Master Guide

SAP NetWeaver® 2004s

Target Audience

- System administrators
- Technology consultants

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Typographic Conventions

Example	Description
`<>`	Angle brackets indicate that you replace these words or characters with appropriate entries to make entries in the system, for example, "Enter your **`<User Name>`**".
®	Arrows separating the parts of a navigation path, for example, menu options
Example	Emphasized words or expressions
`Example`	Words or characters that you enter in the system exactly as they appear in the documentation
Example	Textual cross-references to a URL, for example, `www.sap.com`
`/example`	Shortcuts added to the URL of a homepage to enable quick access to specific content on the Web
123456	Hyperlink to an SAP Note, for example, SAP Note 123456
Example	▪ Words or characters quoted from the screen. These include field labels, screen titles, pushbutton labels, menu names, and menu options. ▪ Cross-references to other documentation or published works
`Example`	▪ Output on the screen following a user action, for example, messages ▪ Source code or syntax quoted directly from a program ▪ File and directory names and their paths, names of variables and parameters, and names of installation, upgrade, and database tools
`EXAMPLE`	Technical names of system objects. These include report names, program names, transaction codes, database table names, and key concepts of a programming language when they are surrounded by body text, for example, `SELECT` and `INCLUDE`
`EXAMPLE`	Keys on the keyboard

Document History

⚠️ Caution

Before you start the implementation, make sure you have the latest version of this document.
You can find the latest version in SAP Service Marketplace at the following internet address:
`service.sap.com/instguides`.

The following table provides an overview on the most important document changes.

Version	Date	Description
1.00	10/24/2005	First version – no changes
1.01	11/14/2005	■ Changes in the texts on BI accelerator in several different sections ■ Section *Clients*: Changes in the text on SAP GUI ■ Changes in section *Planning your System Landscape* ■ Changes in section *Shared Services* ■ Enhancements in the use of SAP NetWeaver Developer Studio and SAP NetWeaver Developer Workplace as front end in scenarios *Enabling Enterprise Services* and *Developing, Configuring and Adapting Applications*. This also results in changes to the Minimal System Landscape and the Maximum System Landscape.
1.02	12/08/2005	■ Changes in section *Shared Services* ■ Changes in section *Running an Enterprise Portal*
1.03	01/17/2006	■ Scenario variant *Documentation, Manuals, and Training Materials Management* has been renamed to *Documentation, Training Materials and Manuals Management*. ■ Scenario *Business Task Management*: information added about additional license required under certain circumstances for Interactive Forms based on Adobe software ■ Scenarios *Enterprise Reporting, Query, and Analysis*, *Business Planning and Analytical Services*, and *Enterprise Data Warehousing*: information added about the requirement of BI Java and Enterprise Portal
1.04	02/09/2006	■ Description of scenario variant *Implementing an External-Facing Portal* added ■ Information about SAP List Viewer in Web Dynpro for ABAP (ALV) added
1.05	03/31/2006	■ More detailed information about the dependencies between usage types BI Java, AS Java, and EP. ■ Terminology update for Web Dispatcher ■ Information about required SAP Solution Manager key added ■ Structural changes: Section *Mapping of IT Scenarios to Installable Software Units* moved to the beginning of chapter 3; IT scenarios moved to a separate chapter (chapter 5) ■ Reference to Technology Consultant´s Guide added ■ Landscape Considerations for Adobe Document Services added
1.06	05/19/2006	■ Terminology update for SAP NetWeaver BI/BW systems ■ Changes in section *SAP NetWeaver Administrator* ■ Job Scheduling Capabilities of SAP NetWeaver renamed to SAP Central Job Scheduling by Redwood ■ Scenario variant *Implementing a Multitenant Portal* removed

Table of Contents

1 Introduction

This Master Guide provides you with a central starting point for the technical implementation of SAP NetWeaver®.

SAP NetWeaver is an open integration and application platform that integrates people, information and processes into one hub, across technologies and organizations, to reduce the total cost of ownership (TCO).

