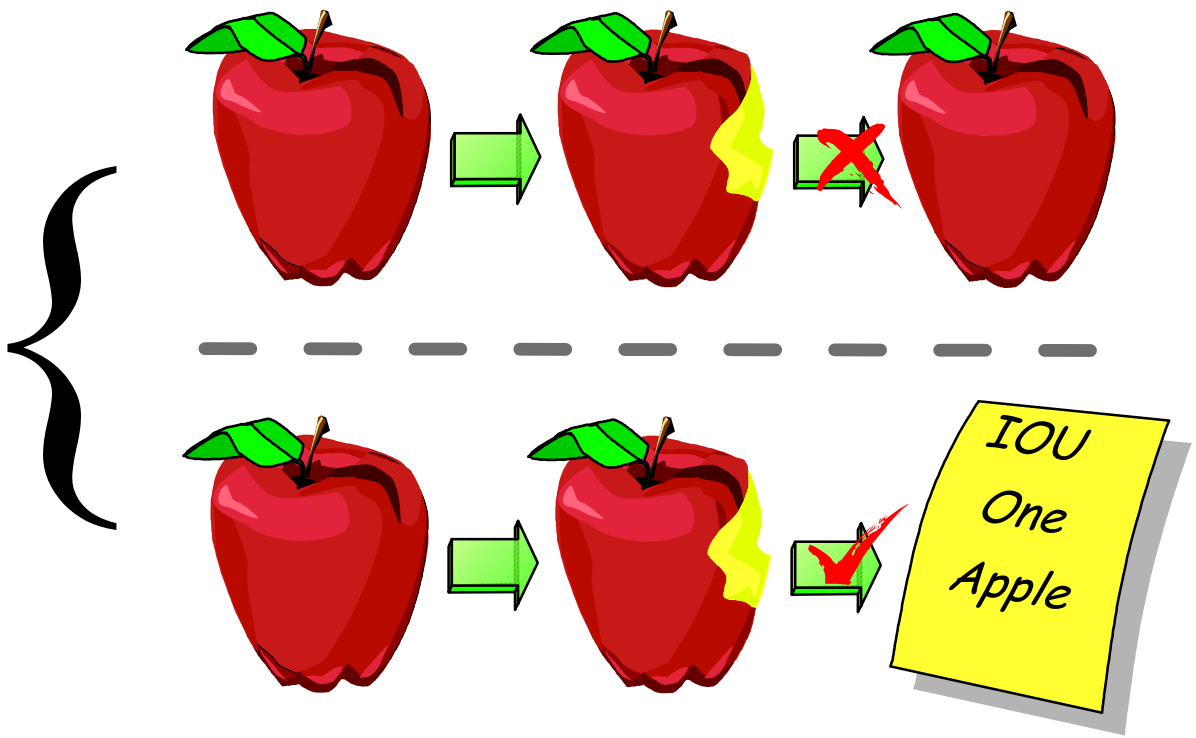
We are still focused on **Extensions**

To define a typical "trip", we must do three things:

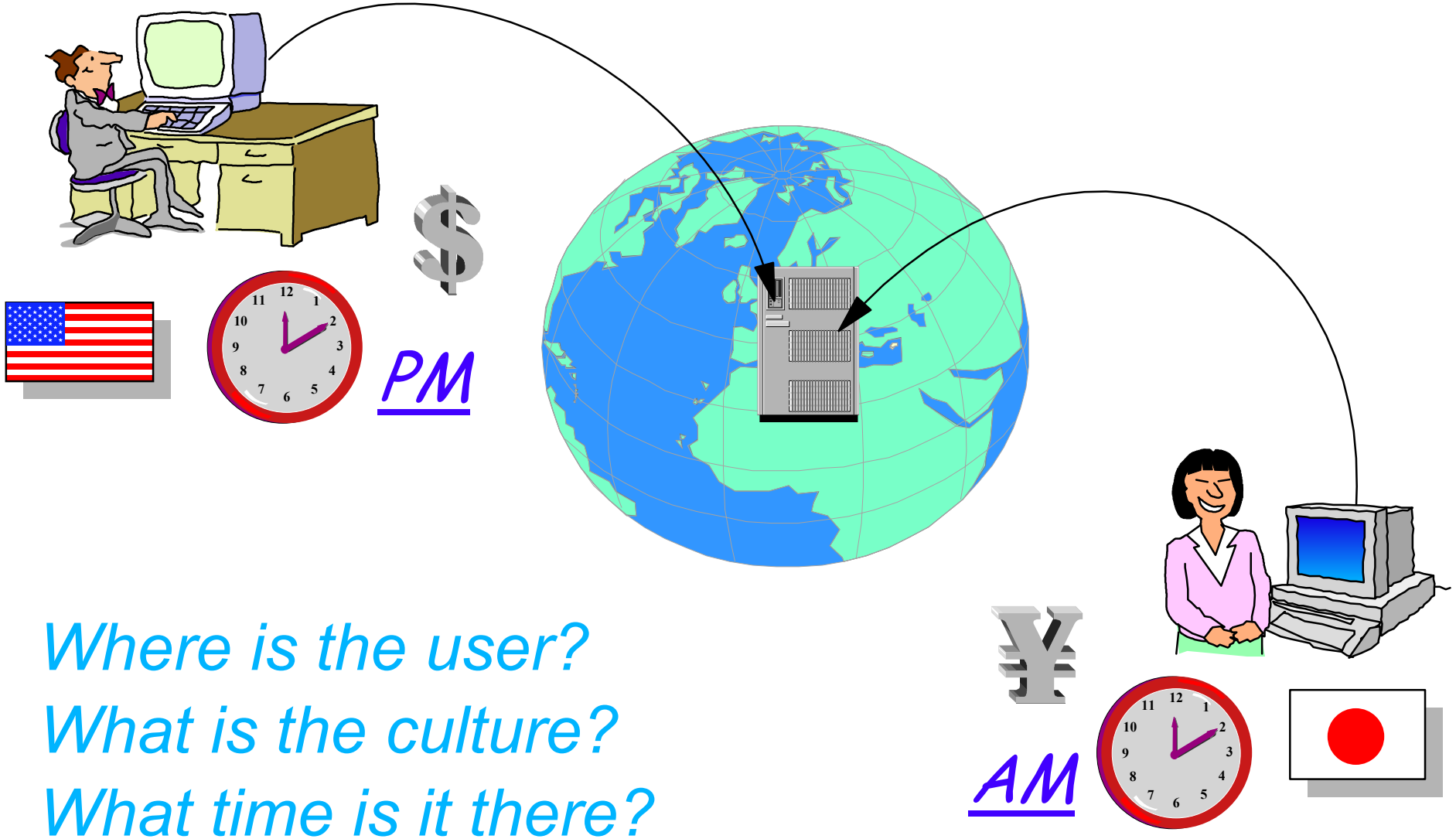
1. Book a hotel
2. Book a car
3. Book a flight

***WebSphere can automatically "undo" (or compensate) the first two steps if the last one fails!***

Note that the precise nature of compensation can be arbitrary...



# Internationalizing the Applications




*Where is the user?*
*What is the culture?*
*What time is it there?*

# Other Valuable Extensions

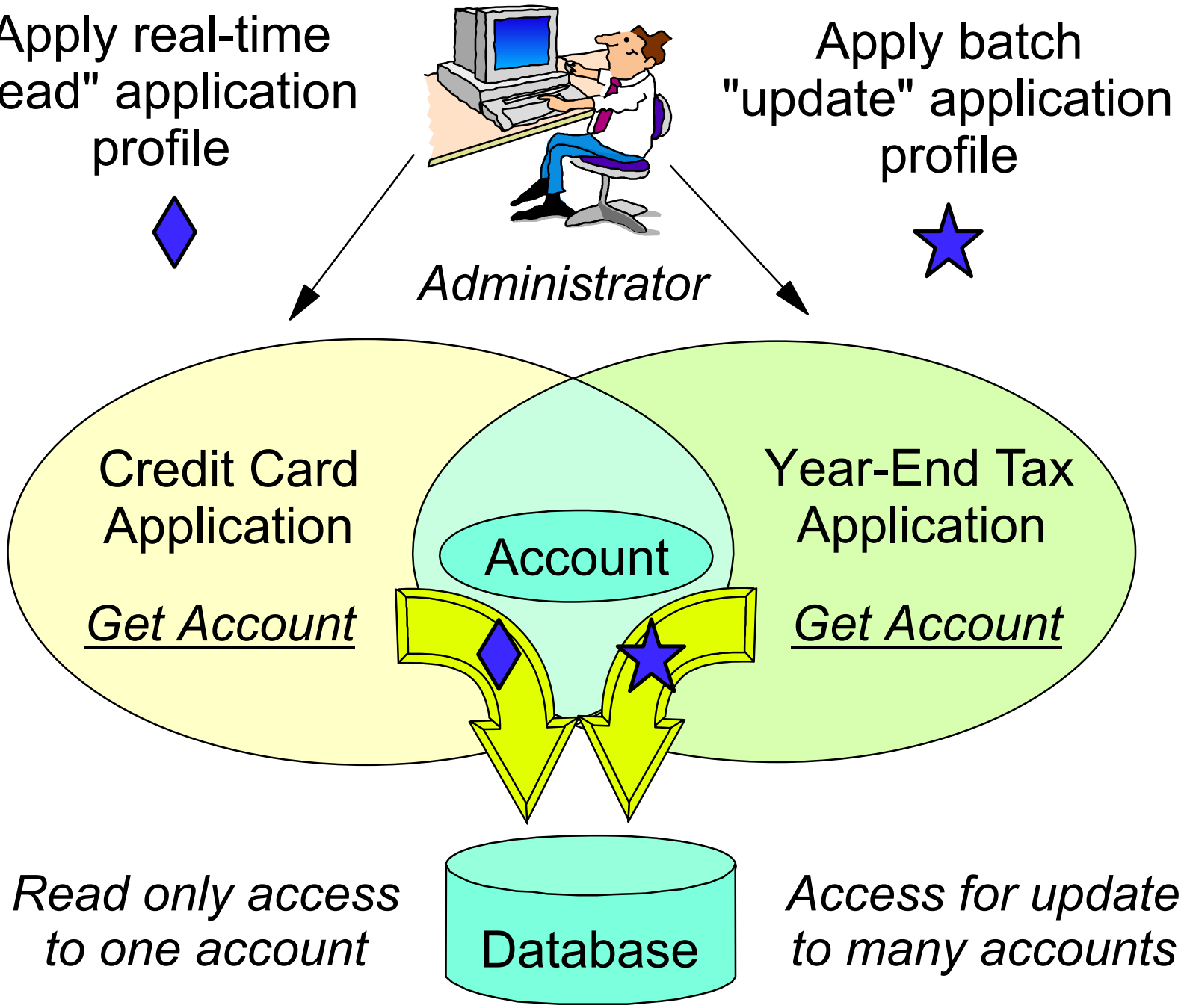
Shared Work Areas: *Efficiently sharing arbitrary information (e.g., customer profiles) across a distributed application using "virtual scratch pads".*

