Redbooks

WebSphere Portal Server for z/OS

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Topics

- **Portal Principles and Architecture**
- Product Offering Details
- Collaboration and Process Integration
- Content Management and Personalization
- Implementing Portal Server for z/OS
- Developing Portals and Portlets
- Futures

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Portal Principles

- Combines application user interfaces together into one unified presentation
- Pages are constructed dynamically so that users in different roles see different pages, content and navigation
- Administrators can lock the pages, or allow users to customize them
- All without any programming

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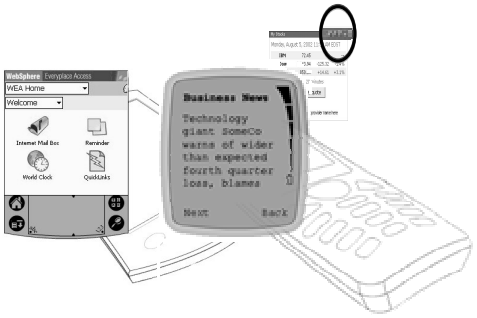
Portlet Principles



Each portlet is a separate application

- Developed independently
- Portlets have modes and states
- Can be placed anywhere on the page

Portlets can support multiple devices

- Phones, Organizers, Voice
- Unique views for each device
- Business logic can be shared

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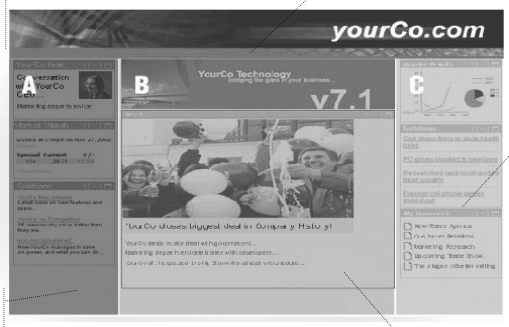
Anatomy of a Portal Page

Branding elements, such as the masthead image, common links, etc. are defined once in the theme

Navigation links are computed automatically by the page aggregator



Skins decorate each portlet

The row/column grid for this page is defined in the page customizer

Portlets are placed in each of the rows and columns

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Themes and Skins

- Portal user interfaces are “malleable” by design
- Themes and skins control every element of how the page looks: colors, fonts, spacing, images, navigation, rows, columns, and portlets
- Themes can be applied to any group of pages, any time (even in a running portal)

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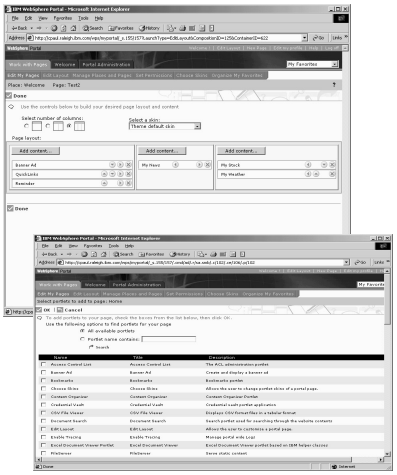
Portal Page Definitions

- Many “home grown” portal implementations use JSP files with “holes”
- That is a useful conceptual model, but this is not what really happens
- Instead pages are defined using the customizer and stored in the database
- Each page is calculated at runtime by the aggregator



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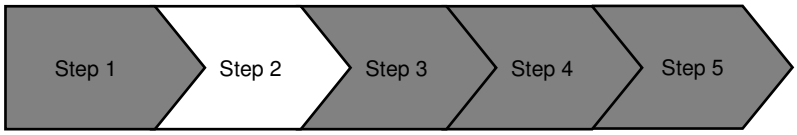
How Portal Constructs Pages



Portal servlet examines the request header	**Portal database and security settings are checked**	**Layout system is called for the target markup**	**Portlets are processed in two phases**	**Portlets render themselves in the 2nd phase**
Determines the device and user information	Determines what pages and portlets the user will see	JSP templates define the overall page, rows, columns and decorations	The first phase processes portlet messages and sends events to other portlets	Portlets that support the target markup are included, others are omitted

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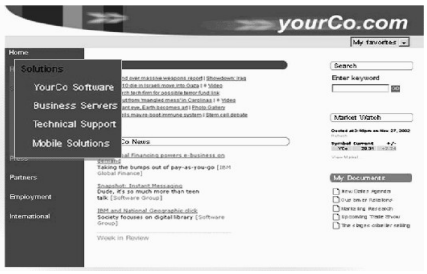
Navigation

- Navigation elements are created automatically, by logic in the aggregator
- This means that no one has to maintain the navigation and that links do not break



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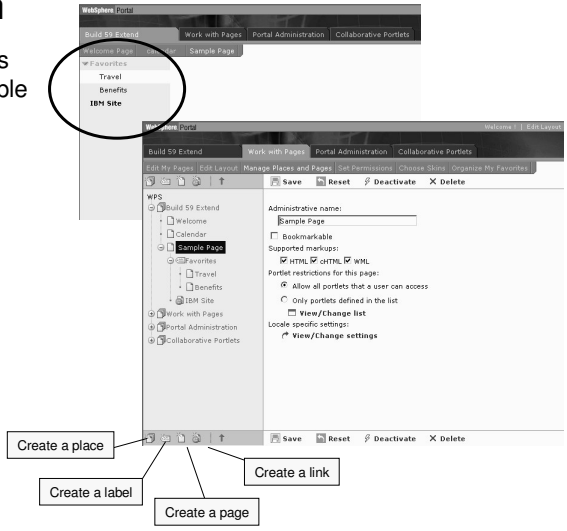
Complex Navigation

- Previously navigation was limited to places and simple page links
- Now you can create complex navigation structures
  - Tree-like structures
  - Labels
  - External links



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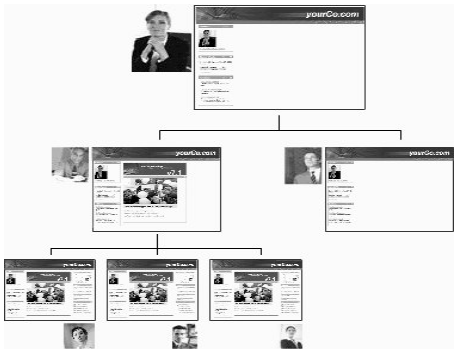
Cascading Page Definitions

- Different administrators control different areas of the page
  - They can lock areas to prevent others from making changes
  - They can also delegate responsibility for certain areas to others
- The end user sees the aggregated result
- Helps organizations enforce policies and consistency