Structure of the Master Guide

The Master Guide consists of the following sections:

- *Introduction*
  Contains an introduction to this guide.
- *Before You Start*
  Contains information about this document, important things which you need to know before you start, and information on how to access the SAP Library.
- *SAP NetWeaver Overview*
  Describes the building blocks of SAP NetWeaver 2004s and gives a general explanation of the transition from older releases to SAP NetWeaver 2004s.
- *System Landscape*
  Contains information about how to install your system landscape.
- *IT Scenarios*
  Introduces the IT scenarios and explains how to install them.
- *Reference*
  Contains information about the overall documentation concept for SAP systems.

> ⚠ Caution
>
> Make sure you have the latest version of the *Master Guide* by checking SAP Service Marketplace immediately before starting the installation.
>
> The *Master Guide* is regularly updated on SAP Service Marketplace at `service.sap.com/instguidesnw2004s` ® *Installation*.

Constraints

The business scenarios that are presented here serve as examples of how you can use SAP software in your company. The business scenarios are only intended as models and do not necessarily run the way they are described here in your customer-specific system landscape. Check your requirements and systems to determine whether these scenarios can be used productively at your site. Furthermore, we recommend that you test these scenarios thoroughly in your test systems to ensure that they are complete and free of errors before going live.

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2 Before You Start

2.1 Quick Start

If you are an experienced consultant looking for a quick access to the most important information required to implement a specific scenario, we recommend that you read the following sections:

1. *Mapping of IT Scenarios to Installable Software Units* [page 5]
    This section informs you about which software units you need to install to realize a specific IT scenario.
2. In the *scenario-specific sections* [page 65], see the system landscape information and the implementation sequence.
3. To be able to draw a complete picture of the system landscape, see section *Shared Services* [page 30]. Read also the *Technical Infrastructure Guide*, which explains the distribution of landscape components to host.

> ⬆ Recommendation
>
> We recommend that you use the *Software Lifecycle Manager* [page 53] as a starting point for the planning process. The Software Lifecycle Manager guides you through the landscape planning process using planning wizards to realize new application systems and new business scenarios and to deploy application components. It offers a graphical overview of the planned system landscape.

2.2 SAP Notes

You **must** read the following SAP Notes **before** you read this *Master Guide* and implement SAP NetWeaver.
   Make sure that you have the up-to-date version of each SAP Note, which you can find on SAP Service Marketplace at `service.sap.com/notes`.

> 💡 Note
>
> The SAP Notes related to SAP NetWeaver 2004s are also listed on SAP Service Marketplace at `service.sap.com/NW2004sdoc` ® *SAP Notes*.

List of Important SAP Notes

SAP Note Number	Title	Description
852008	Release Restrictions of SAP NetWeaver 2004s	Some restrictions apply to the productive use of SAP NetWeaver. These are documented in this SAP Note.

2.3 More Information

The following list contains links to crucial information for implementing SAP NetWeaver on SAP Service Marketplace or in the SAP Library:

Content	Location on SAP Service Marketplace or in SAP Library
The latest version of the installation and upgrade guides for SAP NetWeaver	`service.sap.com/instguidesnw2004s`
Information about supported platforms (operating systems, databases, browsers) for all SAP NetWeaver components	`service.sap.com/platforms` ® *Product Availability Matrix*
Sizing of SAP NetWeaver	`service.sap.com/sizing`
Information about security	*SAP Security Guide*: See the *SAP Library* [page 4] at *SAP NetWeaver* ® *Security* ® *SAP NetWeaver Security Guide*
Information about the technical operation of SAP NetWeaver	*Technical Operations Manual*: See the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Administrator´s Guide* ® *Technical Operations Manual*
Information about SAP NetWeaver Support Package Stacks	`service.sap.com/netweaver` ® *SAP NetWeaver 2004s - Release-Specific Information* ® *Support Package Stacks Information*
Information about installing SAP NetWeaver Support Package Stacks.	available at `service.sap.com/MaintenanceNW2004s` ® *Support Package Stack Guide – SAP NetWeaver*

2.4 Accessing the SAP Library

For more information about SAP NetWeaver, access the SAP Library from any of the following:

- **SAP Help Portal** at `help.sap.com/NW2004s`
  Select the required language.

  > ⚠ Caution
  > The SAP Help Portal contains the latest version of the SAP Library. Therefore, we recommend that you use this channel to access the SAP Library.

