UP202

Designing the Right Portal Infrastructure: Lessons Learned and Examples

Olaf Beier, SAP Consulting
Thomas Hensel, Product Management
Disclaimer

This presentation outlines our general product direction and should not be relied on in making a purchase decision. This presentation is not subject to your license agreement or any other agreement with SAP. SAP has no obligation to pursue any course of business outlined in this presentation or to develop or release any functionality mentioned in this presentation. This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice. This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. SAP assumes no responsibility for errors or omissions in this document, except if such damages were caused by SAP intentionally or grossly negligent.
Learning Objectives

As a result of this workshop, you will be able to:

- Understand the fundamental portal implementation scenarios and give some examples for portal implementation scenarios
- Name functional and technical factors that have an impact on the target architecture and infrastructure of your portal project
- Apply best practices for a portal implementation project

The following topics are covered by related TechEd sessions:

- UP100, SAP NetWeaver Portal: Roadmap for the Next 12 Months
- UP108, Accelerated Application Delivery: Enhancing the Performance of Web Applications
- UP110, How SAP Uses the SAP NetWeaver Portal as its Corporate Intranet Site
- UP200, SAP NetWeaver UI Strategy and Roadmap
- UP263, Changing the Look & Feel of the SAP NetWeaver Portal, Hands-on
- LCM102, Running a Sizing Project from Blueprint to Upgrade
- LCM219, SAP NetWeaver System Landscapes
- LCM224, System Landscape Optimization
- LCM263, CTS+: One Transport Management System for Every Purpose
- LCM265, Designing a Well-Performing Web Infrastructure for an SAP NetWeaver System
1. Overview
   1.1. Portal Implementation Scenarios
   1.2. Focus Area Corporate Portals
2. User Productivity Infrastructure
   2.1. Portal Deployment Options
   2.2. Portal Scaling
3. Building the Portal Infrastructure
   3.1. Security Aspects, HA, Scheduled Downtimes
   3.2. Sizing, Monitoring, Transporting
   3.3. Figures from SAP Corporate Portal
4. Summary
   4.1. Summary
   4.2. Further Information, Notes, Blogs
SAP NetWeaver Portal provides end users a uniform single point of access to
- Applications
- Services and
- Information
they need for their daily work.

Integrating portal services into your business applications and processes provides a significant increase of productivity in your day-to-day work.
Potential Portal Implementation Scenarios

Collaboration Portal
  Project Information Portal
  Banking Portal
  Trading Portal

Partner Portal
  Supplier Portal
  Department Portal
  Team Portal

Consumer Portal
  Application Portal

Corporate Intranet Portal
  Community Portal
  Corporate Extranet Portal
  eCommerce Portal
  Self-Service Portal

External-Facing Portal
  My Personal Portal

Process Portal
Clearly define a portal strategy and roadmap in order to justify investments and be able to show how to leverage the investments.
Main Scenario: Corporate Portal

Corporate portals form a centralized technology platform as a basis for different types of content.

B2B-Focus:
- Content
- Application access
- Collaboration

B2C-Focus:
- Content
- Personalization
- Service access
- Performance

B2E-Focus:
- KM
- Collaboration
- Content management
- Corporate identity

The portal provides various tools and best practices to support any kind of combination of internal as well as external-facing business scenarios:
1. Overview
   1.1. Portal Implementation Scenarios
   1.2. Focus Area Corporate Portals

2. User Productivity Infrastructure
   2.1. Portal Deployment Options
   2.2. Portal Scaling

3. Building the Portal Infrastructure
   3.1. Security Aspects, HA, Scheduled Downtimes
   3.2. Sizing, Monitoring, Transporting
   3.3. Figures from SAP Corporate Portal

4. Summary
   4.1. Summary
   4.2. Further Information, Notes, Blogs
Empowering and Connecting People
User Productivity Infrastructure

Expert User
Business User

UI Clients & Access Channels
- Web Dynpro Islands
- Enterprise Search Access
- Adobe Forms
- NW Business Client
- Web Browser
- SAP GUI
- Duet & Atlantic
- Mobile & Voice

UI Services
- Roles
- Navigation
- Personalization
- Document
- Page Building
- Collaboration
- Search
- ...

UI Infrastructure
- Portal Runtime
- Web Dynpro
- Design Time Tools

Empowering and Connecting People
User Productivity Infrastructure

Details in UP100
Is There a Need to Run More Than One Portal?