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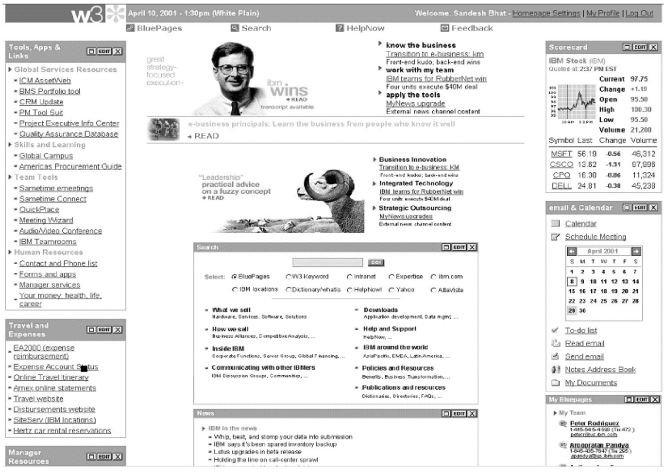
An Example of a Portal Page – W3.ibm.com



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What the portal really does

- Provides a lot of structure for a web site
  - Navigation, personalized experience, multi-device rendering
  - User registration and profile management
  - Security, access control, single sign-on
  - Aggregates any mix of applications into a unified display
- Provides structure for portlet applications
  - Defines an MVC structure, modes, and view states
  - Services for storing data, single sign-on, content access, etc.
  - Integration services: click-to-action, page sequencing, enterprise applications, collaboration, etc.
- Separates portlet development from page layout and branding

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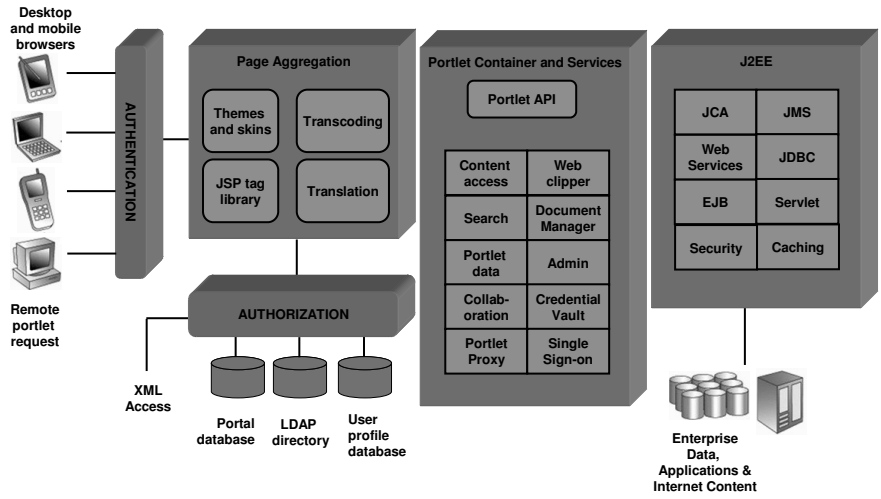
WebSphere Portal Architecture



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Topics

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- **Product Offering Details**
- Collaboration and Process Integration
- Content Management and Personalization
- Implementing Portal Server for z/OS
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- Futures

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WebSphere Portal Editions

	Portal z/OS		
	Express	Enable	Extend
Core Components	Portal Personalization	Portal Personalization	Portal Personalization
Content Management and Search		Content Publisher	Content Publisher Extended Search Web Site Analyzer
Collaboration	Sametime[1] QuickPlace[1]		Sametime[2] QuickPlace[2]
Infrastructure			

[1] purchased separately
[2] limited use license

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WebSphere Portal for z/OS Offering

- **Offering Content**
  - **Portal Enable Offering V4.1.5**
  - **Updated version of Personalization and Web Content Publisher components (WPCP 4.2)**
  - **Portal tooling**
- **Runtime on z/OS and OS/390**
  - **Portal Server**
  - **Support of WAS for z/OS and OS/390**
  - **Portlet API's**
  - **Support for WPCP (successor to Personalization and WCP)**
- **Pre-Reqs**
  - **WAS z/OS and its prereqs (DB2, LDAP)**
  - **OS/390 V2.10 or z/OS 1.2 or higher**

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WebSphere Portal for z/OS

Portal on z/OS should be thought of as just another J2EE application running in a WAS runtime environment!

- Packaging
  - Same base content as the Portal Enable V 4.1 for Multiplatform offering
  - Difference is customer will receive both tape and CD's (for author time and other components)
- The following components are included as SMP/E installables:
  - WebSphere Portal based on WP version 4.1.5
  - Integrated Web Content Publisher V4.2 (WPCP)
  - Integrated Transcoding Publisher

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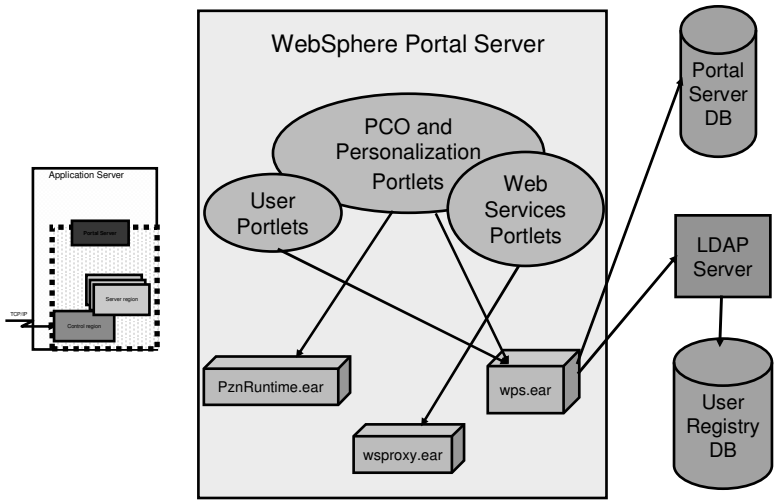
WebSphere Portal Server Deployed As a J2EE Application



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WebSphere Portal for z/OS

- The following components supporting the tooling are included on separate CDs:
  - Portal Toolkit
  - WebSphere Studio Application Developer V4.0.3
  - WebSphere Portal Enable for Multiplatform Version 4.1.3
  - WebSphere Application Server Advanced Edition SingleServer for Multiplatform V4.0.2
  - DB2 Universal Database V7.2 + Fixpack 7

- The following components are required:
  - IBM LDAP for z/OS and OS/390 Server
  - The following products are required but are not included:
    - WebSphere Application Server for z/OS V4.0.1 and its prereq of DB2

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Portal z/OS V.4.1 Implementation Details