ActiveX Bridge: *Invocation of EJBs from Microsoft clients and servers with high qualities of service.*

CORBA Integration: *Bi-directional communication between popular third-party ORBs and J2EE applications (with documented restrictions)*

CORBA C++ SDK: *Integrating C++ assets (both clients and servers) into J2EE environments using IBM's CORBA Software Development Kit.*

# WBOnline Application Optimizations



# Other Optimizations*

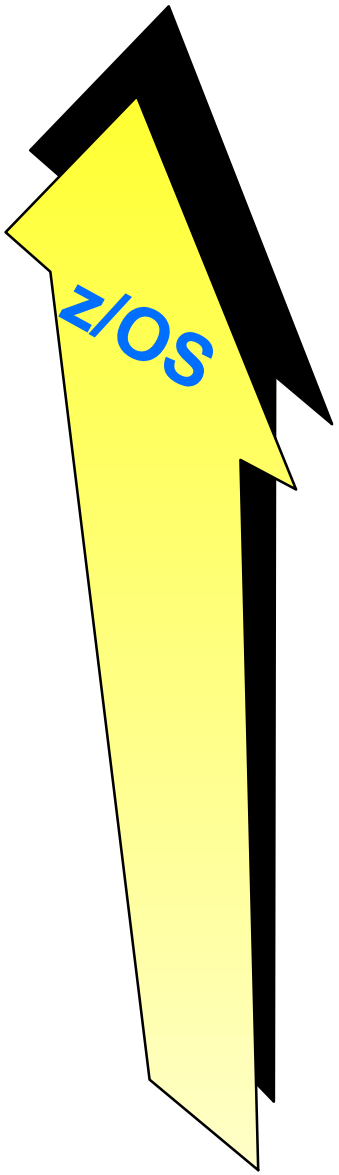
- Predefined database access
- Dynamic workload management
- Cross-domain failure bypass
- Pluggable infrastructure
- Flexible, self-enhancing infrastructure

*And we can optimize WBOnline at the "Edge"...*

- Intelligent load balancing
- Enhanced caching services
- Content distribution
- Policy-based quality of service
- Security services

* Some of these are scheduled for later this year

# Raising the Optimizations Bar




- Requiring fewer resources
- Ensuring the integrity of data
- Transparently recovering from failures
- Continually running at near full capacity
- Managing unpredictable spikes in workload
- Guaranteeing user-specific service levels
- Leveraging proximity to data
- General performance and scaling