In complex environments there could be the need to operate more than one portal for different reasons:

**Business driven**

**Business Autonomy**
- Organizational units want to have their own portal (e.g. for testing, sensitivity)
- Organizational / legal requirements (e.g. portal per org unit, department, project)
- Sharing a portal across multiple customers (service providers)

**Geographical Distribution**

**Service Level Agreements**
- Performance: expected response times
- Availability: 24x7
- Risk: critical vs. non-critical applications
- Tracking and Reporting

**Corporate Governance and Guidelines**

**Technology Driven**

**Platform & Release**
- Release version & lifecycle (SP Update)
- Hardware, operating system
- System landscape (dev, test, prod)
- Connections between systems

**Security & Policies**
- Storage of data and user information
- Access permissions
- Administration: Configuration, Operations, Monitoring

**Technical dependencies**
- Release dependencies between applications and portal (e.g. BI, xApps, CE, XRPM, Collaboration Portal, etc.)
Portal Deployment Options (Portal Systems View)

<table>
<thead>
<tr>
<th>Approach</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Central Portal (1 portal)</td>
<td>- Integrating all applications, services and information into one central portal&lt;br&gt; - Centrally governed and administrated portal&lt;br&gt; - Simple landscape setup</td>
</tr>
<tr>
<td>Federated Portal Network (2 .. n portals)</td>
<td>- Using FPN mechanism for sharing certain content between multiple portals&lt;br&gt; - Central access to content via consumer portal&lt;br&gt; - Autonomous sub-portals&lt;br&gt; - Independent administration (e.g. release version)</td>
</tr>
<tr>
<td>Separate Portals (2 .. n portals)</td>
<td>- Installation of autonomous portals for dedicated scenarios&lt;br&gt; - Full flexibility in administration (e.g. release version)&lt;br&gt; - Avoid any dependencies or impacts (security aspects)</td>
</tr>
</tbody>
</table>

Details in UP217
Logical Separation in a Central Portal

End User / Runtime
- Roles-based access
- Themes / Desktops:
- Access Different Backends
  - Dynamic System Resolution:
  - Destination Mapping:

Administration
- Delegated Administration
  - User Administration - Companies: define sets of users for delegated user administration
  - Content Administration – Define Permissions on PCD level
- Namespace prefix: clearly identify objects and assign them to a certain organizational unit
- Security Zones: control access to portal components and services in the portal
SAP NetWeaver enables you to flexibly scale your portal system across multiple physical hosts or logical system instances:

- **Logical (NW Systems / Installation) – vertical scaling**
  - Portal System
  - Portal Instance
  - Server Process
- **Physical (hosts) – horizontal scaling**
Release: SAP NetWeaver 7.0

- Benefits:
  - Full enterprise portal capabilities
  - Flexible installation options
  - Reliable and stable platform

- Installation Options:

  Enterprise Portal (EP)
  - Knowledge Management
  - Collaboration
  - Visual Composer
  - Composite Application Framework
  - .NET PDK (optional)

  EP Core (EPC)
  - Portal
  - Universal Worklist
  - Guided Procedures

Application Server Java

Release: SAP NetWeaver CE 7.1

- Benefits:
  - Lean portal platform
  - Latest technology standards
  - Provides new capabilities

- Installation Options:

  Composition Platform
  - Portal
  - Guided Procedures
  - Visual Composer
  - Composite Application Framework

Application Server Java
1. Overview
   1.1. Portal Implementation Scenarios
   1.2. Focus Area Corporate Portals

2. User Productivity Infrastructure
   2.1. Portal Deployment Options
   2.2. Portal Scaling

3. Building the Portal Infrastructure
   3.1. Security Aspects, HA, Scheduled Downtimes
   3.2. Sizing, Monitoring, Transporting
   3.3. Figures from SAP Corporate Portal

4. Summary
   4.1. Summary
   4.2. Further Information, Notes, Blogs
Guiding Principles

1. Start small, grow over time
2. Always use a top down approach - refining the details in the next iteration
3. Try to drive Portal projects with business acumen and not simply as a infrastructure project
4. Try to organize your projects using a pipeline with short/mid/long term targets
5. Treat building the infrastructures as a long term approach that needs multiple recursions and variations
6. Document your decisions and configuration for later troubleshooting and QA
7. Obtain the Security department's approval

Let's try to use these principles in the following Business Example
Example Business Scenario

The company ITelO offers various services to different user groups:

- **Anonymous internet user or customers**
  - Public information about the products, company news and events
  - Lightweight internet shop applications for selling products
  - Subscriptions to newsletter
  - Download areas for manuals or software

- **Registered partners and suppliers**
  - Detailed information about products, contacts,
  - Availability status of purchase orders
  - Presenting and processing invoices/bills electronically for direct invoicing
  - Collaboration project workspaces and other B-2-B scenarios

- **Employees**
  - Corporate information such as news & events, address book, corporate policies and guidelines, strategy and how-to papers
  - Employee Self-Services for maintaining personal data, planning trips, …
  - Reporting and approval workflows
  - Collaboration rooms for colleagues working in worldwide projects
How to approach?