- Implemented as a BIG J2EE application
  - When fully installed, WPS and WPCP consist of some 27 .ear files plus any additional portlets you add to the configuration
  - WTP installs some 22 servlet filters into the web container to intercept content types for transcoding
- Multiple databases and tables
  - Portal customization data
  - Content Management data
  - Personalization data
- User and group data is contained in LDAP and backed by DB2 tables
- Requires rigorous and accurate security definitions
- Security is provided by CUR and LDAP
  - Note - there is no security integration with RACF in this release
- Fairly lengthy configuration process
  - Flat files in the hfs used to gather customization data and variables
  - Shell scripts or JCL jobs
  - Use SMAPI and 390fy for automated installs and deployments
  - No user interaction with SMEUI or AAT required

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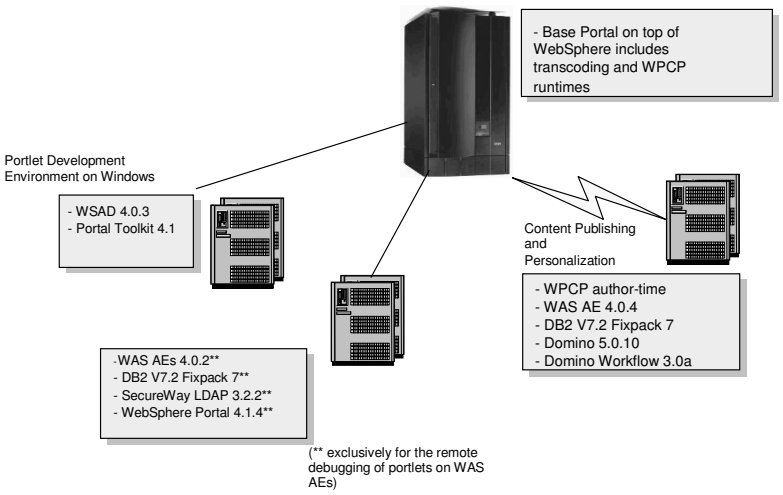
WebSphere Portal for z/OS and OS/390 V4.1



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Comparing WebSphere Portal for z/OS and WebSphere Portal for Multi-Platform

- There are some differences between Portal z/OS and Portal on multiplatform in the 4.1 timeframe
  - WebSphere for z/OS's administration and infrastructure force differences in Portal administration
  - Portlet deployment differences
    - Hot Deploy of new web applications (portlets) is not supported: Application server instances must be refreshed (recycled) each time a portlet is installed
    - User created threads are not supported within portlets
    - Parallel portlet rendering is not supported
  - Security
    - Portal uses a Custom User Registry (CUR) and an LDAP server to store user and group information
    - LTPA tokens are not supported for inter-platform security flows
      - This limits single sign-on capability to within a single domain in the sysplex
      - Portal credential vault has limited function in this release
- These restrictions are all point in time statements. We intend to remove these limitations in our Portal V5.x release.

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Topics

Portal Principles and Architecture

Product Offering Details

Collaboration and Process Integration

Content Management and Personalization

Implementing Portal Server for z/OS

Developing Portals and Portlets

Futures

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Collaboration Portlets and Services

- Portlets for Notes, iNotes, Discovery Server, QuickPlace, Sametime
- Java APIs and tag libraries for accessing Lotus products

Users can access collaboration functions in the context of what they are doing, instead of using a separate application

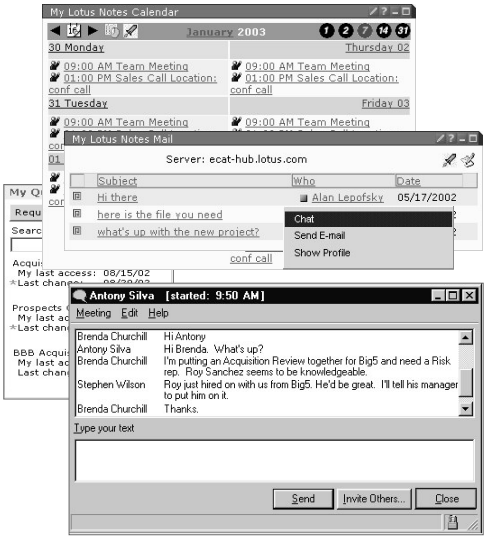
Determine who is online

View documents, server and database listings

Find people, documents, knowledge maps, and profiles

Create team rooms

Popup menu for chat, e-mail, and search



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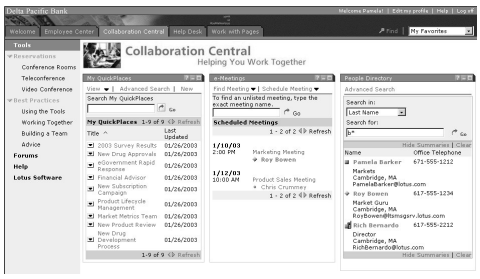
Collaboration Center

- New Portlets and services for WP Extend, coming soon
- Integrated tools for managing on-line meetings and instant team workplaces
- on-line directory with a people finder, awareness and instant messaging built-in



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Portlet Co-operation

- Key principle: the portal server aggregates applications together into one unified presentation while delivering a highly personalized experience to every user
- This is really user-oriented process integration or *integration on the glass*
- To achieve this, we need “portlet co-operation” where portlets work together to present the user with a unified view

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Styles of Portlet Co-operation

Programmed

- messaging as defined in the Portlet API
- requires portlets to have knowledge of other portlets

Brokered

- allows independently developed portlets to exchange information
- portlets register their intent to co-operate with broker which facilitates the exchanges

The broker works by matching data types between the data source and target portlet’s actions

Brokered Co-operation can be User-controlled or Automatic

- when controlled by the end-user it is called “Click-to-Action”
- when automatic it is called “Co-operating portlets”

Both styles can be used at the same time

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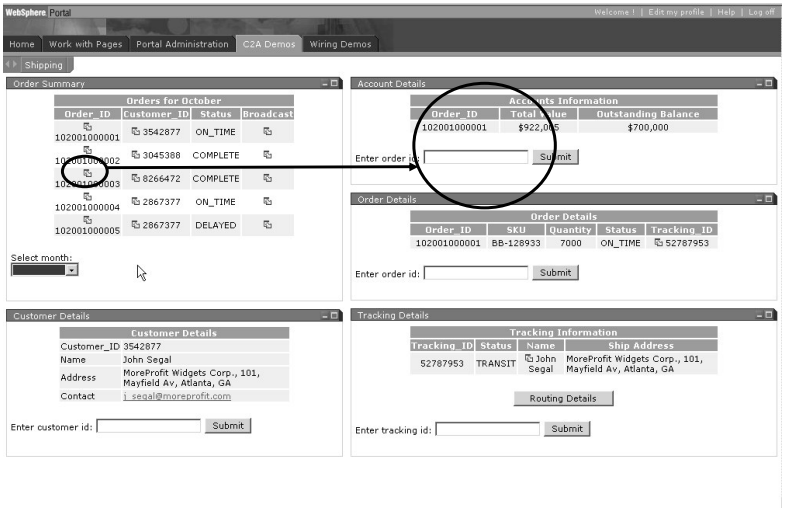
Click to Action

Helps users connect applications more easily.