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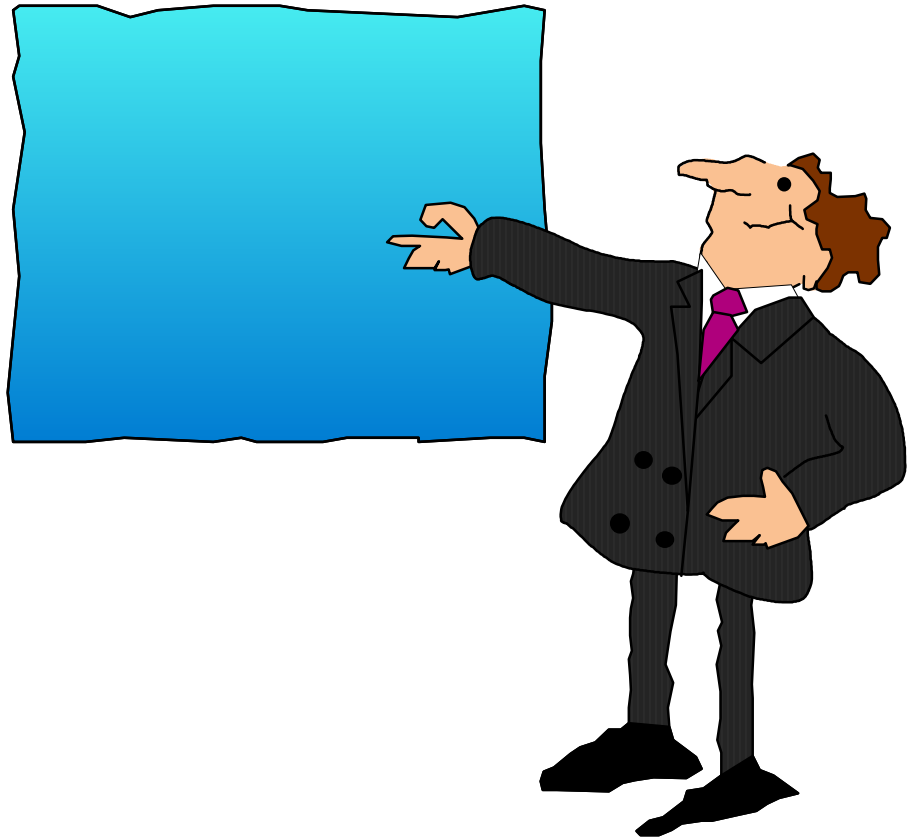
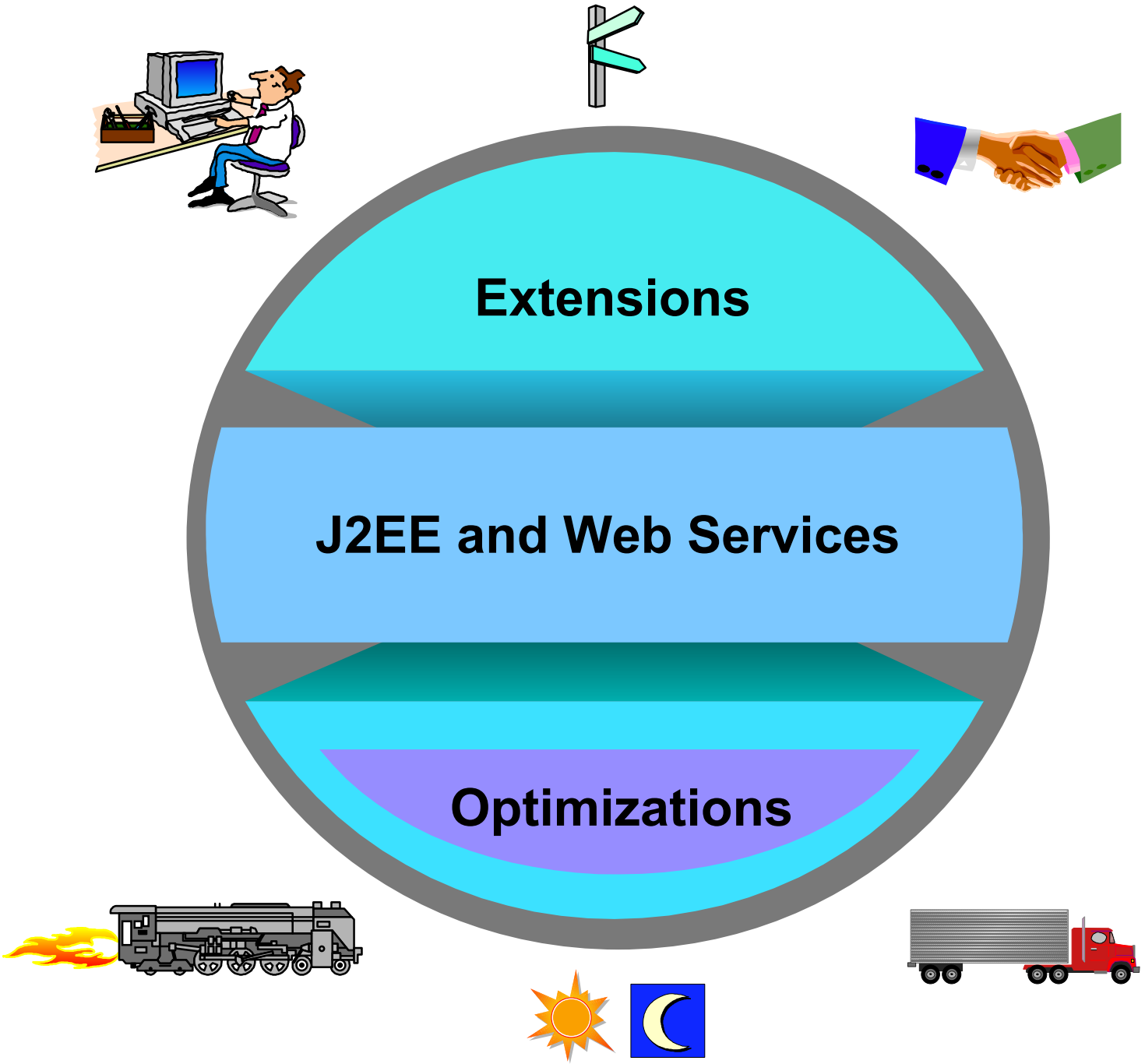
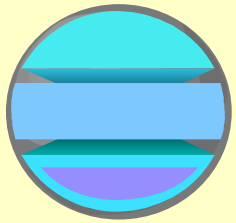
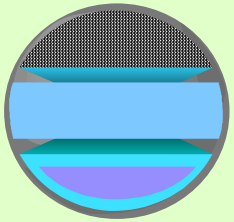
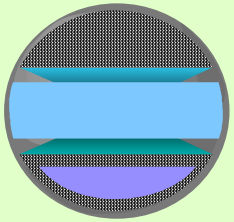
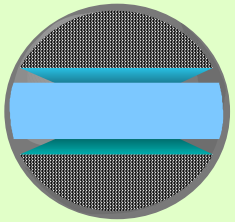
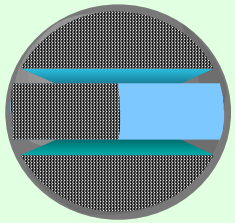


