

# *WebSphere Personalization Overview*

# What is WebSphere Personalization?

- Provides specific content to specific users based on:
  - Roles, classifications, preferences, profiles, recommendations, etc.
- Primarily web content
  - Browser, e-mail, etc.
- Complements portals and content management

The screenshot shows a personalized web page for 'My WebSphereBank online'. At the top, there is a navigation bar with a logo and a banner for 'Try WBOOnline PrivateBanking' with a '(click here)' link. Below the banner, the date 'Wednesday, November 14, 2001' and the text 'Serving our customers since 1980' are displayed. A navigation menu on the left includes links for 'Login', 'Home', 'Accounts', 'Investments', 'Loans', and 'CDs'. The main content area shows a personalized welcome message: 'Welcome, Doug. Login was successful.' and 'Your total bank account balance is \$2000.50.'. Below this, there is a section for 'Click-thru logging' and 'Your Personalized News (Category = Finance)'. A news article titled 'BUSINESS: Income Growth Outpaces Spending' is highlighted, with a '(click here to see the rule)' link. The article text reads: 'WASHINGTON -- U.S. consumers slowed their free-spending ways in January as personal-income growth outpaced spending growth for the first time since October. Demand for small consumer products has also lagged. Marketeers are scratching thier heads, trying to address this new trend.' Another news item, 'BUSINESS: NASDAQ Up and Down in the Same Day', is also visible.

# WebSphere Personalization Components

## ■ Personalization Runtime

### ■ Resource Engine

- Defines user and content objects to the rules engine

### ■ Rules Engine

- Allows business users to define how content should be matched to site visitors

### ■ Recommendation Engine

- Matches content to site visitors using collaborative filtering

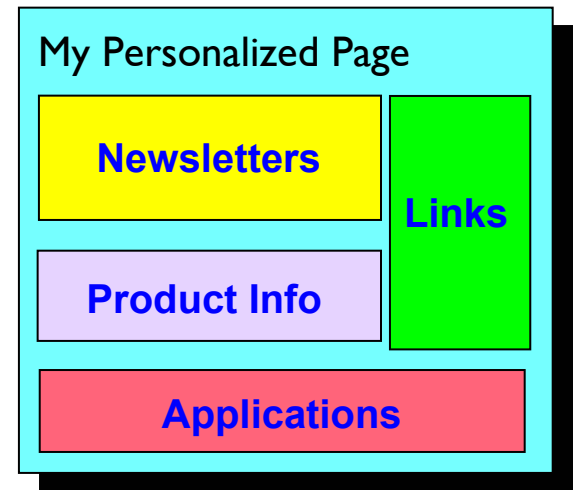
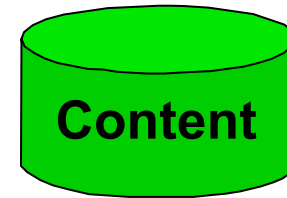
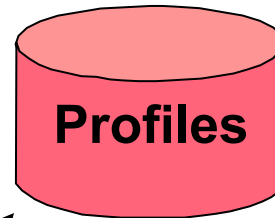
## ■ Personalization Workspace

- Business user, browser based tooling for managing rules and campaigns and previewing their effect on your web site

## ■ Development Wizards within WebSphere Studio

- Wizards for create resource classes and content spots

# Personalization Runtime Process



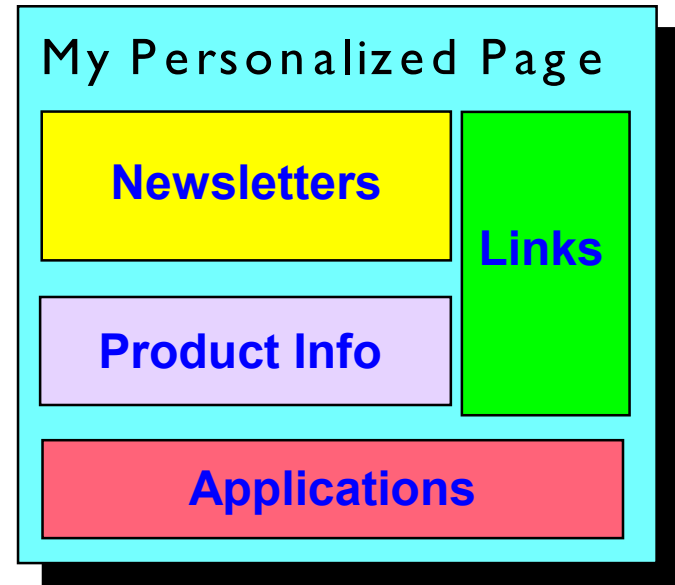
- A. Identify Site Visitor
- B. Retrieve Their Profile
- C. Rule/Recommendation Selects Content Which Matches User's Interest, Needs or Role
- D. Serve JSP Page To Site Visitor

# A. Identify Site Visitor

- Cookie, Explicit Application Login

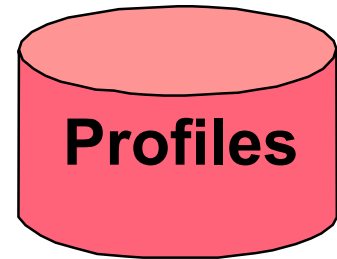
OR

- WebSphere Security (LDAP, OS, etc.)



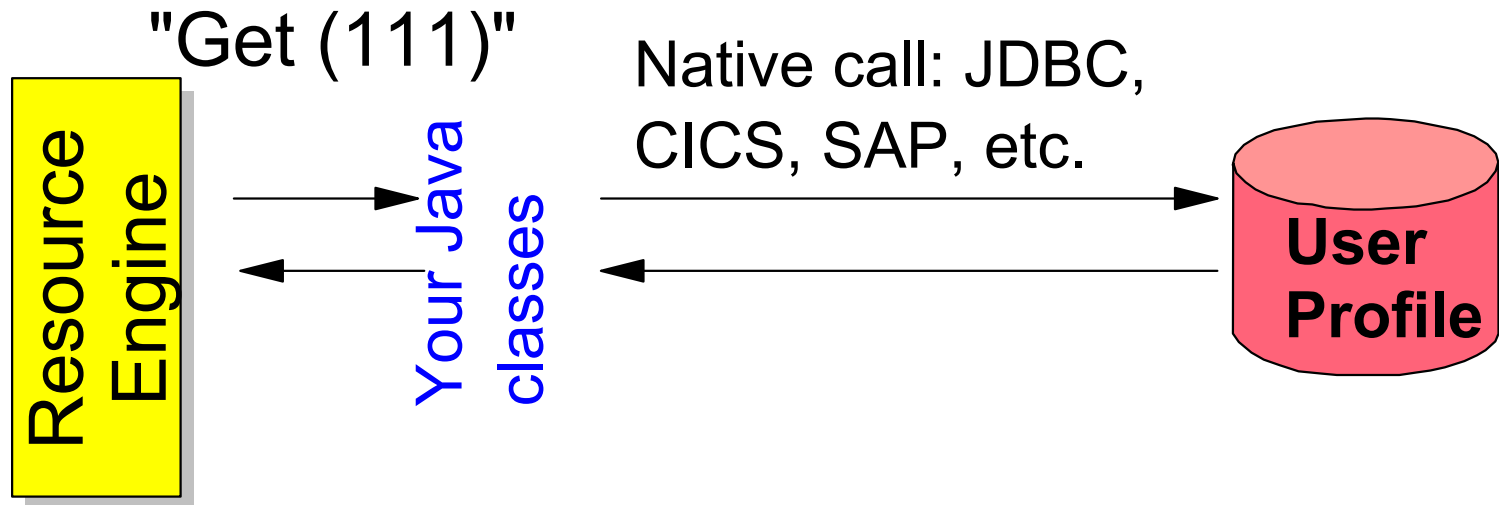
## B. Retrieve Their Profile

- Where is the user data?
  - Relational DB
  - Mainframe (CICS, IMS, etc.)
  - ERP System (SAP)
  - LDAP
  - Other
- How does personalization access this data?
  - Through the **resource engine** and specified **Java interfaces**



## B. Retrieve Their Profile

- Resource Engine allows rules to "speak only one language"
- You provide the translation for your source(s) of data



WebSphere Studio Advanced Edition V4 can build this code for JDBC, LDAP, and EIP!

Java tooling can be used for other data sources.

# C. Rules

Example:

If user has high  
net worth...