Clicking in one portlet sends data to others; works by matching data types to portlet actions.



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Co-operating Portlets

Automatic co-operation: administrators can pre-wire portlets together so they exchange data automatically

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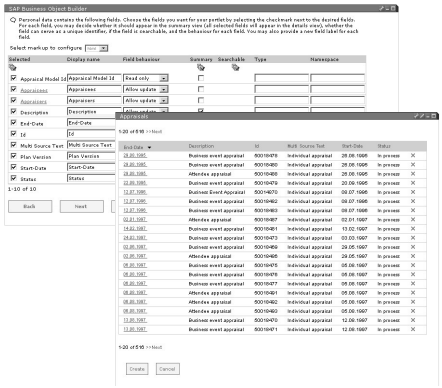
Enterprise Application Portlets



"Factories" for making new portlets

- SAP, PeopleSoft, Siebel, Domino, others
- Execute transactions using the backend system's APIs
- Business users can make new portlets easily

Framework creates the user interface and controller automatically

- Consistent user interface
- Automatically enabled for click-to-action, Sametime awareness, accessibility, etc.

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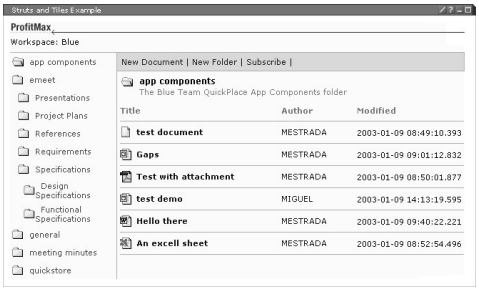
Page Sequences



- Portal now supports the Struts Model II framework for creating complex portal applications
- Enforces sequence of pages and actions, provides easy form validation
- Can use Tiles for space management inside the portlet

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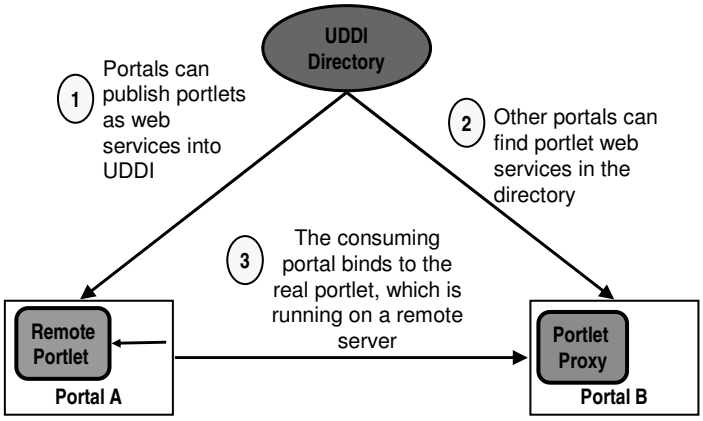
Portlets as Web Services



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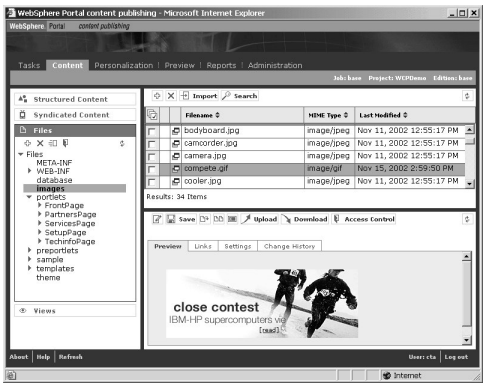
Content Publisher

- Manages and publishes both structured and unstructured content for the portal
- Use the built-in approval process or plug in workflow engines: Process Choreographer, Lotus



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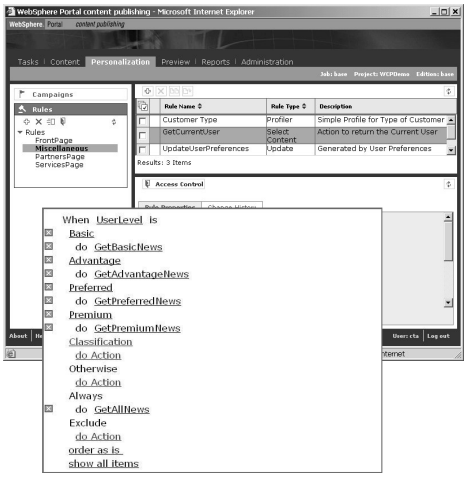
Personalization

- Match users to the best content for their interests and needs
- Business experts create the rules for classifying users and selecting content
- Recommendation engine adds statistical matching
- Campaign manager applies special rules during specific time periods



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WebSphere Portal for z/OS vs Multi-Platform

- There are some difference between Portal z/OS and Portal on multiplatform
  - Main differences: if coming from another platform
    - Portal z/OS's administration and infrastructure
      - differences in administration because of the different platform; and application server runtime environment differences
  - Portlet deployment differences
    - Hot Deploy: Application server instance will need to be refreshed each time portlets are being installed
    - User created threads are not recommended
    - No parallel portlet rendering
  - Security
    - uses LDAP and Custom User Registry (CUR)
    - supports single sign on within a single sysplex domain through the use of ICSF tokens (requires ICSF hardware and software)

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Differences - Installation

- SMP/E Install
- Configure the Base z/OS System and all Portal Server Pre-reqs
  - RACF
  - WLM
  - JCL Procedures
  - DB2
  - LDAP
  - HFS
- Configure Portal Server Core
- Configure Transcoding Publisher
- Configure WPCP

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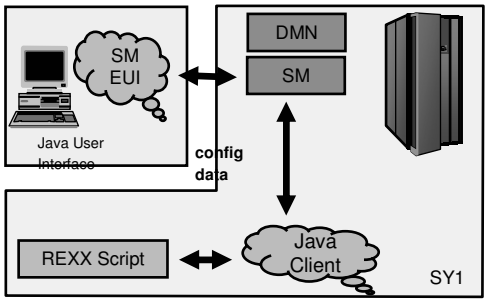
Differences - Scripting Interface