Start using the top down approach to collect the required information

- Which building blocks already exist
- Collect application information
- Compile matrix with release dependencies
- Start at board level
- Try to get a logical big picture
- Refine the big picture
- Define the system landscape tracks
- Draw a system landscape matrix
- Use the tracks as import for your transport and change management processes

- Define HA strategy
- Define Firewall/LoadBalancer/ReverseProxy configuration and rules
- Create Hardware Procurement lists
- Keep track of SSL certificate ordering
- Keep track of needed licenses
- Put everything together in one document
- Approval process
- Standard vs. Custom coding
Refine the Big Picture
Define the System Landscape Tracks

**Portal System Landscape Tracks**

**Development**
- DPX
  - spdeva206
  - sp
  - Oracle

**Quality Assurance**
- QPX
  - spdeva206
  - QP
  - Oracle

**Production**
- PFX
  - spdeva206
  - XP
  - Oracle

**External Track**
- DPX
  - spdeva206
  - XP
  - Oracle

**Internal Track**
- QPX
  - spdeva206
  - QP
  - Oracle

**Biller Direct System Landscape Tracks**

**Development**
- DBX
  - DB

**Quality Assurance**
- PBX
  - DB

**Production**
- PBX
  - DB

**IPC System Landscape Tracks**

**Development**
- DCX
  - DC

**Quality Assurance**
- QCX
  - DC

**Production**
- QCX
  - DC

**Internet Sales System Landscape Tracks**

**Development**
- DX
  - DX

**Quality Assurance**
- QX
  - DX

**Production**
- QX
  - DX

**Portal System Landscape Tracks** (continued)

**Owner:** SDS

**Development Quality Assurance**

**Production**

**Owner:** SDS
Put Everything Together in One Document
(Example)
Sample Impacts of Technical Decisions

SSL termination

- We decided to terminate SSL at the first Load Balancer in the datacenter for performance and intrusion detection reasons
- This requires that all integrated applications support this setup properly
- Issues encountered
  - some LoadBalancer cannot set HTTP header ClientProtocol with each request needed to be work-arounded in Web Server filter
  - one old application required changing hardcoded protocol strings in BSPs
  - overhead of correct certificate handling and Content Switch configurations was difficult for project team

Release Dependencies

- Check SAP Notes and Installation Master Guides to investigate forward and backward dependencies of all used components
- Quite often e.g. Business Packages are tightly bundled to the release of the ERP system, while a lot of exceptions exist, which need to be checked case by case
- Issues encountered
  - It was possible to use Biller Direct 6.0 together with 4.7 based ERP, which was supposed to be upgraded soon
Summary and Lessons Learned

- It’s a long way to get everything in place
- Focus on the big picture, don’t be distracted by inflated small issues
- Exchange with experienced colleagues or use the various communities to leverage other projects’ experiences (e.g. SDN Forums)
- Don’t get stuck in the architecture decision „loop“
- Be pragmatic, you only have certain time and budget to finish
- Document everything that is important, be consequent on this
- Plan into the future, if things also can be done in another way, your project might go for this sooner or later
Customer Portal

Business case: public website for internet users, customers and partner (including area for registered users with access to special content and applications)

Applications and Content:
- Mostly static HTML-content (e.g. facilitate by Web Page Composer and KM framework)
- Lightweight application such as CRM internet sales (Business Package for SAP CRM)
- Integration of third party content can be provided through WSRP (external portal content)

Network Infrastructure:
- Secure infrastructure (use multiple network zones, use application gateway to protect the portal and applications)
- Only very restricted access to the internal backend system of inner DMZ if needed via RFC

Portal Infrastructure:
- Switchover cluster needed for high availability setup
- Usage types EP Core and EP to leverage full enterprise portal capabilities including KMC
- High scalability setup could leverage adaptive computing technology
- User management in LDAP available in DMZ
- Load balancer needed for workload distribution between system instances
- Usage of an application gateway/reverse proxy for securing internet access
CRM: The example illustrates the integration of various CRM applications using a Central Portal Scenario using the CRM Business Package.
**Self-Services Portal**

**Business case:** Self-Services Portal providing access to self-services from the SAP ERP back end system

**Applications and Content:**
- SAP ERP Business Packages (e.g. Employee or Manager Self-Service)
- Other applications (e.g. Web Dynpro based) for ordering equipment, booking rooms or doing travel arrangements from within the corporate portal

**Network Infrastructure:**
- Accessible from the Intranet
- Accessible for certain functionality only via RFC/SNC (e.g. Web Dynpro applications, ITS-scenarios) from the customer portal

**Portal Infrastructure:**
- Usage types AS Java + EP Core + relevant business content from ERP
- User management → ERP system (which is synchronized with Directory Server via Transaction LDAP)
- Integrated into the corporate portal by means of FPN
  - Keep the content administration within XSS-Portal
  - No release dependencies between XSS-scenarios and corporate portal
**Example HCM/HR Integration**

**HCM/HR:** Integration of ESS Travel Expense Management exists in two versions. Depending on the version of the Business Package used (Web Dynpro Java vs. Web Dynpro ABAP) – there are different scenarios existing.
Composition Environment Portal

Business case: Portal for running composite applications

Applications and Content:
- Composite Applications (using Java 5 EE or Web Dynpro technology) build with Composition Environment:
  - Visual Composer based modeling
  - SAP NetWeaver Developer Studio

Network Infrastructure:
- Only accessible from the intranet (no internet connection allowed)
- Access to relevant backend system that provide enterprise services for the composition tools