Then show  
finance news

Else show life  
news

Name of the Binding:

Comment about the Binding:

Binding Description (click on an underlined value to edit it):

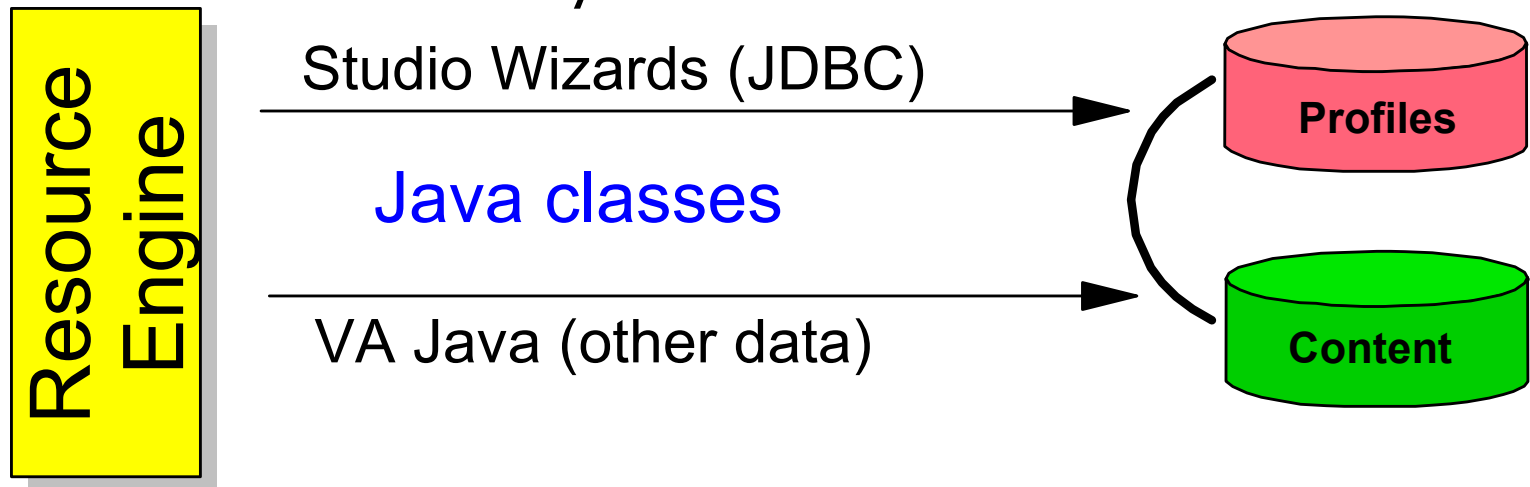
When [HighNetWorthClassifier](#) is

- [Y](#)
- do [FinanceNewsAction](#)  
[Classification](#)  
do Action
- Otherwise
- do [LifeNewsAction](#)  
Always  
do Action
- Exclude  
do Action
- [order as is](#)
- [show all items](#)



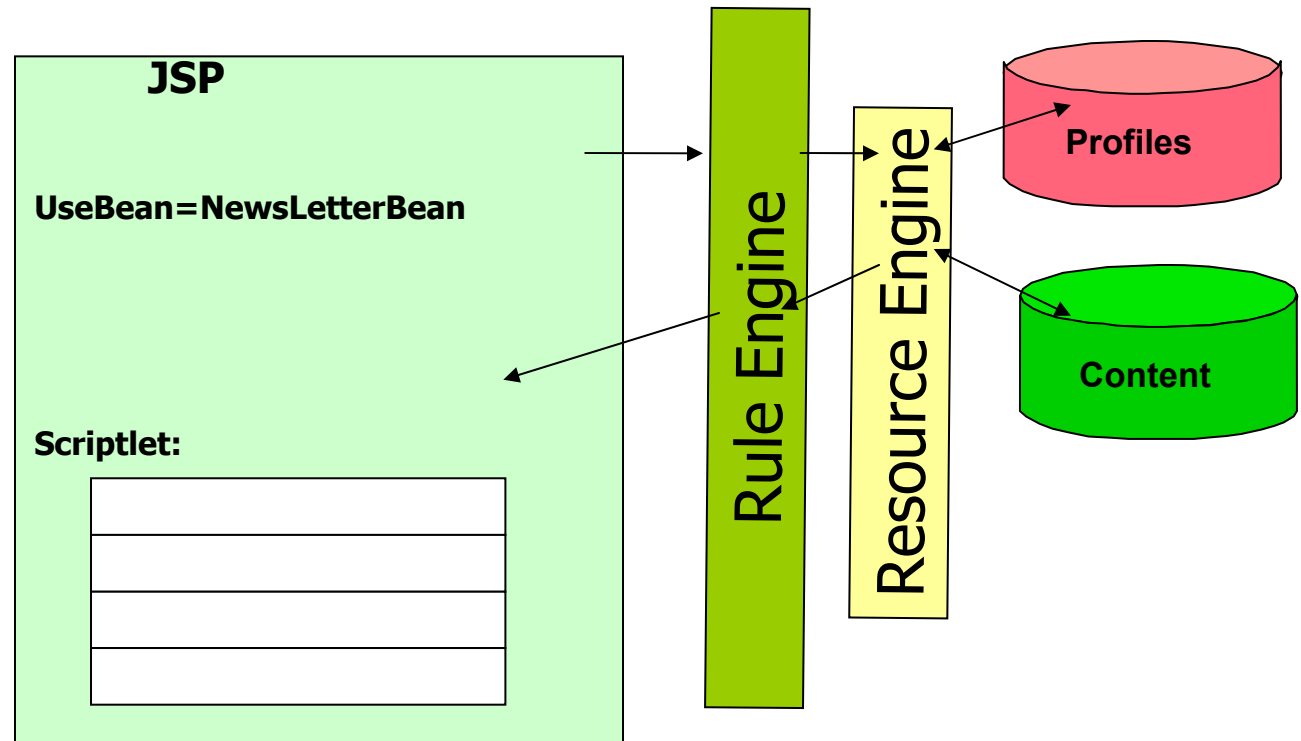
# C. Rules

- Content can be stored almost anywhere
  - Database
  - Mainframe
  - Content Manager
  - XML, other...
- The Resource Engine provides access to content and user data the same way!

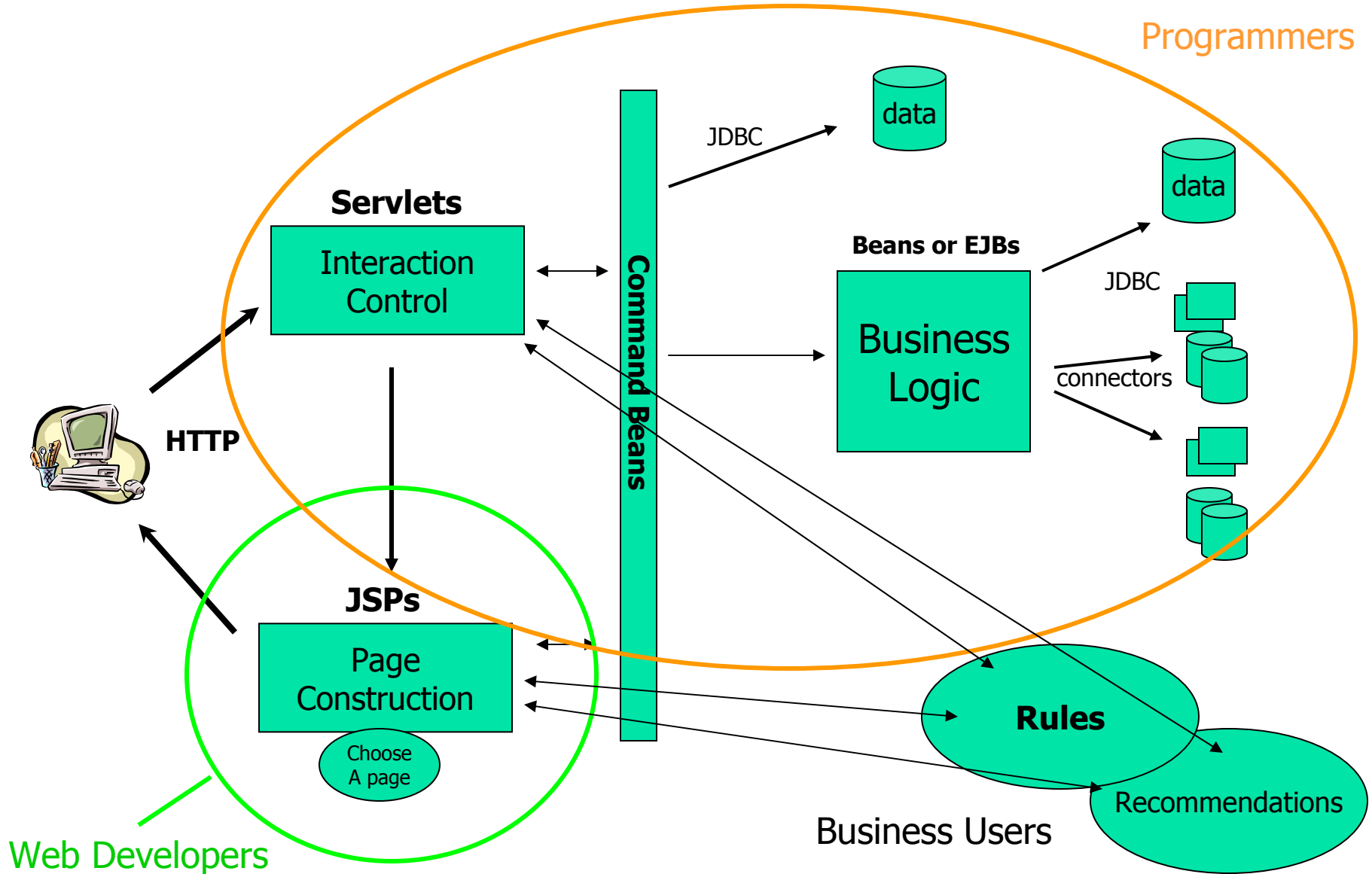


# D. Server JSP Page to visitor

Content Spot Bean provides a result set as JavaBean properties!