- No xmlconfig interface
- Server and application configuration via REXX scripts
- Prevents errors introduced by manual configuration/operation via the SM EUI



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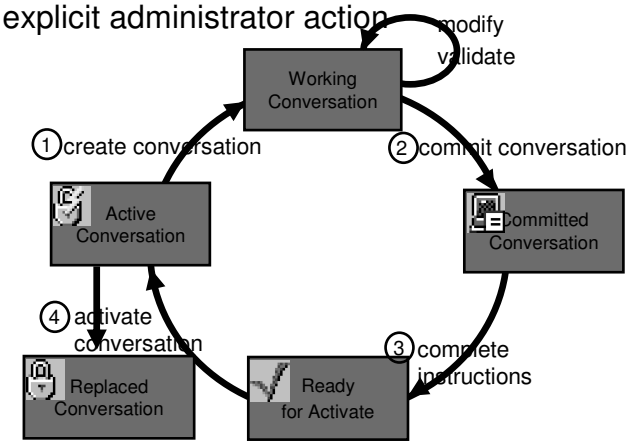
Differences - Lifecycle of a Conversation

- Changes become active only through explicit administrator action



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Differences - Portal Commands

- Note: The commands may be different in your installation
- Start LDAP
  - recommendation is to run a dedicated LDAP server for the portal that is separate from the LDAP server required by WebSphere.
    - TDBM backend required
    - Better performance
    - Easier maintenance and upgrades
  - if you have choosen to follow our namings during Installation start the Portal's LDAP server with:
    - *–s BBOLDAT*
- Start the AppServer:
  - for details see: WebSphere Application Server V4.0.1 for z/OS nd OS/390 Operations and Administration
  - start trace writer: *trace ct,wtrstart=bbowtr*
  - start LDAP server: *s BBOLDAP*
  - start the AppServer: *s bbodmn.daemon01,srvname='DAEMON01'*

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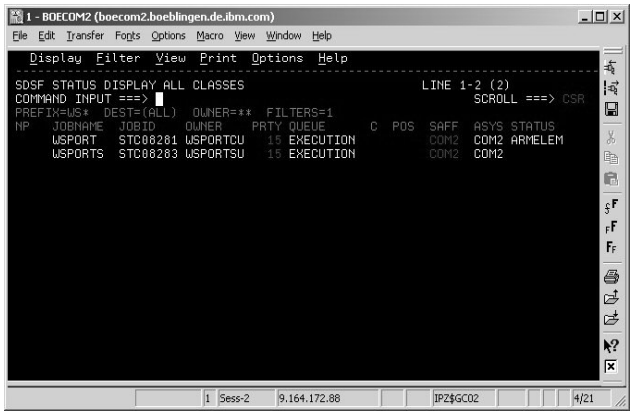
Starting the Portal

- Portal is just another J2EE Server within the AppServer
- Portal is started by starting its Control Region Procedure:
  - like: *s wsport.wsporta*



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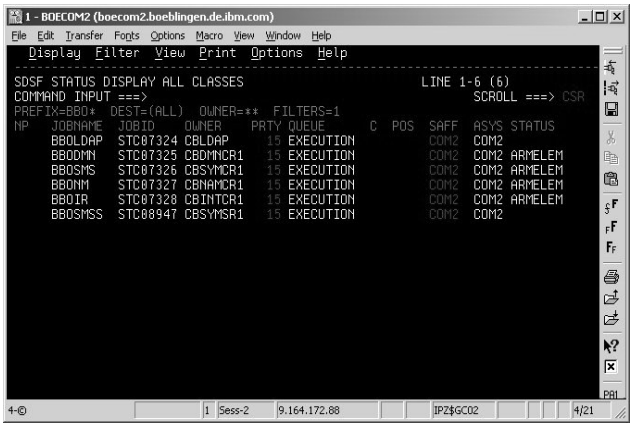
Jobs after AppServer has been Started



Note: this screen shot does not include the Portal LDAP

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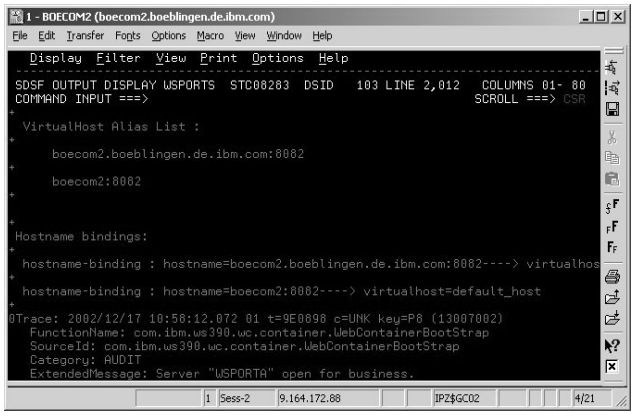
Job output of the Portal after successfull start



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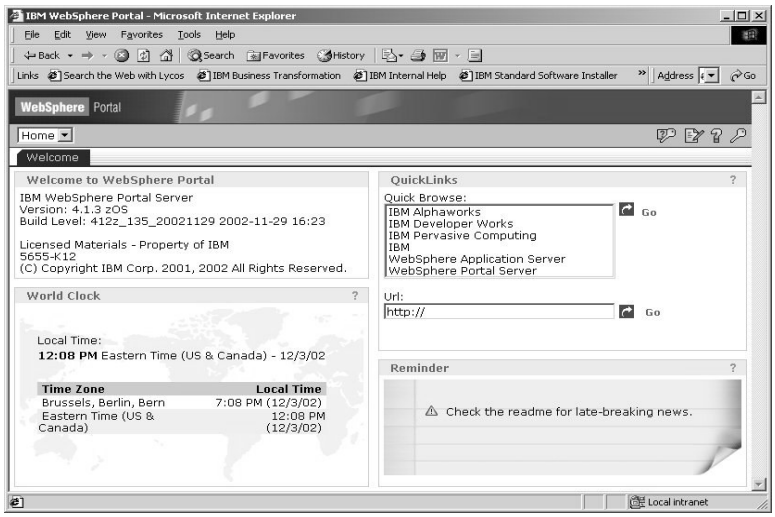
Success!