Portal Infrastructure:
- Composition Environment: installation option “Composition Tools” including the portal platform (no KM or Collaboration available)
- User management → Directory Server (e.g. ADS)
- Composite applications integrated into the corporate portal by means of FPN (CE serves as runtime for the composite applications)
CE: Integration of e.g. Visual Composer based iViews created in SAP NetWeaver Composition Environment is integrated via a FPN scenario to SAP NetWeaver Portal 7.0
**Reporting Portal**

**Business case:** Portal for managing and performing reporting activities to avoid high load on the central portal

**Applications and Content:**
- Business Intelligence web reporting
- Information Broadcasting

**Network Infrastructure:**
- Only accessible from the intranet (no internet connection allowed)

**Portal Infrastructure:**
- Usage types AS ABAP + AS Java + EPC/EP + BI-Java and BI
- User management ABAP: synchronization of user data with ADS (transaction LDAP)
- Login only allowed via SSO: end users will not get passwords for the BI system
- Integrated into the corporate portal by means of FPN
  - Keep the content administration within BI Java Portal
  - Dependencies between BI-Java and corporate portal: due to 1:1 relationship every additional BI-Java front end needs a separate portal
Example BI Integration

**BI:** Using BI Reports in a BI Portal scenario can be done by accessing the BI Portal directly or by integrating the reports using a FPN scenario in combination with a Central SAP NetWeaver Portal 7.0.
Corporate Portal

Business case: Central corporate portal for all employees

Applications and Content:
- Managed content for corporate news, articles, department sites using Web Page Composer
- Document management for providing downloads and services such as subscriptions
- Collaboration rooms for sharing knowledge and collaboratively work on documents
- Approval Workflows via Universal Worklist
- SAP Transactions for information workers/non-power users
- Self-Services scenarios for all employees
- Access to BI Web reporting for special user groups such as managers

Network Infrastructure:
- Accessible only from the Intranet via secured connection or by means of VPN/WTS
- Connect remote locations via Web Accelerator solution: “Application Delivery over WAN”

Portal Infrastructure:
- AS Java + EPC/EP to get full enterprise portal capacities (portal, KM, collaboration, UWL)
- User management: Directory Server (e.g. ADS)
- Authentication for the end user via SPNego (Kerberos) “Windows SSO”
- BI-Java and Self Services integrated via FPN (using Remote Roles Assignment)
- HA infrastructure with switchover solution and continuous availability concept to reduce planned downtimes during maintenance windows (shadow system: clone-update-rollback)
- Load balancer needed for workload distribution between instances
- TRex installation shared with BI reporting portal
Building a Portal Infrastructure
Where should the following components be located?

**Generally**
- If there is no direct interaction between a web client and the application server (e.g. a SAP Backend that is called via JCO by a portal iView) keep it in the “high security area”
- Web applications that are called by the client should reside in the “Inner DMZ”

**Database Server**
- Located “close” to the respective SAP NetWeaver AS to optimize:
  - performance
  - session stability
  - latency
- Install the database in the same network zone as the application server

**LDAP directory**
- For external users: within the DMZ
- For internal users (or in case of unique user persistence): in the backend (since it is used by other applications also; e.g. ADS)

Please distinguish Operating System users and Java AS-users
Where should the following components be located?

- **TRex**
  - As the TRex only interacts with a server in the DMZ (e.g. Portal/KMC or ISA) it can be considered a backend server and therefore located in the high security area.

- **KM-Repositories**
  - CM-Repository is normally located in the database (e.g. setting “db only”)
  - Other repositories: depends on the repository type and the access that is provided (could be located in high security area or Inner DMZ)

- **ITS / SAPGUI for HTML (aka WebGUI) / BSP-Applications / BEx-Web-Applications**
  - Likely to be accessed directly by the client (exception BW-FullProxyMode)
  - Due to backend nature should reside in the high security area
  - May need additional gateway in the Inner DMZ (e.g. SAP Web Dispatcher, Reverse Proxy)
  - In case of non integrated ITS WGate should be located in Inner DMZ, AGate in high security area

- **Application Gateway / Load balancer**
  - Load balancing between Application Gateways
  - Application Gateway to protect the Load Balancer
    - Depends on scenario specifics (e.g. Sizing of Application Gateway)
    - Typically Application Gateway protects Load Balancer

- **Application-specifics**
  - Check requirements for additional components that might be needed for the respective business scenario (e.g. CRM-ISA, HR-eRecruitment, LAC etc.)
Potential Complications

Infrastructure complexity increases if

- Applications are accessed by employees from various locations
  - Regional subsidiaries
  - Global subsidiaries
  - Kiosk access
  - Connection via WAN, dial-up, satellite
- Applications are accessed by customers, partners, suppliers, …
  - Dial-up connection
  - Browser requirements
  - …

Increased complexity may require usage of additional infrastructure components

- WAN acceleration products like SAP Application Delivery over WAN
- Web Cache/Web Proxy
- Terminal Server
- Virtual Private Network
Hardware Infrastructure

Some common hardware infrastructure

- **Firewalls**
  - Security for access control, user authentication, and network and application-level attack protection

- **Web Appliances**
  - Scalable approach to accelerating application performance, increasing WAN capacity, and enabling application prioritization and visibility

- **Load Balancers**
  - Provide means to scale your application infrastructure and facilitate HA and switchover solutions by distributing load to clusters of servers

- **Application Gateways**
  - Protect applications from direct access by clients
  - Can also provide performance improvements when used in combination with caching
General Thoughts on Security

How to make this landscape “secure”? 