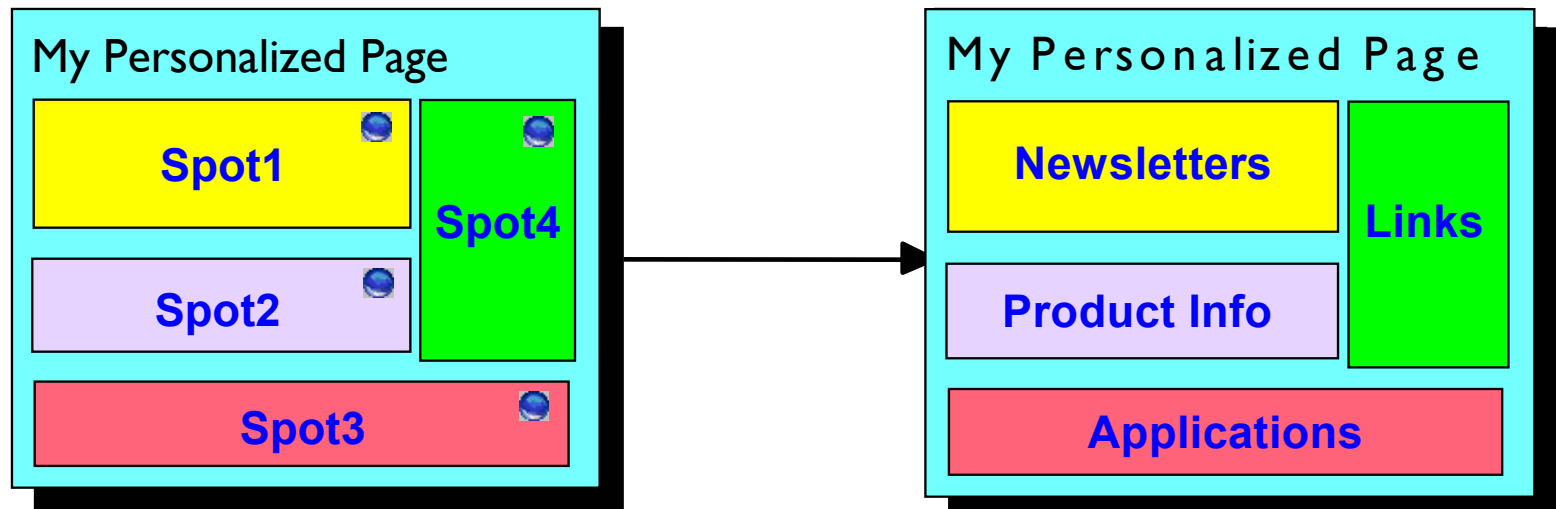
# WebSphere HTTP Application Profile



# Linking Rules with Content Spots

Personalized pages are built as standard JSPs using WebSphere Studio PageDesigner or any JSP editor.

- Spots for personalized content are reserved using standard JavaBeans called content spots.



Developer View

"Content Spots" reserved for personalized content

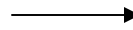
Live Web Site

Visitors see just the content

# Rule Development Process

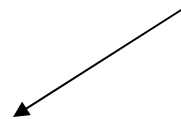
Start by creating a Content Spot

**1** Page Designer runs content spot wizard to create a content spot (a Java bean)



**2** Page Designer drops rule wrapper bean on page and creates scriptlet to display results.

```
JSP  
UseBean =  
NewsLetterBean  
  
Scriptlet:  
_____  
_____  
_____
```



**3** **Rule Editor**

Select Content  
Whose [Newsletter.Industry equals User.Industry](#)

Note: while rules often fill spaces within JSPs, it is useful to think of content spots as trigger points within servlets or JSPs which invoke logic that is changed by business users.

# Rules are Created Using Point & Select Menus

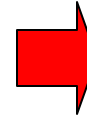
UserClearance is  
Confidential  
when Resource.Attribute is equal to Value



Select a Resource and its Attribute - Microsoft Internet Explorer

Resource	Hierarchy		
<input type="radio"/> current Date		<input type="radio"/> NEWSREAD	List
<input type="radio"/> current Page Request		<input type="radio"/> LOCATION	Text
<input type="radio"/> current Category Count		<input type="radio"/> CATEGORY	List
<input type="radio"/> current BrowserCapability		<input type="radio"/> CITY	List
<input type="radio"/> current User Session		<input checked="" type="radio"/> ROLE	Text
<input type="radio"/> current Personnel		<input type="radio"/> PHONENUMBER	Text
		<input type="radio"/> LNAME	Text

Help Save Cancel



Specify Evaluation - Microsoft Int...

Evaluation: Specify Evaluation - Microsoft

includes  
is between  
is between but not equal to  
**is equal to**  
is greater than  
is greater than or equal to  
is included in  
is less than  
is less than or equal to  
is not equal to

Help Save Cancel



Specify Value - Microsoft Internet Explorer

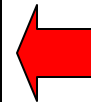
Specify a value of type Text

Manager

Specify another attribute

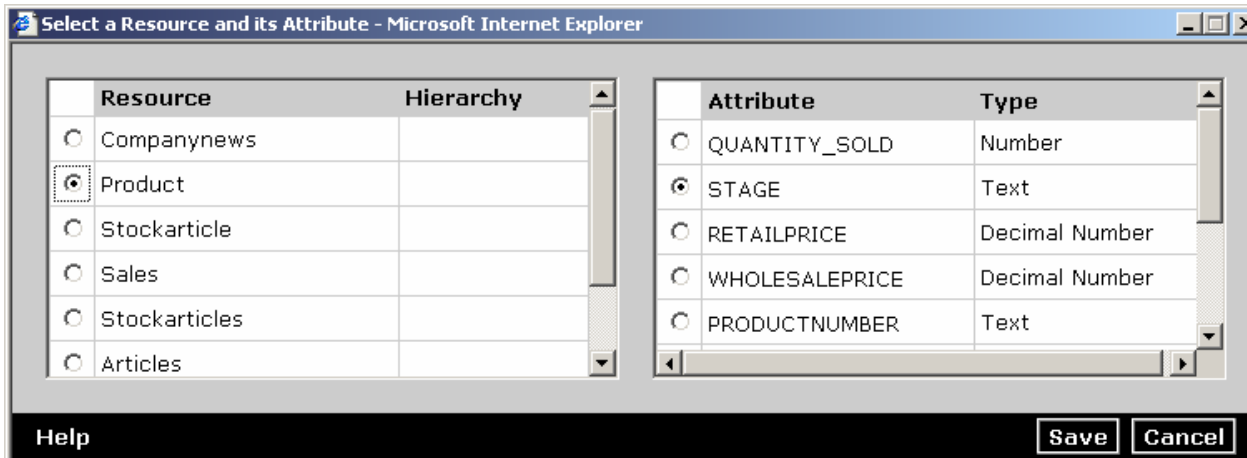
Browse...

Help Save Cancel



UserClearance is  
Confidential  
when Personnel.ROLE is equal to Manager

# Where The Data Comes From

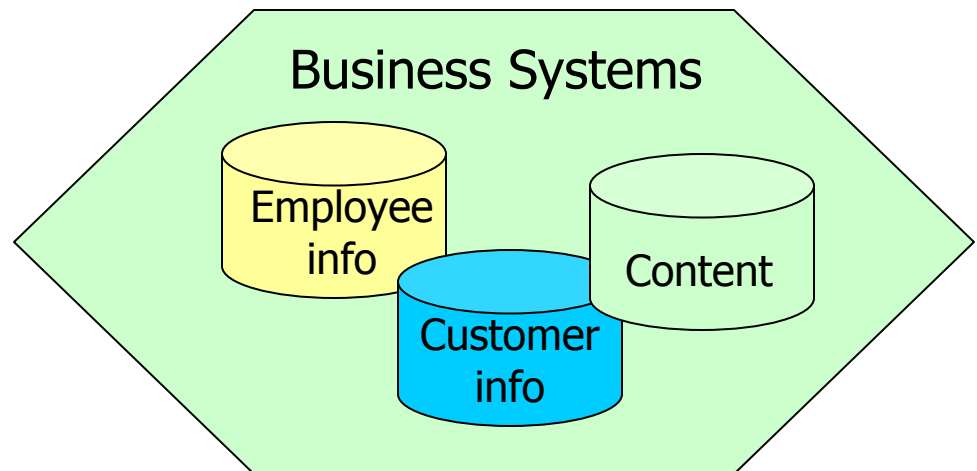
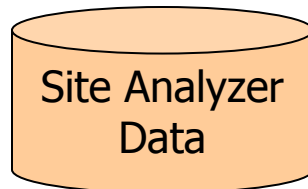
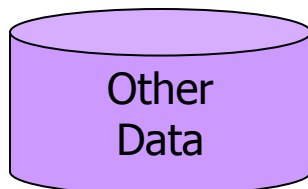


## Resource Engine

Surfaces/Normalizes Profiles/Content For Usage By WebSphere Personalization  
Adapter classes are written in Java (Java Beans or EJBs)

Application Objects

- Shopping carts
- Topics of interest
- Statistics from previous visits



# WebSphere Personalization Rule Concepts

- Classify a site visitor or the situation
  - What service level are they entitled to - gold, platinum
  - What interests them – active vacations, educational vacations .....
  - What organization are they in HR, engineering, marketing
  - .... or whatever is important to your site's goals
- Action to be taken
  - Select specific content based on user profile, application objects, session variables, request parameters or constants
  - Update user profile, application objects, or session variables
- Binding combines a classification and action
  - e.g.
    - If Customer is active vacationer select white water rafting specials
    - If Customer is educational vacationer select Autumn in Europe specials



# *WebSphere Personalization Functions*

# Personalization Overview

- **Personalization Workspace**
  - An easy to use interface that business users use to build business rules, manage campaigns and preview personalized pages with different profiles.
- Simple to use, browser based, point and choose rule editor
- **Campaign management**
  - Business user tool which simplifies the coordination and scheduling of personalized web and e-mail based campaigns
- Powerful “how would my site look if...” preview capability
- Rule Based and Collaborative Filtering Based Personalization
- **Implicit profiling**
  - Collect real time information on site visitor actions and construct personalization business rules around this data
- **Reporting on campaign and rule effectiveness**
  - Provide reports for the site's business owner on the effectiveness of the business rules and campaigns in achieving their objectives
- **Use existing user profile and content repositories**
  - User and Content Wizards support for DB (including joins), LDAP and IBM EIP
- Make use of rule and recommendation results easily within JSP pages using WebSphere Studio Page Designer or any JSP editor.
- **Wide platform coverage**
  - Resource Engine, Rule Engine and Recommendation APIs run on AIX, Solaris, HP-UX, Windows NT, Windows 2000, and Linux, with iSeries (AS/400) and zOS in 1Q2002.
  - Collaborative Filtering server runs on AIX, Solaris and Windows.