# WebSphere Application Server (WAS)



# Flexible Configurations

| Name | | Contents | | Formerly |
|---|---|---|---|---|
| **WAS Enterprise** | |  | MQ | EE |
| **WAS** | **XD** |  | *Extended Deployment** | |
| | **ND** |  | *Network Deployment* | AE |
| | |  | | AEs |
| **WAS - Express** | |  | WSSD | SE |

*Beta

# Comparing Enterprise and "ND"

| CASE STUDY FUNCTION | Ent | ND |
|---|---|---|
| Consume WebSphere Studio Connector Wizard Output | X | |
| Service Choreography (for mult. interactions with systems/components) | X | |
| Service Choreography (for longer-running process steps) | X | |
| Automated Business Policy Management (Business Rule Beans) | X | |
| Private UDDI Registry | X | X |
| Web Services Gateway | X | X |
| Deep Messaging Integration (Extended Messaging) | X | |
| Extended Unit of Work (for single/mult. one-phase commit resources) | X | |
| Dynamic Query Service | X | |
| Background and Parallel Processing | X | |
| Automated Compensation | X | |
| Internationalization Service | X | |
| Work Area Service | X | |
| ActiveX Integration | X | X |
| CORBA Integration | X | X |
| CORBA C++ SDK | X | |
| Application Profile Optimization | X | |
| Edge of Network Optimizations | X | X |

# WebSphere Studio

- Single, comprehensive IDE with unprecedented flexibility and extensibility supporting all roles in e-business development
- Complete application server support
- Extend with support for other IBM middleware and servers
- Extend with partner tools to provide complete life cycle support

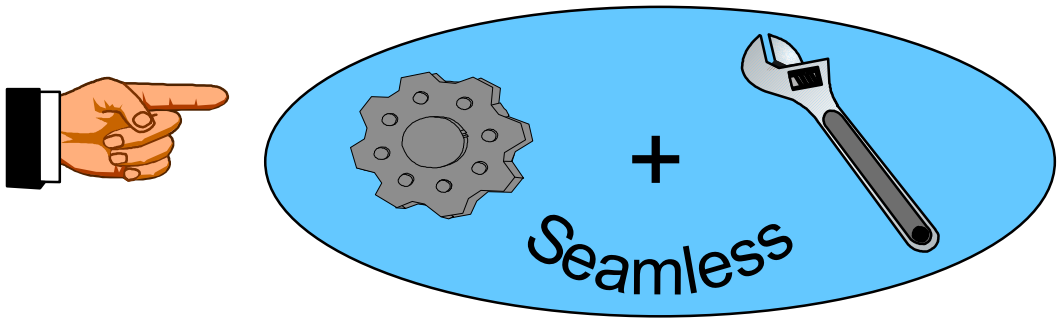
# Flexible Configurations

*One IDE with multiple configurations that add functions and "perspectives" for specific developer roles*

| | |
|---|---|
| **Enterprise** | WebSphere Studio Enterprise Developer |
| **J2EE Extensions** | WebSphere Studio Application Developer Integration Edition |
| **J2EE** | WebSphere Studio Application Developer |
| **Advanced Web** | WebSphere Studio Site Developer Advanced |
| **Web** | WebSphere Studio Site Developer |