- No two companies are the same: answers range from everything must be encrypted to nothing is secured (totally customer specific security requirements)

- The usage of different network zones is strongly recommended

- The “first line of defense” is likely the most crucial component 
  - Usage of an Application Gateway recommended (could be anything from Apache up to highly sophisticated hardware solution)

- Only expose what is really needed for the business application (e.g. opening port, positioning servers in the infrastructure)

- Without proper monitoring and operation there is only limited security 

- “Security by obscurity” is not sufficient (e.g. switch between unsecured protocols, usage of “hidden”-URLs)

- The infrastructure is important – but application layer security is crucial (password policy, security zones, role-concept, ACL’s)

- Establish secure connections via SSL between the different components (e.g. using Login Modules / SSO Trust relations ships)
Portal Security Considerations

As the SAP NetWeaver Portal runs on SAP NetWeaver AS Java, make sure you have followed the suggestions:

- Modify all access restrictions to allow required but minimal access only
- Apply all available and recommended patches regularly for all components used in SAP NetWeaver
- Modify the portal permissions for iViews and security zones to provide users with exactly the permissions they require and not more
- In a portal installation that will be used productively, remove all iViews that are not required (using reports of support platform)
- Delegate administration tasks among several users
- Disable user self-registration if not required
- Perform comprehensive security assessment following your specific secure programming guide (especially custom-built applications)
- Create awareness for secure behavior
Ensuring Data Security for Collaboration Rooms

Security aspects for External-Facing collaboration rooms

- External users can have access to user data and collaboration services
- Ensure to which extent user data is accessible and which collaboration services are displayed (via role concepts, permissions, ACLs)
- Perform regularly a proper monitoring for identifying usage / attacks
- Allow only certain mime types for upload (configurable)
- Deactivate unnecessary KM and collaboration services

Differentiating the display of user data

- SAP supplies an extension that can be activated and configured. The configuration settings (e.g. People Rendered Profile) apply to the following:
  - Search for users, groups and roles
  - Display of users, groups and roles
  - Access to collaboration services
  - Sending e-mails from within the portal
High Availability (HA) Solutions for SAP NetWeaver AS

Depending on the capabilities of the different systems/applications used, the optimum HA setup may be different.
SAP NetWeaver AS: Architectural (Potential)
Single Points of Failure

1. Central Services
2. Central Database
3. Load balancer and other Web Infrastructure Components

Besides these architectural SPOFs, the central file share ("/sapmnt/...") represents also a SPOF from a technical (installation) point of view.
DB and SCS, Each in Its Own Switchover-Group, CI Outside the Switchover Environment

Java-CI installed outside the switch-over environment

ENQ and MSG Server are separately installed within its own switch-over group

Enqueue Replication Server active on ‘passive’ host

The database has its own switch-over environment and switch-over group
Planned/Scheduled Downtime

High frequency

Weekly
- Offline backups with split-mirror
- Kernel upgrades
- Profile parameter changes

Monthly
- Transports

Quarterly
- Support packages
- End of daylight saving time
- Database reorganizations
- Release upgrades

Yearly
- Offline backups without split-mirror

Low frequency

Minutes
- Short duration
- Long duration

Frequency:
- Minutes 0,5 … 2 hours
- 10…15 hours

Duration:
- Weekly
- Monthly
- Quarterly
- Yearly
Portal Sizing & Performance – Overview

The portal on SAP NetWeaver AS Java has specific requirements for sizing, performance, scalability across multiple servers and load-balancing.

In a complex infrastructure there are different components besides the portal that may influence the performance:
- Backend systems and databases
- Network, firewalls, router / dispatcher, etc.

Concrete portal sizing recommendations depend on
- Number of users (named / anonymous)
- User types (active, concurrent, …)
- User activities (navigation steps per time unit)
- Amount and structure of (customer-specific) content (HTML, GUI, …)

Sizing Guide on SAP Service Marketplace “Sizing SAP NetWeaver Portal”

General information – QuickLink /sizing, /benchmark and /performance
Example for Sizing Process

1) Initial Sizing with SAP QuickSizer
   - QuickSizer as tool for initial sizing delivers SAPS number as result and input for hardware vendors (http://service.sap.com/quicksizer)
   - Providing first suggestions for hardware budgeting & planning

2) Configuration and landscaping
   - Setup of the infrastructure and configuration of systems / server

3) Expert Sizing: Customer Performance Tests
   - Stress Tests, Performance Load Tests
   - Detect about 80% of all larger performance issues in test systems
   - Recommended before “Going Live”

4) Re-Sizing / Optimization
   - Re-sizing due to further portal implementations (e.g. new Business Packages and customer-specific development of new applications)
Different Times, Different Phases, Different Goals of Sizing