# Personalization Workspace

Provides integrated, browser based access to the tasks that business users perform most often in their jobs

- Edit Rules
- Manage Campaigns
- Preview/Verify Rule Execution
  - Invoke any page with a pseudo user profile
    - Copy/Edit pseudo user profiles
  - Preview mode shows what rules executed with links back to the campaign mappings and rule editor

# Browser-based Rule Editor

The screenshot shows a browser window titled "Personalization Workspace - User: willrc - Project: PersSample - Microsoft Internet Explorer". The address bar shows "http://localhost/PersWorkspace/UI/main.jsp". The page header includes "WebSphere Personalization" and the IBM logo. The main navigation bar has tabs for "Campaign Manager", "Rule Composer", "Preview Launcher", and "Global Settings". Below this is a toolbar with icons for adding, editing, deleting, and saving. The left sidebar shows a tree view with "Bindings" selected, containing items like "actions", "bindings", "GetContactsByLocation", "GetEmailSales", "GetNewsByClearance", "GetProductsByLocation", "GetTopProducts", "ProcessUserNews", and "classifiers". The main content area displays the "Binding Properties" for "GetNewsByClearance":

Name	GetNewsByClearance
Comment	
Content Type	Companynews

Below the table, it lists "Classifiers used by this binding" as [UserClearance](#) and "Actions used by this binding" as [GetConfidentialNews](#) and [GetSiteNews](#). The "Binding Description" section contains the following logic:

```
When UserClearance is
  Confidential
    do GetConfidentialNews
  Otherwise
    do Action
  Always
    do GetSiteNews
  Exclude
    do GetNewsRead
order as is
```

The footer of the interface includes "About", "Help", "InfoCenter", and "Sign out" links. The Windows taskbar at the bottom shows "Local intranet".

# Creating Rules

The screenshot displays a multi-step interface for creating a classifier rule. The main window has three sections: 'Name of the Classifier:' with the text 'GoldSilverClassifier', 'Comment about the Classifier:' with an empty text box, and 'Classifier Description (click on an underlined value to edit it):' containing the text 'GoldSilverClassifier is Classification when Resource.Attribute is equal to value. Below this are links for 'add Condition', 'add Classification', and 'Otherwise Classific'. A 'Help' button is at the bottom left.

An inset window titled 'Classification name:' shows the text 'Gold' in a text field, with 'Help', 'Save', and 'Cancel' buttons below. An arrow points from the 'Classification' text in the main window to this inset.

Another inset window shows two tables. The left table lists attributes with radio buttons: 'current Customer', 'current Customer40', 'current Date', 'current Page Request', and 'current User Session'. The right table is a table with columns 'Attribute' and 'Type':

Attribute	Type
<input type="radio"/> ACCT_NUMBER	Text
<input type="radio"/> ACCT_NUMBER_LOAN	Text
<input checked="" type="radio"/> BALANCE	Decimal Numl
<input type="radio"/> BALANCE_CD	Decimal Numl
<input type="radio"/> BALANCE_LOAN	Decimal Numl

An arrow points from the 'add Classification' link in the main window to the 'BALANCE' attribute in the right table.

## Building a Classifier Rule

# Creating Rules

The image shows a software interface for creating rules. The main window is titled "Name of the Classifier:" and contains a text box with "GoldSilverClassifier". Below it is a "Comment about the Classifier:" text box. A section titled "Classifier Description (click on an underlined value to edit it)" contains a list of conditions: "GoldSilverClassifier is", "Gold when", and "current Customer40.BALANCE is equal to value". There are links for "add Condition", "add Classification", and "Otherwise Classification". A "Help" button is at the bottom left, and "Save" and "Cancel" buttons are at the bottom right.

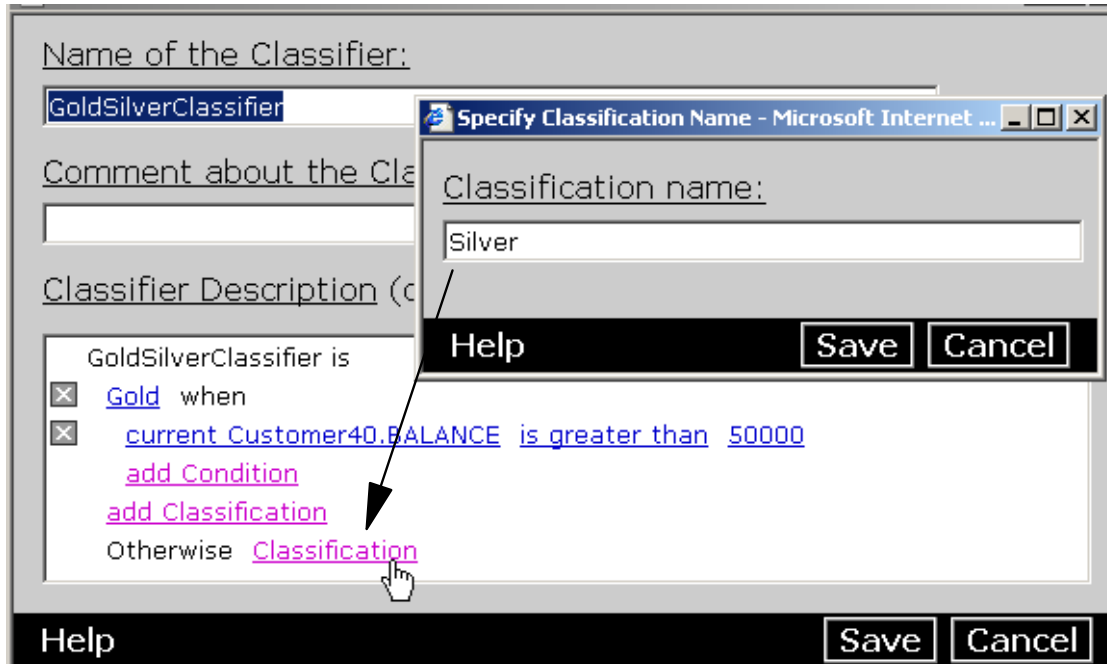
An "Evaluation:" dialog box is open, showing a list of operators: "is between", "is between but not equal to", "is equal to", "is greater than" (highlighted), "is greater than or equal to", "is included in", "is less than", "is less than or equal to", and "is not equal to".

A second dialog box is open, showing two radio buttons: "Specify a value of type Decimal Number" (selected) and "Specify another attribute". The first option has a text box containing "50000". The second option has an empty text box and a "Browse..." button. "Help", "Save", and "Cancel" buttons are at the bottom.

Arrows indicate that the "is greater than" operator is being selected for the "is equal to" condition in the classifier rule.

## Building a Classifier Rule

# Creating Rules



## Building a Classifier Rule

# Creating Rules

The screenshot displays the WebSphere Personalization Rule Composer interface. The top navigation bar includes "Campaign Manager", "Rule Composer", "Preview Launcher", and "Global Settings". The left sidebar shows a tree view of classifiers, with "GoldSilverClassifier" selected. The main workspace is divided into three sections: "Classifier Properties", "Classifications", and "Classifier Description".

**Classifier Properties**

Name	GoldSilverClassifier
Comment	

**Classifications**

Silver, Gold

**Classifier Description**

GoldSilverClassifier is

- Gold when
- current Customer40.BALANCE is greater than 50000
- Otherwise Silver

The bottom of the interface features a navigation bar with "About", "Help", "InfoCenter", and "Sign out".

The Rule is Ready to Use



# Campaign Management

- Allow management of rules as collections which work together in order to accomplish a specific goal
  - Example: A "Back to School" campaign which includes a set of rules coordinated across the site to provide content related to going back to school
  - Campaigns override existing rules and replace them temporarily with new rules
- Includes ability to send personalized e-mail, coordinated with rules in force at the web site, as part of the campaign

Edit Campaign - Microsoft Internet Explorer

Name of the Campaign:  
Fall Specials

Comment about the Campaign:  
To push seasonal and Holiday products

Begin Campaign on:      End Campaign on:

September 24, 2001      November 30, 2001

12:00:00      12:00:00

Help      Save      Cancel

The Normal View maps each content spot to a rule.