# Integrated Runtimes and Tools!

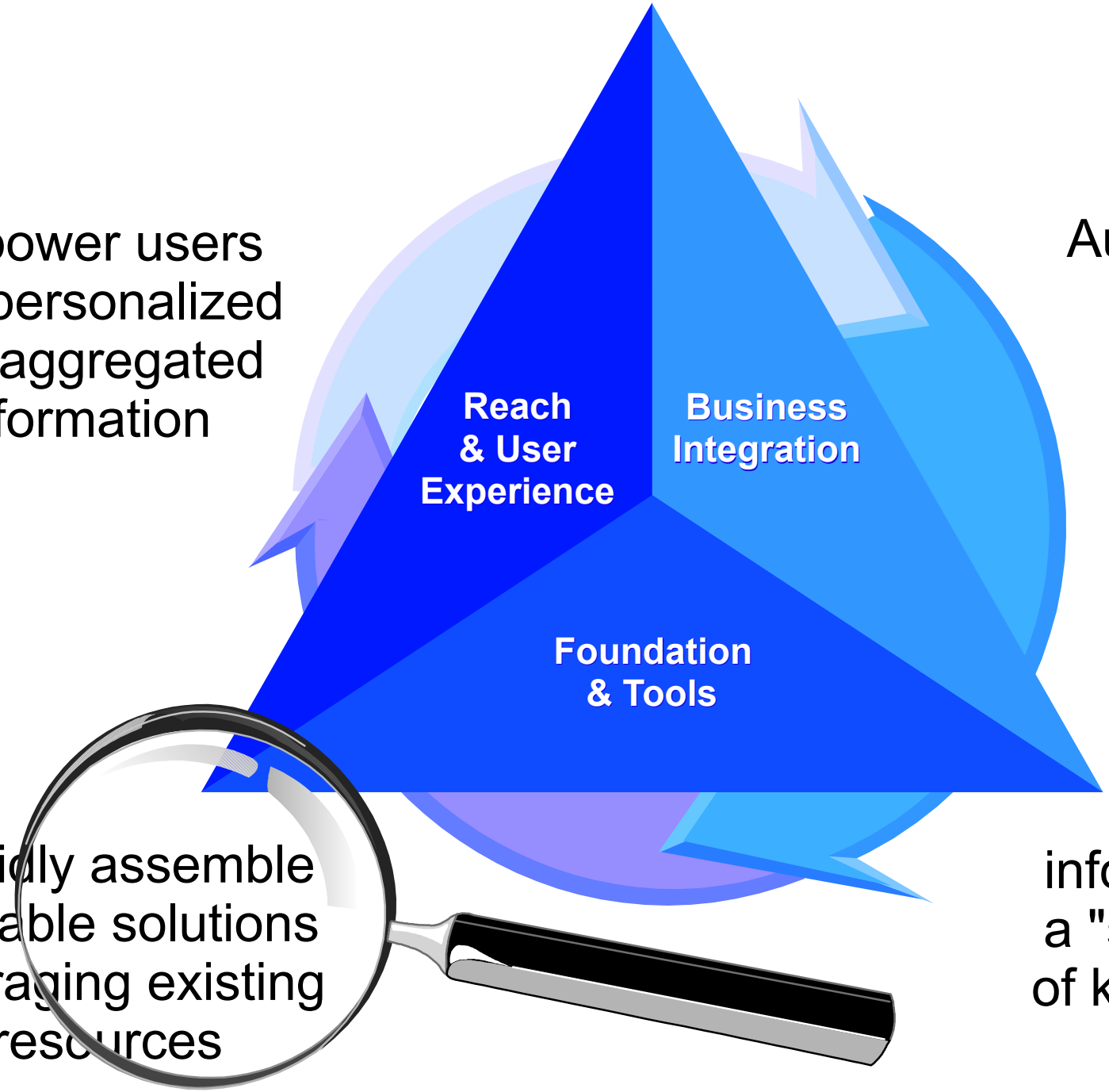
| Runtime | Associated Tool(s) |
|---|---|
| **WebSphere Application Server (WAS) Express** | |
| WAS (with optional ND or XD) | Site Developer or Application Developer |
| WAS Enterprise | App Dev, Integration Ed |
| WAS for z/OS | Enterprise Developer (as appropriate) |




= **IBM Advantage!**

# Different Integration Styles

Empower users with personalized and aggregated information




Automate and optimize business processes

Rapidly assemble reusable solutions leveraging existing resources

Unify information for a "single view" of key business data

# Some Reasons to Choose WebSphere

- **S**upport for complete solutions
- **U**nparalleled sustained investments
- **C**ore strengths and competencies
- **C**lear industry leadership
- **E**xcellent return on investment
- **S**upport for industry standards
- **S**cale and performance across platforms