Sizing takes place in different phases of a project
- Very early to plan hardware expenditures
- A few months before live start to verify assumptions
  - Determine the overall performance requirements
- During production stages to ensure operations and verify/adjust estimations made earlier. “Trigger events” include:
  - Upgrade database, operating system, SAP application
  - Reconfigure system landscape
  - Change business process
  - Rollouts: more users or other load
### Possible Definitions for Different Types of Sizing

<table>
<thead>
<tr>
<th>Hardware Budget Sizing</th>
<th>Advanced Sizing</th>
<th>Expert Sizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smaller companies</td>
<td>Medium to large companies</td>
<td>Large or complex projects</td>
</tr>
<tr>
<td>Very simple algorithms</td>
<td>Throughput estimates</td>
<td>Additional guidelines</td>
</tr>
<tr>
<td>Assumptions, likelihoods</td>
<td>Questionnaires, formulas</td>
<td>Custom calculations</td>
</tr>
<tr>
<td>Level setting of project</td>
<td>Usage of standard tools</td>
<td>Analysis of custom coding</td>
</tr>
<tr>
<td>Risk identification</td>
<td>Focus on core business processes</td>
<td>Custom sizing guidelines</td>
</tr>
</tbody>
</table>

### Initial Sizings

- **Re-Sizing**
  - All projects
    - SAP system monitors
    - Goal: Extend an existing system by load
      - E.g. by volume
        100 additional users who’ll do the same as the current productive ones

- **Delta Sizing**
  - All projects
    - SAP system monitors
    - Goal: Extend an existing system by functions
      - By different functions, e.g. you are live with CRM and want to add SCM

- **Upgrade Sizing**
  - All projects
    - SAP system monitors
    - SAP Notes
    - Goal: Upgrade SAP software

### Production Sizings – whenever there is a change in throughput, sizing must be done
### Some Factors That Influence Sizing

<table>
<thead>
<tr>
<th>Impacts on sizing</th>
<th>HW Platform</th>
<th>SAP Software</th>
<th>System Settings</th>
<th>Customizing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Processor technology</td>
<td>Release</td>
<td>Parameterization</td>
<td>Set up of business processes</td>
</tr>
<tr>
<td></td>
<td>Disk technology</td>
<td>OLTP or OLAP</td>
<td>Interfaces</td>
<td>Organizational structures</td>
</tr>
<tr>
<td></td>
<td>Network technology</td>
<td>Industry solutions</td>
<td>Security settings</td>
<td>Business process design</td>
</tr>
<tr>
<td></td>
<td>System infrastructure</td>
<td></td>
<td>Unicode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2A, B2B scenario</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer profile</th>
<th>Custom Coding, 3rd Party</th>
<th>Data Volume</th>
<th>Disk Growth</th>
<th>User Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Performance impact</td>
<td>Time frame for high volume processing</td>
<td>Avoiding data</td>
<td>Concurrency</td>
</tr>
<tr>
<td></td>
<td>Scalable</td>
<td>Background processing, parallel jobs</td>
<td>Archiving strategies</td>
<td>LAN/WAN</td>
</tr>
<tr>
<td></td>
<td>Business process design</td>
<td>Reporting</td>
<td>Information Lifecycle Mgmt.</td>
<td>Internet/intranet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data distribution</td>
<td></td>
<td>Activity, e.g.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*-Search</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Efficient navigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Responsibility of</th>
<th>Technology Partner</th>
<th>SAP</th>
<th>Customer</th>
</tr>
</thead>
</table>

© SAP 2008 / SAP TechEd 08 / UP202 Page 58
Using the Quick Sizer – Input Parameters

![Quick Sizer interface with input parameters and tables showing active users for Enterprise Portal and Enterprise Portal Logon.

- **Project OSE01**
  - Work days: 320
  - Status: In progress
  - Owner: [Field]
  - Method: [Field]

- **Messages**
  - The data for PORTAL were saved.

- **Table 1: Active Users - Enterprise Portal**
  - **Element**: NX4WP-ESS
    - **API**: A
    - **TI**: S
    - **Consider**: 125
    - **Think time**: 300
  - **Element**: NX4WP-NNT
    - **API**: A
    - **TI**: S
    - **Consider**: 1,800
    - **Think time**: 211
    - **Java IV**: 1
    - **URL IV**: 2
    - **% RNC**: 50
    - **Short text**: Information Browser scenario - bandwidth of different use cases calculated

- **Table 2: Active Users - Enterprise Portal Logon**
  - **Element**: NX4WP-LOGO
    - **API**: A
    - **TI**: H
    - **Max no. of logons**: 6,800

**Comment**

The load of the Web Dynpro scenario itself has to be calculated as described in the additional guidelines. In this example, 1500 scenarios per hour averaging 10 data steps will add another 450 SAPS to the results of the pure portal scenario if the Web Dynpro runtime is located on the portal servers.
Solution Manager – Tool to Manage Entire SAP Solution Landscape

- The SAP Solution Manager is a platform that provides the integrated content, tools, and methodologies that you need to implement, support, operate and monitor your enterprise's solutions from SAP.
- With SAP Solution Manager, companies can minimize risk and increase the reliability of their IT solutions.
- SAP Solution Manager helps reduce TCO throughout the solution life cycle.
- SAP Solution Manager helps companies manage their core business processes and link business processes to the underlying IT infrastructure.