Personalization Workspace - User: willrc - Project: PersSample - M

File Edit View Favorites Tools Help

Back Forward Stop Home Search

Address http://localhost/PersWorkspace/UI/main.jsp Go Links

WebSphere Personalization IBM

Campaign Manager Rule Composer Campaign Launcher Global Settings

Web site

Priorities

**Normal View**

Holiday Sales Campaign

Special Sales Campaign

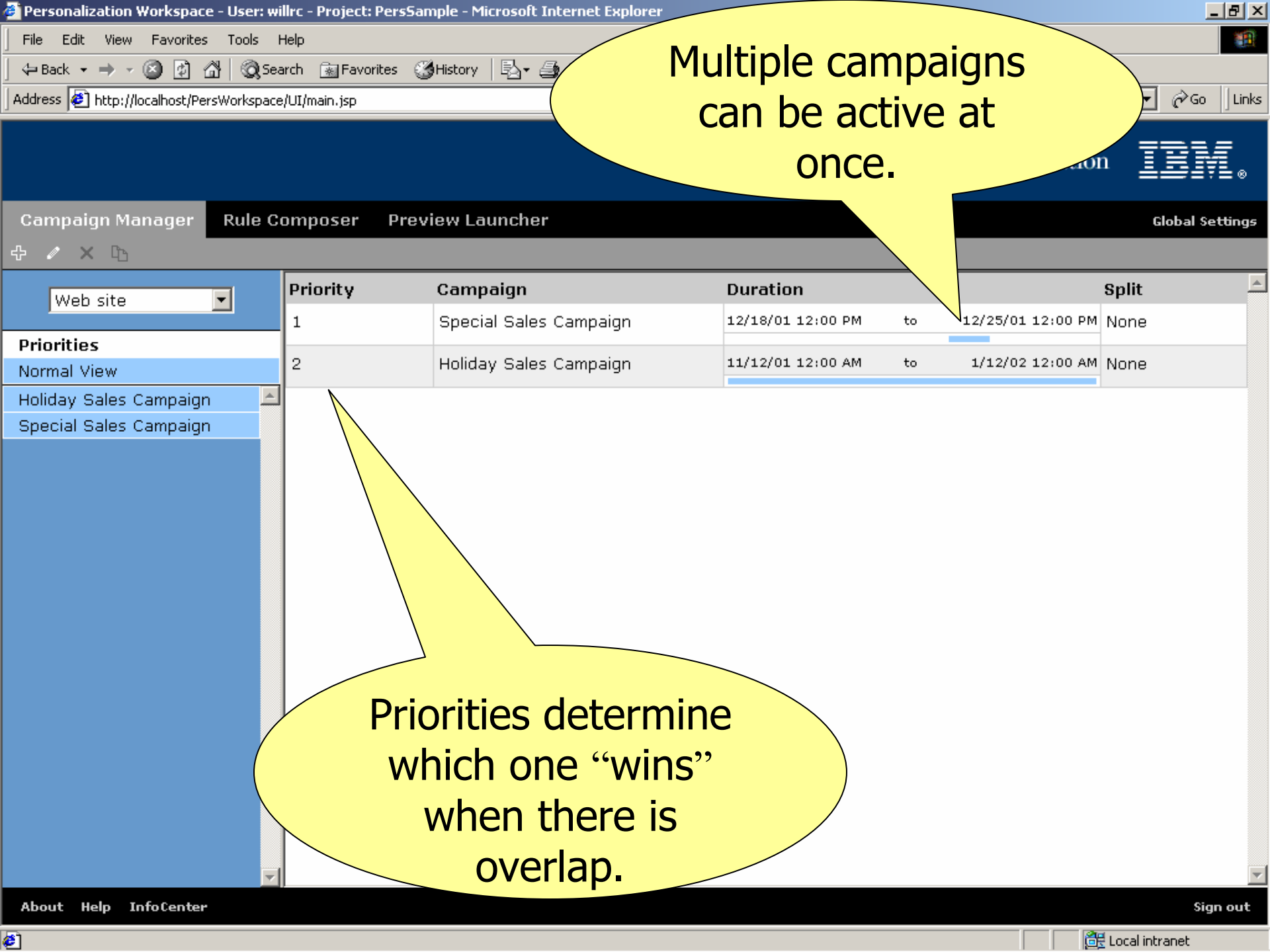
Rule: Message when there are no active campaigns

Content Spot	Content Type	Rule
AllWeatherCitiesSpot	Weatherforecasts	<a href="#">GetAllWeatherCities</a>
CompanyNewsSpot	Companynews	<a href="#">GetNewsByClearance</a>
ConfidentialNewsSpot	Companynews	<a href="#">GetNewsByClearance</a>
ContactListSpot	Personnel	<a href="#">GetContactsByLocation</a>
CurrentUserSpot	Personnel	<a href="#">GetCurrentUser</a>
DepartmentSpot	Department	<a href="#">GetSiteMembers</a>
EmailSalesSpot	Sales	<a href="#">GetEmailSales</a>
ExecutiveSpot	None	<a href="#">UserRole</a>
GetCurrentPersonnel	Personnel	<a href="#">GetCurrentPersonnel</a>
InvestmentNewsSpot	Stockarticles	<a href="#">GetInvestments</a>
ProcessNewsSpot	None	<a href="#">ProcessUserNews</a>
ProductInfoSpot	Product	<a href="#">GetProductFromURL</a>
ProductListSpot	Product	<a href="#">GetProductsByLocation</a>
SalesSpot	Sales	<a href="#">Get No Sale</a>
UpdateCitiesSpot	None	<a href="#">UpdateCities</a>
UpdatePersonnelPreferences	None	<a href="#">UpdatePersonnelPreferences</a>
UpdatePhoneSpot	None	<a href="#">UpdatePhone</a>

About Help InfoCenter Sign out

Local intranet





Multiple campaigns can be active at once.

Priorities determine which one "wins" when there is overlap.

Priority	Campaign	Duration	Split
1	Special Sales Campaign	12/18/01 12:00 PM to 12/25/01 12:00 PM	None
2	Holiday Sales Campaign	11/12/01 12:00 AM to 1/12/02 12:00 AM	None

# Campaign Priorities and Splits

Priority	Campaign	Duration	Split
1	Fall Specials	9/25/01 12:00 PM to 11/1/01 12:00 PM	None
2	Pen Campaign	9/25/01 12:00 PM to 12/25/01 12:00 PM	60%
2	Pencil Campaign	9/25/01 12:00 PM to 12/12/01 12:00 PM	40%

Campaigns can have same priority

- Split allows mix
- i.e., 60% pen content, 40% pencil content

# E-mail Campaigns

- Schedule e-mail delivery at date/time
  - with personalized content
  - to any number of recipients
  - recipient list dynamically determined via rules
- JSP file is the body of the e-mail message
- JavaMail 1.1 is used on the WebSphere Application Server

Subject: Personalized E-mail

Dear Doug,

xxx xxxx xxxx xxx

**Personalized  
Newsletter**

**Personalized  
Product Info**

# Personalized E-mail

- Benefits

- Highly-targeted recipient list
- Recipient list always up-to-date
- Automated background generation
- Redundancy and failover support

Subject: Personalized E-mail

Dear Doug,

xxx xxxx xxxx xxx

**Personalized  
Newsletter**

**Personalized  
Product Info**

E-mail

**Email For Seattle**

E-mail Campaign Properties	
Name	Email For Seattle
Comment	Sends Email to Users Interested in Seattle Weather
Send Date	November 22, 2001 1:00:00 PM
To	GetEMailRecipients
At	
From	user@domain.com
Subject	The latest Seattle Weather
Body	<a href="http://localhost/PersSample/Email/Email.jsp">http://localhost/PersSample/Email/Email.jsp</a>



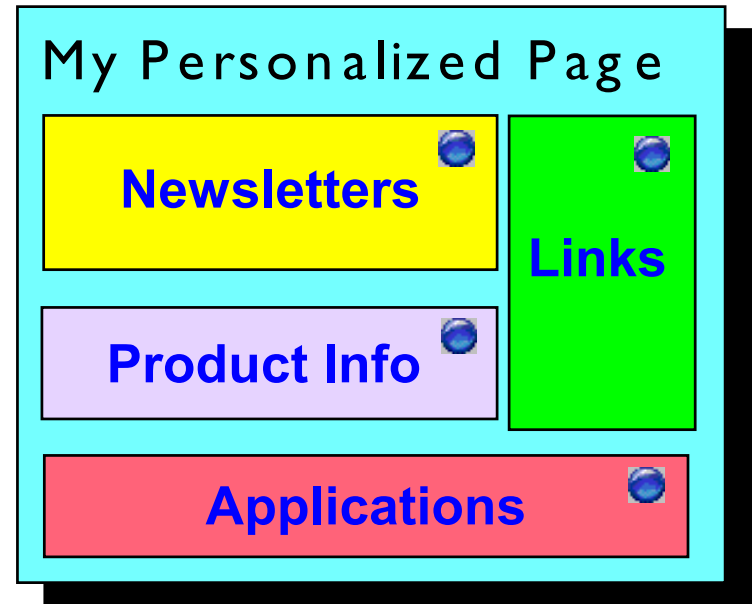
# Preview/Verify Rule Execution

- Invoke any page with a pseudo user profile
  - For example, what would my site look like for a male driver under 25 years of age? ... ok... how about a female driver under 25 years of age? ... hmm... what about...
- Create, Edit or Copy then Edit pseudo user profiles
- Preview mode shows what rules executed with links back to the campaign mappings and rule editor

# Preview Personalized Pages

Simple, two-step process:

1. Build preview profile(s)
2. Press preview button



- Seattle Manager
- Raleigh Factory Employee**
- Sales Executive
- Cindy Smith

**Preview your site with these characteristics**

* Employee ID	2
User ID	user2
Password	*****
First Name	Raleigh Factory Employee
Last Name	Smith
Phone Number	2123
Role	Employee
Location	Factory
Site	Raleigh
Department	Mfg
Email Address	None Specified
News Read	None Specified
Category	None Specified
City	Raleigh, Seattle
INDUSTRY	None Specified
Stock Name	yourCo

- Seattle Manager
  - Raleigh Factory Employee
  - Sales Executive
  - Cindy Smith

**Edit Profile - Microsoft Internet Explorer**

Name of the Profile:  
Seattle Manager

Profile Characteristics:

\* Employee ID 1

User ID smgr

Password \*\*\*\*

First Name Seattle Manager

Last Name Manager

Phone Number 1123

Role Manager

Location Lab

Site Seattle

Help Save Cancel

Preview you	
* Employee I	
User I	
Password	
First Nam	
Last Nam	
Phone Numbe	
Ro	
Locatio	
Sit	
Departmer	
Email Address	
News Rea	
Categor	
Cit	
INDUSTR	
Stock Name	yourCo, LittleCo

- Seattle Manager
  - Raleigh Factory Employee
  - Sales Executive
  - Cindy Smith

Preview your site with these characteristics

Specify Preview Criteria - Microsoft Internet Explorer

Choose when and who to preview your site as:

Time: 14 : 25 : 29

Date: October 19, 2001

Profile:  (Dropdown menu open showing: February, March, April, May, June, July, August, September, October)

Page:

Help OK Cancel

News Read	None Specified
Category	2
City	San Francisco, Seattle, Cancun
INDUSTRY	Software
Stock Name	yourCo, LittleCo

# Preview links back to Rule Editing and Campaigns

The image shows a screenshot of a Microsoft Internet Explorer browser window. The browser title is "Fill Content Spot - Microsoft Internet Explorer". The address bar shows "History" and "Go" buttons. The main content area displays a navigation menu with links for "products", "contacts", and "logout". Below the menu, there is a section titled "attle Manager, to the yourCo Toys" with the text "here the information is personalized just your news:". A list of news items is visible, including "L: YourCo to Acquire 49% of Whazziz", "L: April is Employee Appreciation Month", "SEATTLE LAB: ISO 9000 Inspections Canceled", "SEATTLE LAB: Schedule Changes for New Product Line", and "ALL SEATTLE EMPLOYEES: CrackerJax Caterers to Improve Cafeteria".

Overlaid on the browser window is a "Fill Content Spot" dialog box. The dialog box has a title bar "Fill Content Spot - Microsoft Internet Explorer" and contains the following information:

- Name of the content spot being filled: ConfidentialNewsSpot
- Type of content the spot can accept: Companynews
- No campaign is currently filling content spot: **Normal View**

The dialog box has two main sections:

- Normal View**: A dropdown menu showing "GetNewsByClearance" with an edit icon.
- Campaign**: A list of campaigns with edit icons:
  - Holiday Sales Campaign
  - Special Sales Campaign

A context menu is open over the "GetNewsByClearance" dropdown, showing the following options:

- empty
- Bindings --
- GetNewsByClearance (highlighted)
- Actions --
- GetConfidentialNews (with edit icon)
- GetNewsRead
- GetSiteNews (with edit icon)
- empty

At the bottom of the dialog box, there are "Help", "OK", and "Cancel" buttons.

At the bottom of the browser window, there are two sidebars:

- Your Weather**: Seattle, Cool and Cloudy, Highs in the 70s. Cancun, Sunny and Mild, Highs in...
- Your Investment News**: LittleCo in major Scandal, LittleCo beats BigCo to market with first artificial...

The status bar at the bottom right shows "Local intranet".

# Preview works with Campaigns

The image shows a screenshot of Microsoft Internet Explorer with two windows open. The top window is titled "Specify Preview Criteria - Microsoft Internet Explorer" and contains a form for selecting preview time and date. The time is set to 14:25:29 and the date is December 20, 2001. A red circle highlights the date and time fields. The bottom window is titled "yourCo Toys: News - Microsoft Internet Explorer" and displays a news page. The page has a navigation bar with links for "news", "products", "contacts", and "logout". The main content area is divided into several sections: "Your Weather" (Seattle, Cancun, San Francisco), "Your Investment News", "Store Sales", and "Update your City List". A red circle highlights the "Update your City List" link in the bottom right section. The page also features a "yourCo Toys" logo, a welcome message for "Seattle Manager", and a list of news items under "Your Company News".

Specify Preview Criteria - Microsoft Internet Explorer

Choose when and who to preview your site as:

Time: 14 : 25 : 29

Date: October 19, 2001

yourCo Toys: News - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History

Address http://localhost/PersSample/news/news.jsp

news products contacts logout

yourCo Toys

Welcome, Seattle Manager, to the yourCo Toys intranet site where the information is personalized just for you. Here's your news:

Logged in as: Seattle Manager  
Dept: Mfg  
Role: Manager  
Location: Seattle

Everyone gets news by site (Raleigh or Seattle) and time of day (morning or afternoon). Managers and executives also get the confidential scoop. Everyone also gets their own personalized weather and investment news.

Your Company News

CONFIDENTIAL: YourCo to Acquire 49% of Whazziz Co.  
CONFIDENTIAL: April is Employee Appreciation Month  
SEATTLE FACTORY: ISO 9000 Inspections Canceled  
SEATTLE LAB: Schedule Changes for New Product Line  
ALL SEATTLE EMPLOYEES: CrackerJax Caterers to Improve Cafeteria

Your Investment News

LittleCo in major Scandal  
yourCo Profits Soar!  
yourCo and LittleCo to merge  
yourCo denies all Rumors about BigCo and LittleCo

Store Sales

Special Sale:XXX XXXX XXXX

Update your City List

© 2001 yourCo

# Implicit Profiling

- Category is a new implicit Application Object used within Rules, JSPs and servlets
  - `Category.log("Football")` or `Category.log(Article.getTopic())`
- Hierarchical category naming
  - Football/National/Giants, Baseball/National/Giants, etc.
- Counts are maintained per user, per hierarchical topic
  - Football, Football/National, Football/National/Giants, etc.
- Rules can be written to test counts, and take actions, including updating the user profile
- WebSphere Application Server V4.0 provides an application data capture API called by JSPs or servlets
  - name, value pairs such as "category=football" or "action=viewed details"
  - Category bean logs
    - Log Type - IP (Implicit Profiling)
    - User - User id for the session (String)
    - Topic - String indicating current topic
- Site Analyzer can report on
  - Favorite topics among all users
  - Favorite topics for each user and groups of users



# Implicit Profiling Example

- "Sport/Football", "Sport/Soccer", etc., logged with page views

Top [NFL](#) [NBA](#) [NHL](#) [MLB](#) [NCAA Football](#) [Golf](#) [Tennis](#) [NASCAR](#) [World Soccer](#) [MLS](#) [more...](#)

## Sports

### Today

NFL [Audio](#)  
[Scoreboard](#)

[Washington](#) vs. [Green Bay](#) 0 9:00 ET

MLB  
[Scoreboard](#) [GameChannel](#)

[Baltimore](#) vs. [Boston](#) 0 7:05 ET

[Toronto](#) vs. [Cleveland](#) 0 7:05 ET

[Detroit](#) vs. [Kansas City](#) 0 8:05 ET

You've been waiting all summer . . . so get in the game!

### Top Stories

- [Jordan's comeback: Not whether, but when](#) - NBA
- [Bledsoe suffered internal injuries, out at least two weeks](#) - NFL
- [Mornhinweg: Detmer still the starter](#) - NFL
- [Iverson, McKie to have surgery](#) - NBA
- [Taylor out at least three weeks with groin injury](#) - NFL
- [Giants 11, Padres 2](#) - MLB
- [Astros 7, Cubs 6](#) - MLB
- [Braves 5, Mets 4, 11 innings](#) - MLB
- [Emmitt Smith takes No. 2 spot on NFL career rushing](#)


• [Updated News](#)  
[Photos](#) - [Video](#)

# Implicit Profiling Example

- Personalize following pages based on
  - current session, OR
  - user profile attribute (transcends session)

[Top](#) [NFL](#) [NBA](#) [NHL](#) [MLB](#) [NCAA Football](#) [Golf](#) [Tennis](#) [NASCAR](#) [World Soccer](#) [MLS](#) [more...](#)

**National Football League**      Front - [Standings](#) - [Scoreboard](#) - [Stats](#) - [Teams](#) - [Players](#)

 Want to buy a soccer ball?

**Week 2**

**September 23**

<a href="#">Denver</a> vs <a href="#">Arizona</a>	38 17	<a href="#">F</a>
<a href="#">Carolina</a> vs <a href="#">Atlanta</a>	16 24	<a href="#">F</a>
<a href="#">Minnesota</a> vs <a href="#">Chicago</a>	10 17	<a href="#">F</a>

**Chargers, Bengals move to 2-0**  
San Diego has more wins than it had all of last year. And its next opponent, Cincinnati, is also 2-0. [An unusual NFL season resumed Sunday](#), and after a one-week delay, [Emmitt Smith became the game's second-leading rusher](#) in Dallas' 32-21 loss to San Diego. The defending Super Bowl champs, [Baltimore](#), [was thrashed 21-10 by Cincinnati](#). In another surprise, [Ty Detmer threw seven interceptions](#) to his former teammates as Cleveland downed Detroit 24-14.