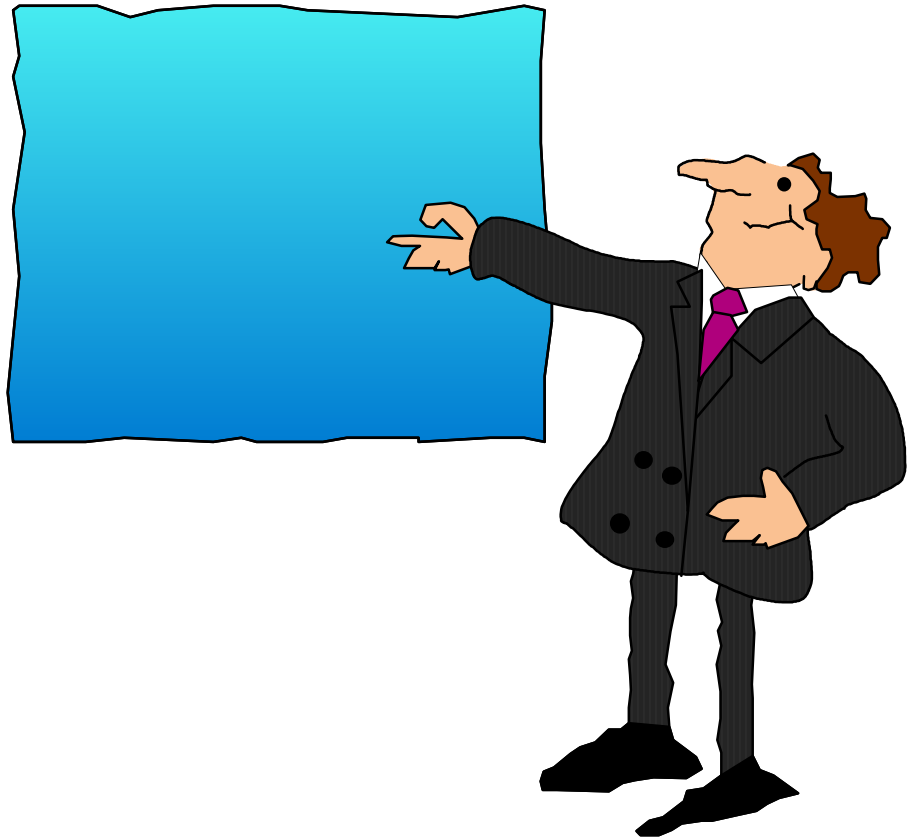
WebSphere = Customer SUCCESS

# WAS Enterprise Testamonial

"In today's competitive world of financial services -- a world where more and more customer services and relationships are moving online -- ***a secure, robust e-business infrastructure is critical.*** We look to WebSphere to support our efforts to maintain a ***highly satisfied, loyal customer base*** -- and to do it more ***efficiently and cost effectively*** than our competitors. With the ***integration features,*** WebSphere helps us ***shorten time to market through faster application development,*** while ***reducing our ongoing maintenance costs.*** And, it ***integrates easily with our existing e-business applications,*** enabling us to ***leverage our prior IT investments.*** That ***boosts the return on our investment*** while enabling us to ***support thousands of users securely and reliably, day in and day out.***" -- Thomas Leemann, Team Leader, WebSphere Application Server Engineering, UBS.

# Revisiting the Agenda

- The Evolving Role of Application Servers
- WebSphere Application Server Case Study
- WebSphere Foundation and Tool Offerings
- Next Steps



# WebSphere Services and Education

## Services

- Lab-based consultants with deep technical skills
- Provides skills transfer using best practices
- Mentoring and technical enablement
- Architecture, design, and custom coding
- Infrastructure and deployment services
- Migration assistance