Solution Manager Diagnostics

- Diagnostic capabilities for support of SAP NetWeaver platform (especially Java-components)
  - Root Cause Analyses
  - OS and DB Monitoring
  - Configuration Tracking
  - Component versions- and software-change reporting
  - HTTP-Analysis
  - …
Managing Portal Infrastructure

SAP Solution Manager Diagnostics
- Root cause analysis
- End to end exceptions
- Viewing recent changes

SAP NetWeaver Administrator
- Viewing logs and traces
- Viewing configuration

CA Wily Introscope
- Long running DB queries
- Memory issues
- Backend system connections

Details in LCM273
Transport Management for Portal Content

Three methods offered by SAP

- **Change and Transport System (CTS)** – for ABAP and Java content; CTS+
  (enhancements based on SAP NetWeaver 7.0 SPS 13)
  - provides transport logistics for portal content: par, ear, sca and sda-files can be transported and deployed
  - can easily be used from within existing portal landscapes
  - CTS+ is THE transport Tool at SAP for both worlds, ABAP and Java
- **Export/Import Mechanism** – for portal content (epa or XML-file)
  - Transport package contains coding or portal content only
- **SAP NetWeaver Development Infrastructure (NWDI)** – for Java content

Through use of the tools and manual process, implement a coherent transport management strategy
One Transport Order

Development Landscape

Quality Landscape

Production Landscape

Transport

Deploy

check in

ABAP Workbench SE80

Exchange Infrastructure Integration Builder

Developer Studio and NWDI

Enterprise Portal Content Administrator

... (open Interface for non-ABAP objects)

TPZ

SCA

EPA

Change and Transport System

Quality Component 1

Production Component 1

Quality Component n

Production Component n
Transport of:

- **Java-based and J2EE-based objects**
  - Software Component Archives (SCAs)
  - Software Deployment Archives (SDAs)
  - Enterprise Application Archives (EARs)

- **Portal-based objects**
  - Enterprise Portal Archives (EPAs)
  - Portal Application Archives (PARs)
  - Knowledge Management objects (KM Content and KM Configurations) *(SPS14)*

- **PI/XI-based objects**
  - Integration Builder Objects (TPZs)

- **SLD Content** *(SPS13)*

- any Files (.doc, .xls, .xml, …)

Deployment Options:

- SDM
- XI
- SLD
- FS
Transporting Non-ABAP Changes

Legend
- dashed line: logical transport route of non-ABAP objects
- solid line: physical transport route of non-ABAP objects
- orange line: check-in/check-out of non-ABAP objects
- solid line: transport route of ABAP objects

SAP NetWeaver Application Server CTS+

ABAP Transport Controller -> Virtual QAS -> Virtual PRD
Java DEV -> Java QAS -> Java PRD

New System Type: Virtual Non-ABAP System

Transport parameter contain deploy options
1. Overview
   1.1. Portal Implementation Scenarios
   1.2. Focus Area Corporate Portals

2. User Productivity Infrastructure
   2.1. Portal Deployment Options
   2.2. Portal Scaling

3. Building the Portal Infrastructure
   3.1. Security Aspects, HA, Scheduled Downtimes
   3.2. Sizing, Monitoring, Transporting
   **3.3. Figures from SAP Corporate Portal**

4. Summary
   4.1. Summary
   4.2. Further Information, Notes, Blogs
SAP Corporate Portal Key Facts

- 60,000 end-users
- Available in 70 countries
- 500,000 documents in managed content,
  1,000,000 documents in collaboration rooms
- 35,000 managed web pages
- Penetration rate: 99.6% of potential users

- 25+ Backend systems integrated:
  - SAP ERP (HR/FI)
  - Business Suite (CRM/RPM)
  - NetWeaver BI/XI
  - Legacy/3rd Party

- Process Integration
  - Sales/Marketing
  - Manager & Employee Self Services
  - Executive/Management Reporting

- Content Publishing environment:
  - Document upload (KM)
  - Online web page editing (Custom online web editing tool – WCMS)

- 80+ Workflows

- Community Tools:
  - Virtual workspaces for Teams & Projects
  - Discussion forums
  - Wiki
  - Podcasts

… another evidence that SAP runs SAP
6 Tier Design determined to be best practice allowing:
- Rock solid release cycles
- Flexibility on continuous improvements
- Quality assurance
Transports are categorized by analyzing their type and impact to the system.
- Transports have different set of testing criteria based on category.
- Transports have different release schedule based on category.