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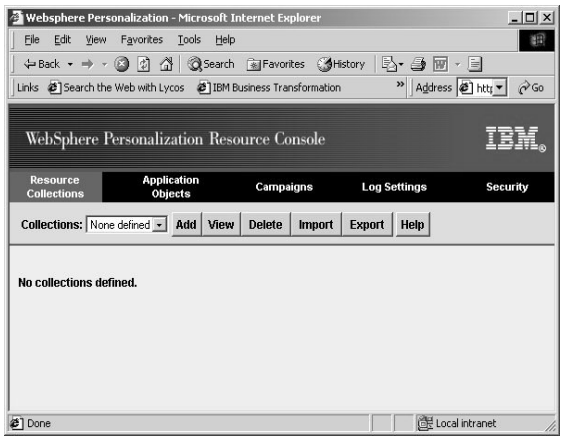
Personalization Welcome Screen



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Stopping the Portal

- Portal is just another J2EE Server within the AppServer
- stop the running Portal J2EE Server:
  - *p wsporta or cancel wsporta*

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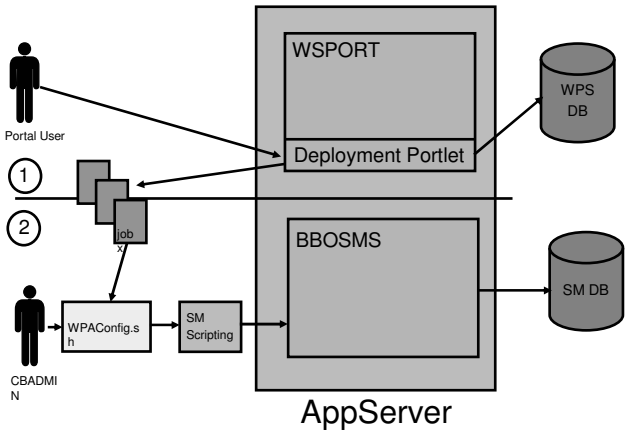
Portlet Deployment Activities



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Applying Configuration Changes to WAS

Administration of portlets is done in two steps:

- Step 1:Change configuration on running WebSphere Portal Server.
  - ►deploy new portlet
  - ►modify portlet
  - ►delete portlet

  Each change generates one or two job files.

- Step 2: Changes must be applied to WebSphere Application Server explicitly.
  - ►WPAConfig reads the jobs from step 1

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Scenario: Deploying the SQL Portlet

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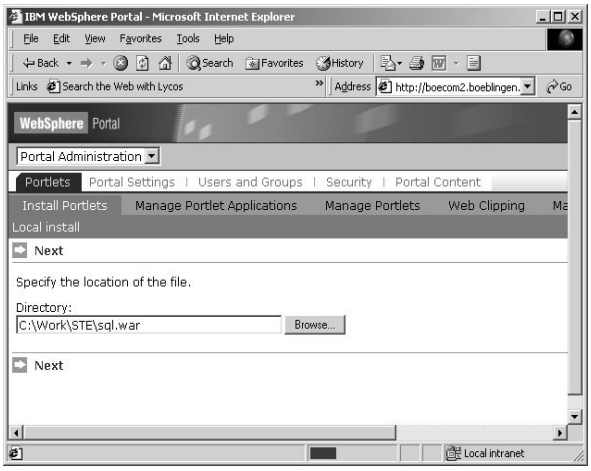
Deploy SQL Portlet - specify .war file



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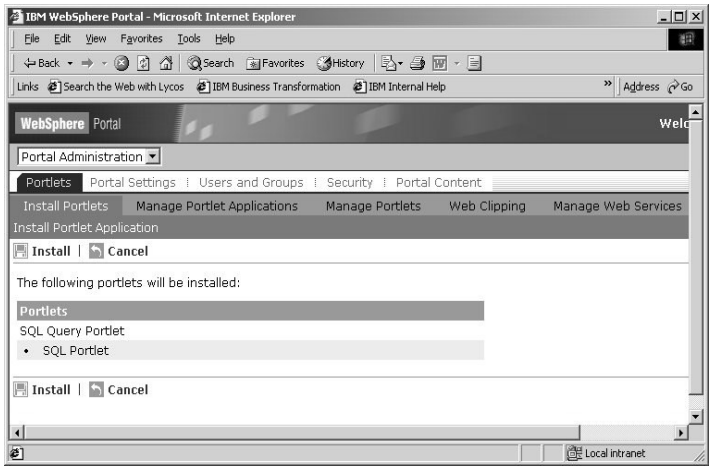
Deploy SQL Portlet - confirm Installation



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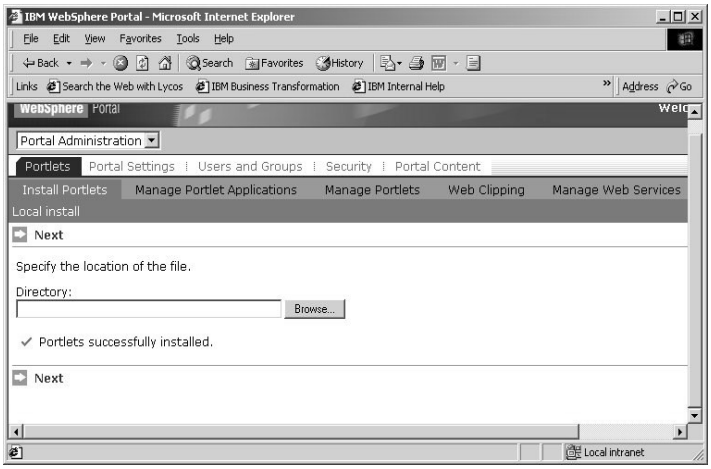
Deploy SQL Portlet - Portlet installed successfully



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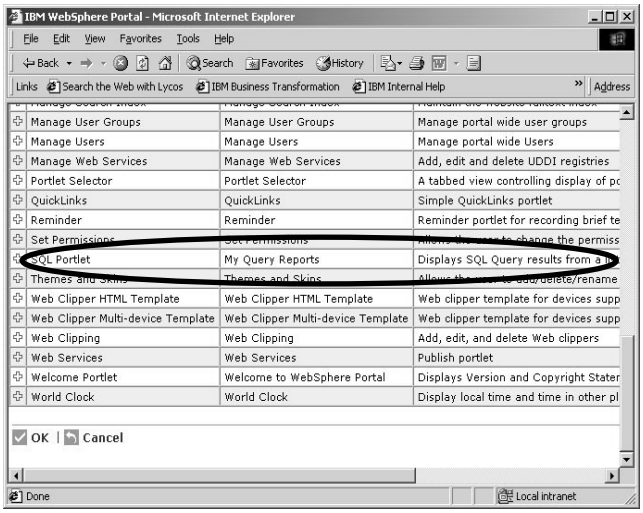
Deploy SQL Portlet - List of available Portlets