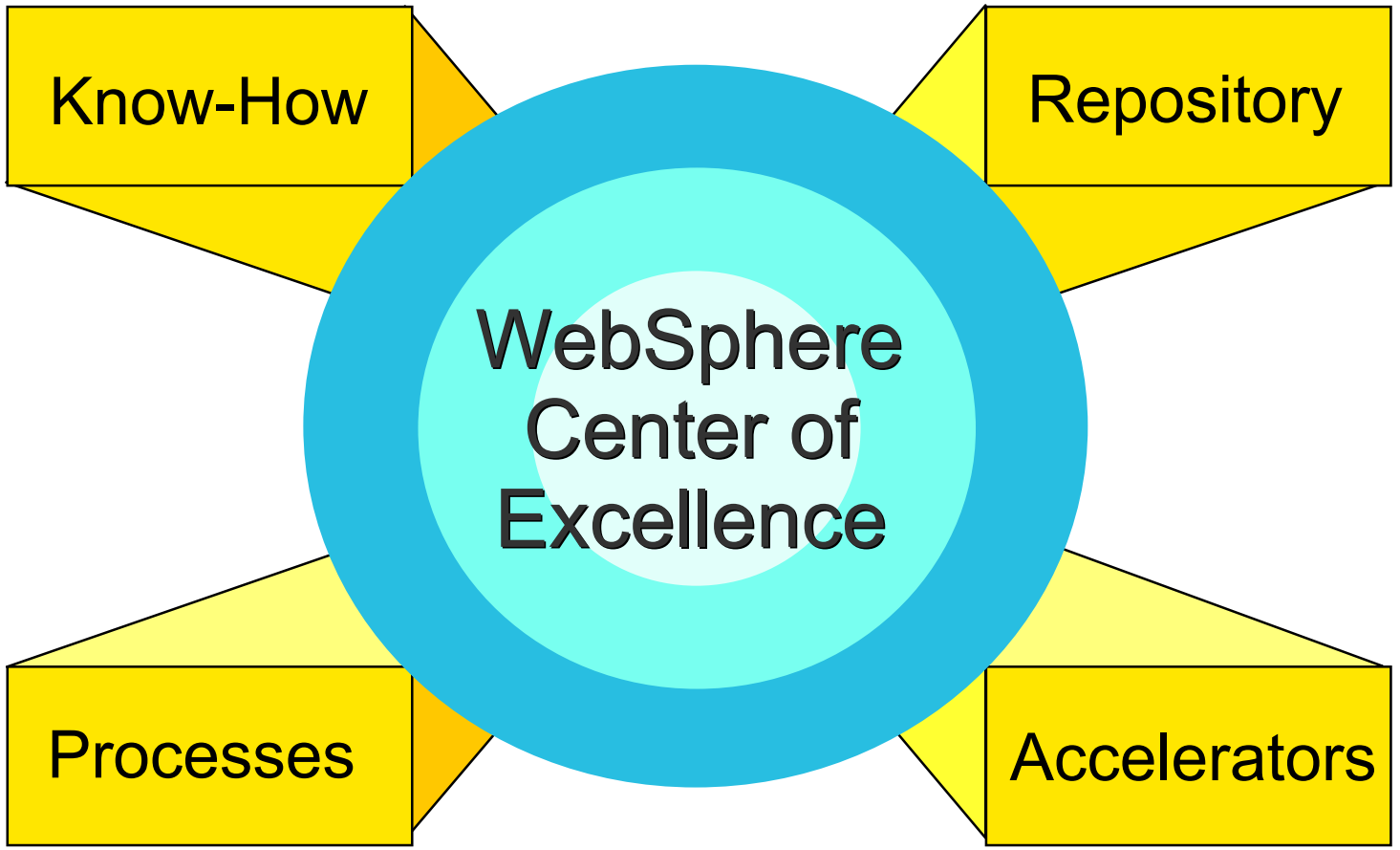
Please see *www.ibm.com/websphere/developer/services* for more details.

## Education

- Both public and private courses
- Roles-based and customized education
- Onsite or online training

Please see *www.ibm.com/services/learning/spotlight/ebusiness* for course roadmaps, course advisors, and sample training plans.

# Center of Excellence Services




*Flexible "Suites"*

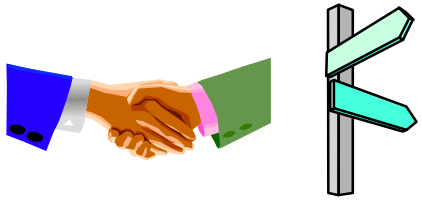
Full Suite

Mini Suite

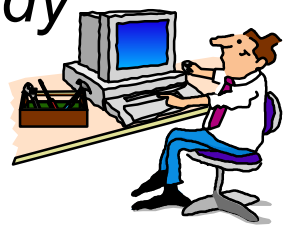
Overview Suite

*Value and depth of mentoring*

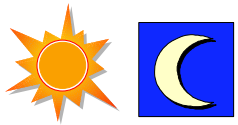
# Summary

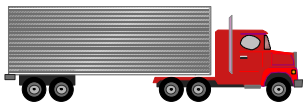


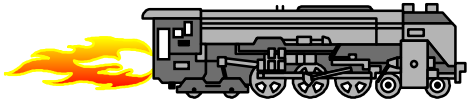
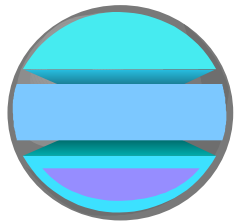
- Comprehensive Build-to-Integrate Platform
  - *Improve time-to-value by building new integration-ready applications which leverage existing software assets*



- Integrated Application Development
  - *Maximize ROI and lower labor costs with superior developer productivity and the flexibility of a "portal-like" integration of best-of-breed tools*
- Intelligent, End-to-End Application QoS Optimization
  - *Create competitive advantage and optimize price / performance while meeting the changing demands of dynamic e-business with industry leading reliablity, scalability, performance and security*







- Agile Deployment and Administration
  - *Lower cost of ownership and minimize startup investment with highly productive and flexible administration, deployment and management services*