Smith became the NFL's all-time No. 2 rusher. (AP) [more photos](#)

[Giants cheered by KC fans](#) | [Tets hold off Pats](#)

# Campaign and Rule Effectiveness

- Enables site owners to determine the effectiveness of a campaign or rule.
- When a Rule executes, the following is optionally logged
  - Campaign and Rule name
  - The list of item ids shown
- Subsequently, JSPs or servlets can log
  - Item id and result
  - Result is -10 to 10
    - -10 is complete failure and 10 is complete success
    - Multiple results can be logged
      - Viewed product information might be a 3, put product in shopping cart might be a 7, and purchased the product might be a 10.
- Reports
  - Site Analyzer V4 provides a set of reports on Rule Effectiveness with the ability to create your own.

# WebSphere Site Analyzer Pre-defined Reports

- For the site:
  - Top 10 fired rules
  - Least 10 fired rules
  - Most successful campaigns
  - Least successful campaigns
- For each rule:
  - Number of times fired
  - Percentage of time at least one item was selected
  - Percentage of time some amount of success
  - Average number of items recommended
- For each campaign:
  - Number of successes
  - Number of failures

# User and Content Wizards

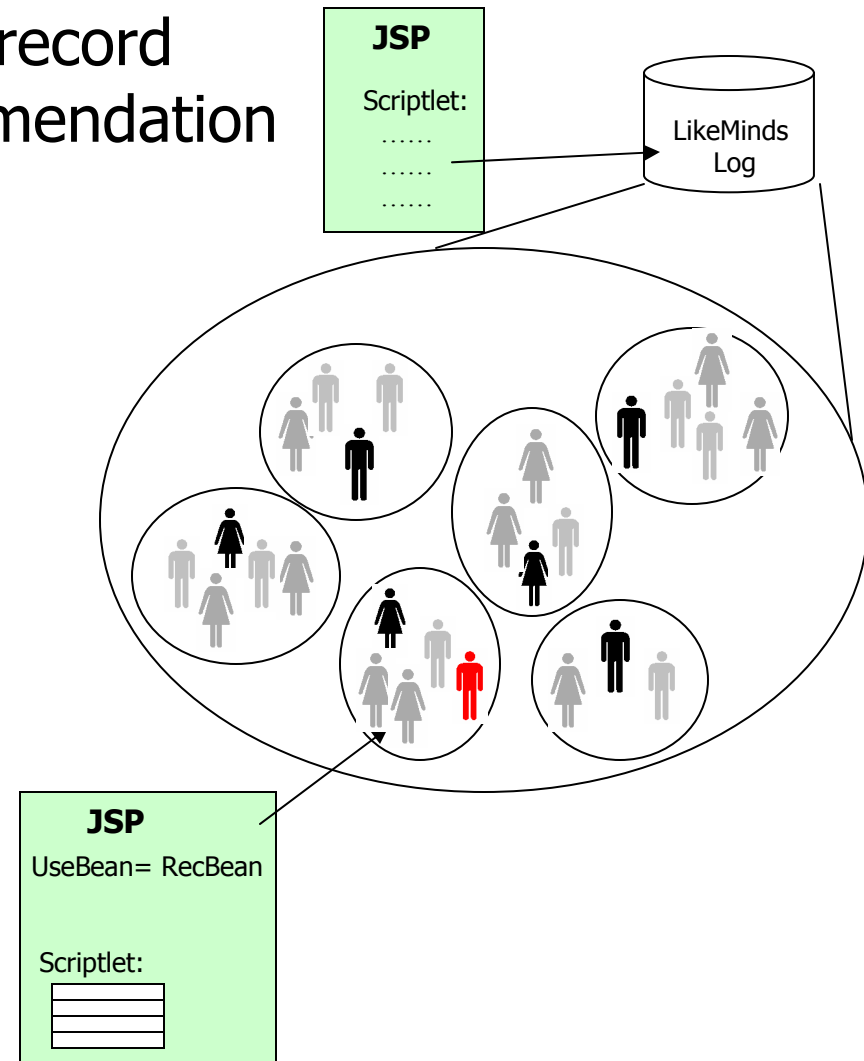
- User Definition Wizard Enhancements
  - Use of LDAP for User Profile
  - DB Join support
  - User preference pages for user profile being created
- Content Definition Wizard Enhancements
  - TeamSite/TeamXpress Integration
  - IBM EIP Integration
  - DB Join support

# Recommendation Engine

- Recommendation Engine delivers recommendations based on
  - Purchase engine
  - Clickstream engine
  - Preference engine
  - Product Matching engine
  - Product Affinity engine
- Complementary to business rules
  - Uses Collaborative Filtering to uncover new buying patterns that may not be captured in business rules
  - Adapts to changes in buying patterns without the need to create new business rules
  - Can be used within the same application or on the same page as rule based personalization
- Uses LikeMinds Personalization Server V5.0 developed by Macromedia
  - IBM now has a perpetual source license enabling IBM to more tightly integrate Recommendations and Rules.

# Recommendation Engine Overview

- Answers: "What might Joe be interested in?"
- Application is instrumented to record events with one of the Recommendation Engines.
- Reaper task chooses mentors
- Reaper task then assigns everyone else to a mentor.
- Application requests recommendations and display the results.



# Personalization and Portal Integration

- Portals are about customization and aggregation.
- Personalization is about targeting content.
- Personalization is shipped with WebSphere Portal
- Personalization integrates with and compliments the customization provided within the WebSphere Portal Server
  - WebSphere Portal user profile is a Personalization Resource
    - That means that rules can be written using the same user profile that portal is using.
  - JSP portlets and other portlets can invoke rules
    - That means that portlet content can be personalized.



# Migration from WS Personalization V3.5

- Rules created in Version 3.5 will work unchanged in Version 4
- Resources (user and content adapter classes) will work unchanged in Version 4
  - although you probably want to take advantage of the improved data source and connection pooling in Version 4 WebSphere Application Server
- The browser based business user interface, campaigns and integrated preview are Version 4 enhancements.

# Summary

- **Easy-to-use, powerful** web browser interface
  - Accessible by anyone, anywhere
  - Flexible preview features
- Business users can leverage personalized content to **achieve business goals** via
  - Flexible rules
  - Campaigns
  - Email
  - Implicit profiling
  - Site Analytics

My WebSphereBank  
online

Wednesday, November 14,  
2001  
Serving our customers since  
1980

[Login](#)  
[Home](#)  
[Accounts](#)  
[Investments](#)  
[Loans](#)  
[CDs](#)

Welcome, Doug. Login was successful.  
Your total bank account balance is \$2000.50.

MyWebSphereBank Sample

[Click-thru logging](#)  
Your Personalized News (Category = Finance) [Click here to see the rule](#)  
**BUSINESS: Income Growth Outpaces Spending**  
WASHINGTON -- U.S. consumers slowed their free-spending ways in January as personal-income growth outpaced spending growth for the first time since October. Demand for small consumer products has also lagged. Marketeers are scratching their heads, trying to address this new trend.  
**BUSINESS: NASDAQ Up and Down in the Same Day**

Try WBOOnline PrivateBanking  
(click here)

[Click here to see above ad banner rule](#)

# Summary

- **Choice** of business rules and collaborative filtering technology
- Choose the mix of personalization strategies that are optimum for your site's business objectives
- **Flexible** integration with **multiple sources** of users and content

# Summary

- Built on and benefits from the **WebSphere architecture**
  - Integrates tightly with WebSphere environment, including **security**
  - **Scalable** to meet your needs - utilizes Java and EJB architecture - models, clones, failover
  - **Choice** of platform - AIX, Solaris, NT, W2000, and other V4 platforms coming
- WebSphere Application Server "**market share nearly doubled** during 2000... at the expense of smaller software vendors" (Giga, May 4, 2001)
- IBM WebSphere will be one of 3-5 surviving application servers

# *WebSphere Personalization Demo*

# *WebSphere Personalization Architecture*

# Elements of a Personalization Solution

- User Profile
  - Users of the site
  - Contains attributes about the user
- Content Model
  - Products, articles, programs, etc
  - Defines attributes about the content
- Matching Technology
  - Filtering, Rules or Recommendation Engines or combinations of all three
  - Matches user to the "right" content
- Populating the User and Content Repositories
  - User Information
    - Registration
    - Web Analytics
    - Data Mining of Web and Legacy data
  - Content Information
    - Content Contribution Solutions
    - Syndication
    - Content Categorization solutions
- Feedback on Personalization Effectiveness

# Resources

- WebSphere interacts with user information and content through an object abstraction called a Resource.
- A Resource is a Java class with a set of properties representing parts of the content. For example,
  - a Press Release has a Title, an Author, an Abstract, a Body, and a TargetIndustry.
  - The corresponding PressRelease resource class (PressRelease.java) would have properties for Title, Author, Abstract, Body and TargetIndustry.
- Resources can be most easily thought of as adapters that hide the details of how the user information and content is stored from the applications that make use of the user information and content.



# Resource Concepts

- Resource
  - a Java class that defines the properties of the user or content object.
  - analogous to the database schema that defines the column names and types for a database table.
- Resource Instance
  - an instance of the resource class.
  - Analogous to the row of a database. That is, it contains actual values for each property defined by the resource.
- Resource Collection
  - a collection of resource instances.
  - analogous to a database table (with a fixed schema and a number of rows).
- While resource concepts are easy to map to familiar database concepts, it is important to note that the actual content store that resources wrapper doesn't have to be a database table.
  - It can be a file system, an LDAP repository, an XML store, or virtually any content store accessible by Java.