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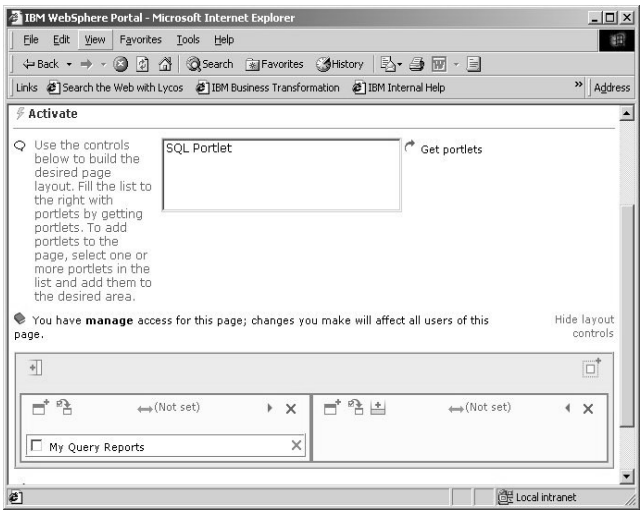
Deploy SQL Portlet - Place Portlet on Page



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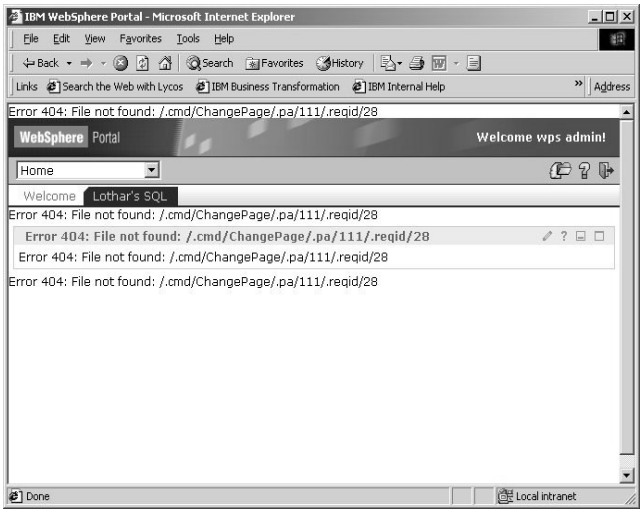
Deploy SQL Portlet - File not found



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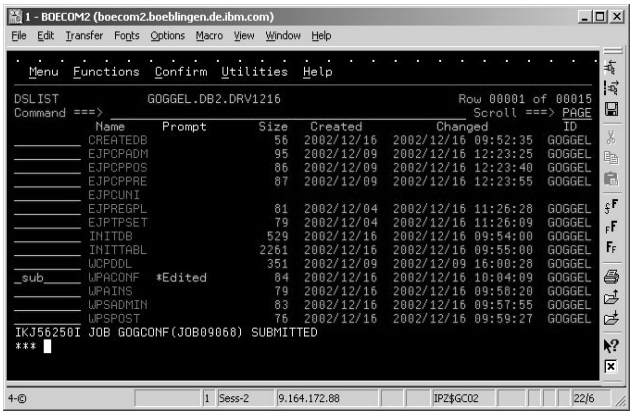
Submit WPACONF



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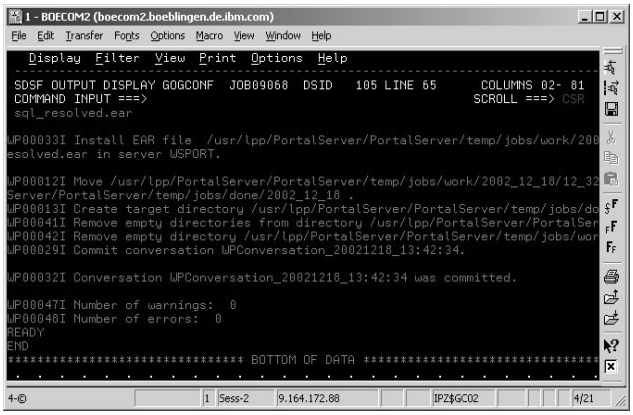
JOB output: WPACONF



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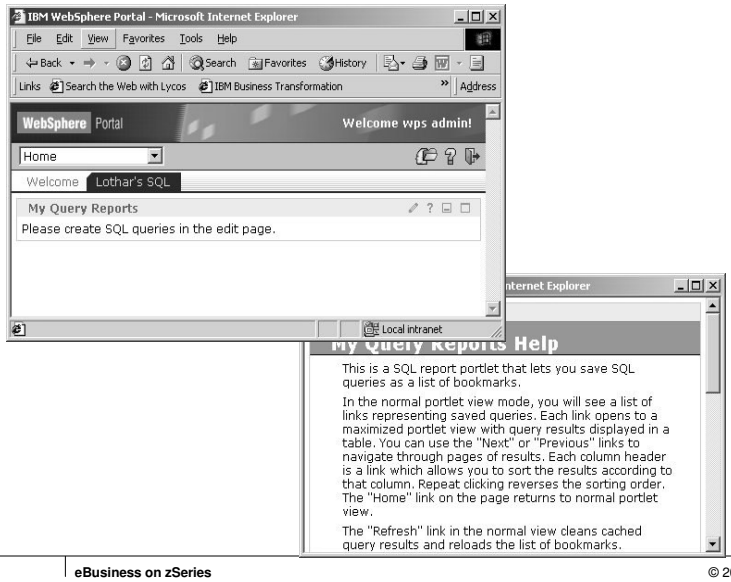
SQL Portlet is available



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Topics

- Portal Principles and Architecture
- Product Offering Details
- Collaboration and Process Integration
- Content Management and Personalization
- Implementing Portal Server for z/OS
- **Developing Portals and Portlets**
- Futures

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Developing Portals and Portlets

- The main activity is creating portlets
  - Some new portlets don't require any coding (e.g. administrators can clip web pages, create enterprise portlets)
  - Others will be created by developers using WebSphere Studio
- Developers can create lower-level portlet services that plug in to the portal to provide alerts, remote content access, translation, or location services, etc.
- Web Designers can develop new Themes and Skins to change the look and feel
- Portal Administrators put it all together by laying out portlets and pages