Transport Types:

<table>
<thead>
<tr>
<th>Category</th>
<th>What is it?</th>
<th>Release Schedule</th>
<th>Testing Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New applications</td>
<td>Scheduled dates 6 x per year</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Bug fixes / Minor application updates</td>
<td>Weekly</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Any transport that requires restart</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Application maintenance</td>
<td>Weekly</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Content only</td>
<td>Weekly</td>
<td>✓</td>
</tr>
</tbody>
</table>

* Restrictions exist based on critical business support. (e.g. Quarter End Close)
1. Overview
   1.1. Portal Implementation Scenarios
   1.2. Focus Area Corporate Portals

2. User Productivity Infrastructure
   2.1. Portal Deployment Options
   2.2. Portal Scaling

3. Building the Portal Infrastructure
   3.1. Security Aspects, HA, Scheduled Downtimes
   3.2. Sizing, Monitoring, Transporting
   3.3. Figures from SAP Corporate Portal

4. Summary
   4.1. Summary
   4.2. Further Information, Notes, Blogs
Summary

- **Uniqueness** – Every portal project deals with totally customer-specific scenarios and requirements.

- **SAP Support** – SAP provides various capabilities, tools and services to support your specific business scenarios.

- **Flexibility** – You can use different building blocks to enhanced your infrastructure smoothly step-by-step.

- **Strategy** – A well defined platform and portal strategy is the basis for all project activities.

- **Project planning** – A proper preparation phases is the key to a successful implementation.

- **Scope** – Portal projects typically cover real cross-enterprise topics that might span departments and functional roles.

- **Alignment** – You need to talk to various persons to align all the different topics and requirements.
Summary

- **Content** – Content is what matters to the users – not technology.

- **User** – Your users have special preferences in terms of intuitive navigation, usability and content they expect to find in the portal.

- **Value** – A portal project can only be successful if it delivers significant value to the end users. That is the reason why a portal is much more than just a trendy GUI.

- **Subsequent projects** – A portal often acts as originator for a number of other use cases. SAP NetWeaver projects trigger subsequent implementation projects.

- **Knowledge** – A SAP NetWeaver project requires a wide range of skills and knowledge within and outside of the project team.

- **Business Case** – A solid business case is vital to any SAP NetWeaver project!
Further Information

SAP Public Web:
SAP Developer Network (SDN): http://www.sdn.sap.com/
General Portal Information: https://www.sdn.sap.com/irj/sdn/netweaver
Portal on SDN: http://www.sdn.sap.com/irj/sdn/nw-portalandcollaboration
Search for SAP Notes: http://service.sap.com/notes
Product Availability Matrix http://service.sap.com/pam
SP Stack Schedule http://service.sap.com/sp-stacks
CTS+: https://www.sdn.sap.com/irj/sdn/cts
http://www.sap.com/platform/netweaver/itpractices/userproductivity.epx

Related SAP Education and Certification Opportunities
http://www.sap.com/education/
Further Information

Technical Documentation:

- High Availability: http://service.sap.com/HA
Further Information

Technical Documentation:

- Minimizing Effects of Planned Downtime
- How To guide "Optimizing Network Traffic in EP 6.0“ available in
  http://service.sap.com/nw-howtouides
- SAP NW Support Platform
  http://help.sap.com/saphelp_nw70/helpdata/en/43/0f55d0a1c52ba8e10000000a1553f6/frameset.htm
- Portal Finetuning: http://service.sap.com/~sapidb/011000358700001480992005E.PDF
- KMC in EFP
  https://www.sdn.sap.com/irj/irj/doc/library/uuid/60fd3fc2-e0a4-2910-80bc-a45987574922
- SAP Best Practices for Portals V1.70
  http://help.sap.com/content/bestpractices/crossindustry/bestp_based_netweaver.htm
- SAP Web Dispatcher and SSL
- Release Notes
  http://help.sap.com/saphelp_nw70/helpdata/en/57/a21f407b402402e10000000a1550b0/frameset.htm
- ASAP Methodology https://service.sap.com/roadmaps
- Restriction notes: 853509, 916545
Notes
- 916545 - Central Note for External-Facing Portal (NW04s)
- 877188 - Central Note for External-Facing Portal (NW04)
- 837898 - CM >= NW04 SPS12: How to configure anonymous CM access
- 913367 - Anonymous users unable to open specific pages
- 870247 - Using named anonymous users
- 933452 - External-Facing Portal and Search Engine Indexing
- 893855 - EFP -hotfix for suppport of Quick links for anonymous user

Blogs
- Nuts and Bolts of the External Facing Portal
- EFP: Navigation and Framework Tag Libraries
- EFP: Layout Tag Library
- EFP: Navigation Caching
- EFP: Short URLs
- EFP: Quick Links
- Short(ening) Portal URLs
- Changes in the Navigation Cache
- Multilingual External Facing Portal with Different Contents
Thank you!
Fuel your Career with SAP Certification

What the industry is saying

- “Teams with certified architects and developers deliver projects on specification, on time, and on budget more often than other teams.”
  2008 IDC Certification Analysis

- “82% of hiring managers use certification as a hiring criteria.”
  2008 SAP Client Survey

- “SAP Certified Application Professional status is proof of quality, and that’s what matters most to customers.”*
  Conny Dahlgren, SAP Certified Professional

Take advantage of the enhanced, expanded and multi tier certifications from SAP today!
Please complete your session evaluation.

Be courteous — deposit your trash, and do not take the handouts for the following session.

Thank You!