# Resource Classes

- Resource Collections are defined with
  - A Resource Collection name
  - Two or three Java classes that together implement the Resource, ResourceDomain and ResourceManager Java interfaces and are registered with the Resource Engine
- Resource interface
  - Implemented by the Resource class that has the specific set of properties that represent the user information or content.
  - Properties can be fixed (have corresponding get/set methods) or dynamic (have string names and are accessed via put, get, and remove methods)
  - Resource interface specifies that the resource class must implement
    - getID which returns a String ID that is unique within the resource collection
    - put(), get(), and remove() methods for dynamic properties
  - Fixed properties can be any of the common primitive Java types (string, int, float, date, etc.) or an array of one of the primitive types.
  - Fixed properties can be searched on, while dynamic properties cannot

# Resource Classes

(continued)

- ResourceDomain interface defines a set of “findby” methods
  - findById – finds the one resource instance with the specified id
  - findByProperty – finds all the resource instances with the matching property value
  - findByQueryString – finds all the resource instances whose property matches the Query where clause
- ResourceManager interface defines a set of life cycle methods
  - add
  - delete
  - getForUpdate
  - sync (save after obtaining for update)
- The ResourceDomain and ResourceManager interfaces are often implemented in one Java class, while the Resource is generally a separate class.

# Resource Classes

(continued)

- WebSphere Studio generates the required resource classes for
  - One or more tables within JDBC Databases
  - LDAP user stores
  - IBM EIP Entities
    - EIP Entities are conceptually similar to DB tables
    - They are created using EIP administration and are an EIP abstraction of one or a set of content stores.
- Resource classes can also be hand crafted in VA Java or any Java IDE

# Personalization Context

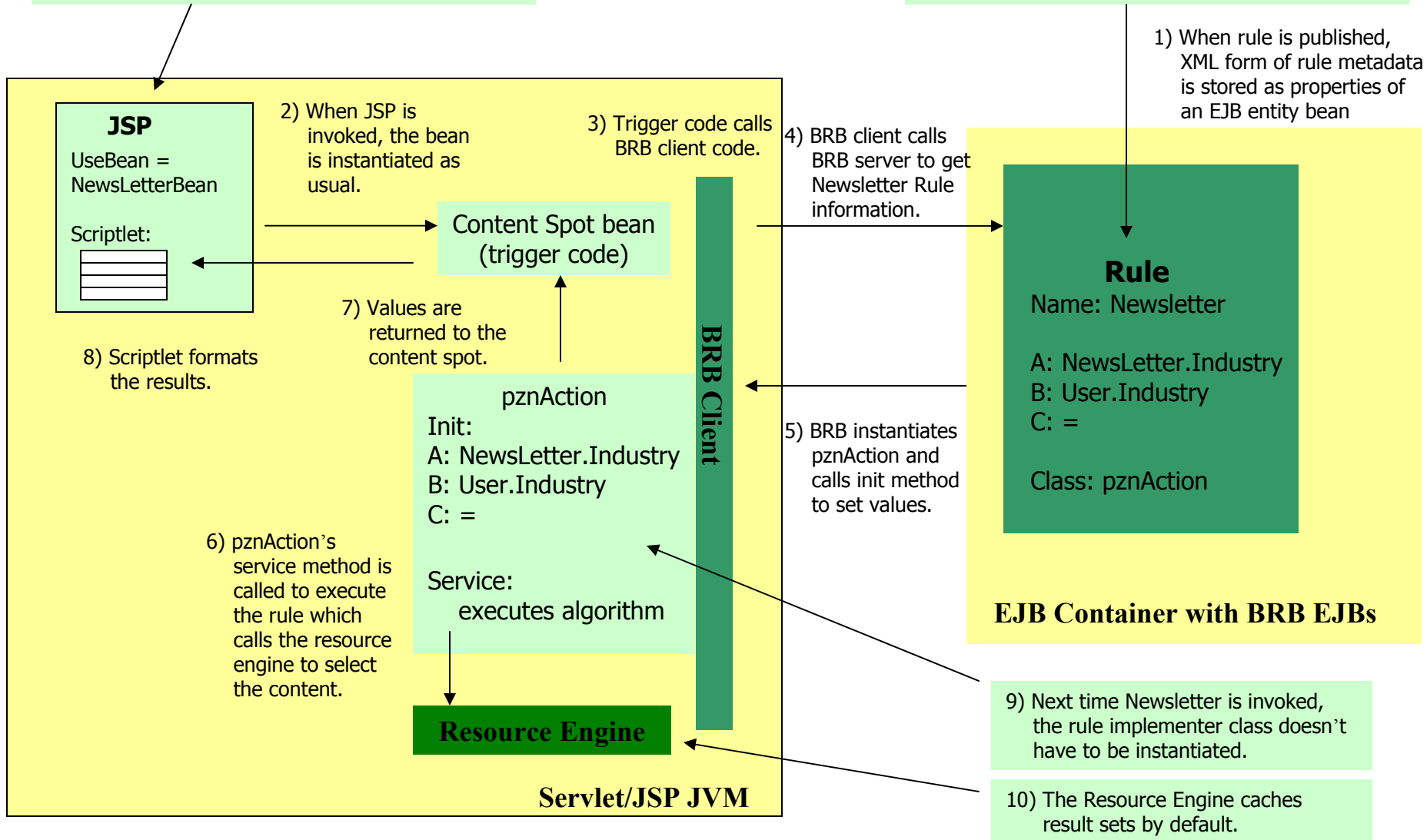
- There are really two distinct collections of objects which rules deal with.
  - The Personalization Context are the objects associated with the current user
    - “current” user, session, request parameters, application objects, category counts, browser capabilities, date and time
  - Searchable objects
    - All the resources (users and content)
- Objects in the personalization context don't have to implement the resource interfaces
- Only objects in the personalization context can be updated by rules

# Rule Engine

- WebSphere's Rule Engine is provided by a component known as Business Rule Beans (BRB)
- BRB's purpose is to allow customers to separate their business rules from your application logic.
- There are two key BRB Concepts
  - A RuleImplementor is a Java class that implements the algorithm of the rule.
  - A Rule is the metadata that tells the RuleImplementor what to do in order to implement a given Rule.
- WebSphere Personalization provides the required RuleImplementors
- For example, WebSphere Personalization Classifier Rules
  - A single RuleImplementor
    - that sequentially compares two values
    - ANDs or ORs the results
    - returns the list of valid classifications
  - A specific Classification Rule just specifies
    - the set of values to compare and
    - the classification names that should resultfor this usage (Rule Use) of the classification rule implementor.

**WebSphere Studio (or other tool)**  
JSPs and classes are published

**Personalization Workspace**  
Rule is created.



11) Rules execute as Java classes (not EJBs) within the web container. Rules are managed as scale just like everything in the web container. The BRB rule container is managed and scales just like everything in the EJB container.

# Back Up



# Personalization V3.5 Function Summary

- Resources
  - Support for virtually any data store accessible via Java
  - WebSphere Studio wizards for creating resource classes for database user information and content
    - Including multi-value properties
- Rules
  - Simple to use, point and choose rule editor
  - Define customer segments via Classifier Rules
  - Select content via Action rules
  - Update user profile, application objects and session values via Action rules
  - Create conditional logic via Binding Rules
- Recommendations
  - Exploit advanced collaborative filtering algorithms for matching content to visitor's needs and interests
- Make use of rule and recommendation results easily within JSP pages using WebSphere Studio Page Designer or any JSP editor.
- Resource Engine, Rule Engine and Recommendation APIs run on AIX, Solaris, HP-UX, Windows NT, Windows 2000, Linux, and iSeries (AS/400). Collaborative Filtering server runs on AIX, Solaris and Windows.

# Personalization V4 New Function Summary

- **Personalization Workspace**
  - An easy to use interface that business users use to build business rules, manage campaigns and preview personalized pages with different profiles.
- **Campaign management**
  - Business user tool which simplifies the coordination and scheduling of personalized web and e-mail based campaigns
- **Expanded facilities for implicit profiling**
  - Collect real time information on site visitor actions and construct personalization business rules around this data
- **Reporting on rule effectiveness**
  - Provide reports for the site's business owner on the effectiveness of the business rules and campaigns in achieving their objectives
- **User and Content Wizard Enhancements**
  - Support for DB Joins, LDAP and IBM EIP
- **zOS support**

# Additional Rule Functions in V4

- Filtering (Exclude) Capability within a Binding Rule
- Sorting Capability within a Binding Rule
- Limits within Action Rules and Binding Rules
- Nested Properties
  - Support for department.user.jobtitle like properties

# Top 10 New Functions

- Web Browser User Interface
- WebSphere Application Server V4 support
- Implicit Profiling
- Analytics
- Campaigns
- Personalized E-mail
- Client Browser based personalization
- LDAP integration
- Enterprise Information Portal (EIP) integration
- WebSphere Studio Advanced Edition V4 Enhancements

# Client Browser Type

- Target different content to users based on client browser attributes
  - **Type** (deliver different formats for IE and Netscape)
  - **Version** (support older versions)
  - **JavaEnabled** (load applets)
  - **Plugins** (media support)
  - **Referer**
  - **Platform**
  - etc.
- Benefit: Browser content controlled via server-side rules instead of JavaScript/VBScript