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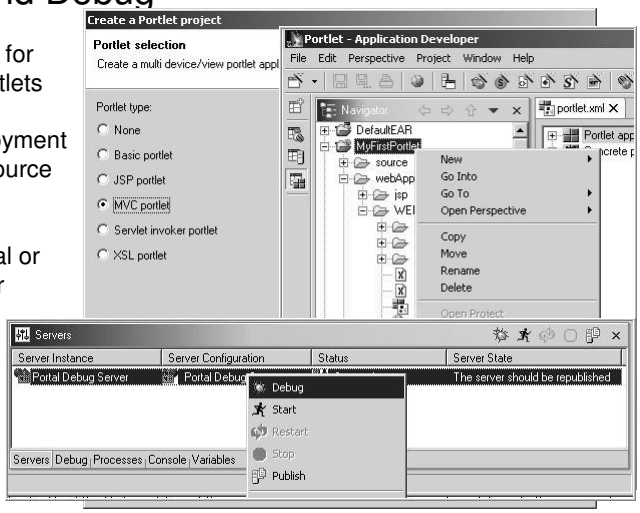
Portlet Toolkit and Debug

- Includes wizards for creating new portlets
- Edit portlet deployment descriptor and source files
- Debug using local or remote debugger



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More about Portlets

- A portlet is an application, not just a simple JSP or servlet
  - an existing JSP or servlet can certainly be used in a portlet
  - however, this is the most simplistic kind of portlet
- Portlets have modes, view states, messaging, events
- They can be downloaded and installed anytime, even while the portal is running
- The portlet API is the subject of standards activity (JSR 168)
- Developer's guide and many how-to articles are published on developerworks
- There are many pre-built portlets available
  - WebSphere Portal Zone on WSDD contains hundreds of portlets available for download
  - Each portlet provider defines his/ her own licensing terms
  - Many existing content providers

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Topics

- Portal Principles and Architecture
- Product Offering Details
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- Developing Portals and Portlets
- **Futures**

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The following material is directional in nature and does not imply any product plan commitment on the part of IBM.

Some of the ideas presented here may be delivered in version 5.x, but some will not.

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Portal Version 5 Family Themes

Top Priorities

Ease of Use	▪ Improved install ▪ Common customization and configuration across all supported platforms ▪ New portlets ▪ Simplified administration and deployment tasks ▪ "Pretty" URLs ▪ Developer's toolkit improvements
Mission Critical	▪ Improved error handling, logging, messages ▪ XML access improvements ▪ "Fast" skins
Integration	▪ More portlet builders ▪ New portlet wiring tools ▪ Lightweight office functions ▪ Web clipping improvements ▪ Automatic translation ▪ Standards initiatives

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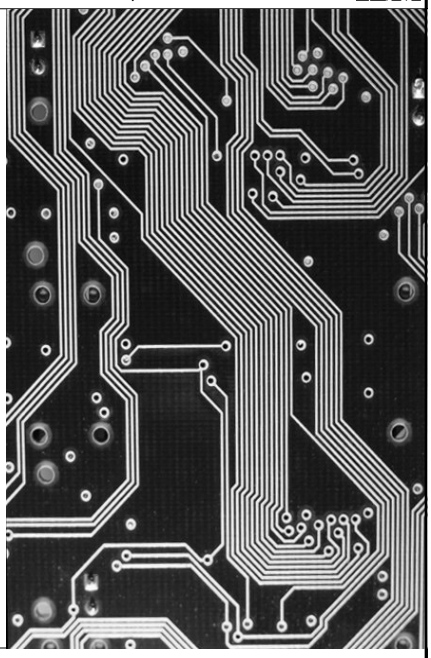
Standards Initiatives

- JSR 168 (portlet API) deals with portlet lifecycle
  http://jcp.org/jsr/detail/168.jsp
- WSRP (web services for remote portals) deals with visual web services in portals
  http://oasis-open.org/committees/wsrp/
- These initiatives are closely related
  - Portlets written to JSR 168 can be published automatically as WSRP services
  - WSRP services can be integrated automatically into portals



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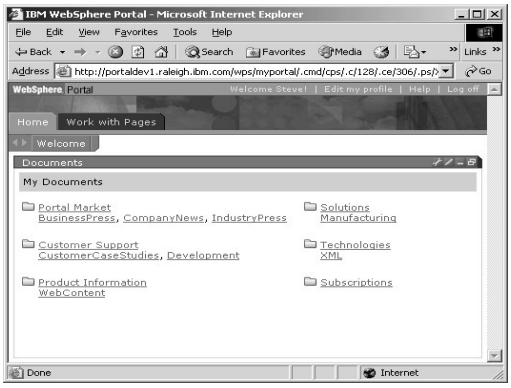
Document Organizer

- Navigate through topic "folders"
- View and edit documents
- Search, categorize, and approve documents
- Subscribe to documents



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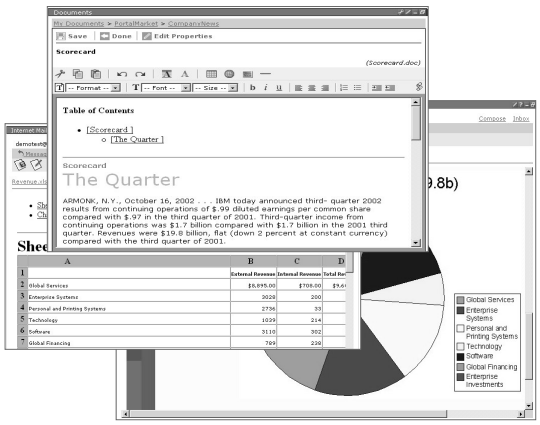
Editors and Viewers

- View and edit rich text documents, spreadsheets, presentations, etc.
- Save them in the portal's document store
- Integrate rich text and spreadsheet data with applications and business processes



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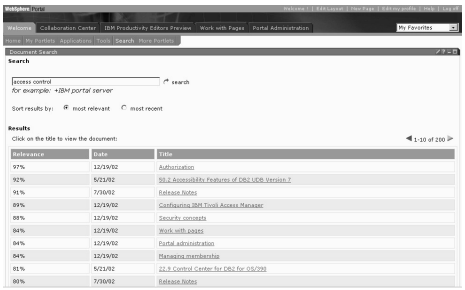
Portal Search Engine

- Portal already has a built in search engine and indexer
- Will add summarization, categorization and expand the supported document formats
- Available as a web services, can be installed remotely on another application server



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New Portlets

- Newsgroup Reader
- MS NetMeeting, MS Messenger
- Ariba Buyer
- Oracle Financials
- Domino application builder
- Hyperion
- My Yahoo!
- My Lists
- My Tasks
- Forms, Charts, Graphs
- Alerts
- Content Subscriptions

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New Navigation Features

- URL addressable portlets
  - Can display a portlet in a separate window or in an iFrame
  - New “solo” mode where a portlet can take over the page
- URL mapping
  - Can map “friendly” URLs to portal URLs

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