- An **SAP system** if you have installed the online documentation: Choose *Help* ® *SAP Library*
  The browser starts.
- The **help files** on the online documentation CDs or DVDs
  If you want to view the help files in HTMLHelp format from the online documentation CDs or DVDs, you need a PC running Microsoft Windows to install the HTMLHelp Viewer.

3 SAP NetWeaver Overview

The SAP NetWeaver technology platform is a comprehensive integration and application platform that helps reduce the total cost of ownership (TCO). It facilitates the integration and alignment of people, information, and business processes across organizational and technological boundaries. SAP NetWeaver easily integrates information and applications from virtually any source. It interoperates with and can be extended using the primary market technologies – Microsoft .NET, Sun's J2EE, and IBM WebSphere. SAP NetWeaver is the technical foundation for mySAP™ Business Suite and SAP® xApps™ solutions and ensures maximum reliability, security, and scalability, so mission-critical business processes run smoothly. And by providing pre-configured business content, it helps reduce the need for custom integration and lowers TCO.

SAP NetWeaver 2004s is the mySAP Business Suite edition of SAP NetWeaver 2004.

IT practices, IT scenarios, and usage types introduce a new view of SAP NetWeaver:

■ IT practices allow customers to adopt core functionality of SAP NetWeaver in incremental phases. Each practice can be broken into one or more IT scenarios, similar to a business scenario. Addressing their immediate IT needs, organizations can implement IT practices projects in stages, since the platform's components are tightly integrated, within a sustainable cost structure.

■ Using IT scenarios, SAP has introduced a scenario-based go-to-market approach that helps address customers' most important business issues more flexibly, by providing them with modular industry-specific solutions, with a fast total return on investment (ROI) and predictable investment levels that support their end-to-end business processes.

■ Usage types determine the role which a system plays in a given (distributed) scenario. They represent the capabilities offered by a collection of installed and configured (technical) software components. Usage types are a new structuring element for SAP software on a technical level

> **Note**
> For more information, see SAP Service Marketplace at `service.sap.com/it-scenarios`.

3.1 Mapping of IT Scenarios to Installable Software Units

The table below shows the mapping of *IT scenarios* [page 8] to the SAP NetWeaver building blocks. SAPNetWeaver consists of the following types of software units (follow the links for detailed information):

■ *Systems with usage types* [page 12]
These are SAP NetWeaver systems that are configured for a specific purpose.
■ *Standalone engines* [page 18]
Standalone engines provide one specific (server) function in combination with one or more SAP NetWeaver systems.
■ *Clients* [page 20]

Clients are used by (many) people from their local front-end PC to access functions offered by systems of SAP NetWeaver or standalone engines in the system landscape.

💡 Note

Be aware that you require an SAP Solution Manager system (minimum release 3.2 SP8) to install or upgrade to SAP NetWeaver 2004s Support Release 1. An SAP Solution Manager system is required to generate the SAP Solution Manager key needed during the installation or upgrade process. Without this key, the installation or upgrade process cannot continue. For more information, see SAP Note 805390.

💡 Note

SAP NetWeaver 2004s Support Release 1 includes Support Package Stack 06.

IT Scenario	Usage Types	Standalone Engines	Clients
Running an Enterprise Portal [page 65]	■ AS Java ■ EP ■ DI [optional]		
Enterprise Knowledge Management [page 67]	■ AS Java ■ EP (not required for KW) ■ AS ABAP (not required for KM)	■ TREX ■ Content Server (not required for KM)	SAP GUI
Enabling User Collaboration [page 71]	■ AS ABAP ■ AS Java ■ BI ■ EP ■ BI Java Optional: Run the service Application Sharing Server standalone ■ AS Java ■ EP	TREX	■ SAP GUI ■ Business Explorer (BI)
Business Planning and Analytical Services [page 76]	■ AS ABAP ■ AS Java ■ BI ■ EP ■ BI Java	■ TREX ■ liveCache [optional]	■ SAP GUI ■ Business Explorer (BI)
Enterprise Reporting, Query, and Analysis [page 81]	■ AS ABAP ■ AS Java ■ BI ■ EP ■ BI Java	TREX	■ SAP GUI ■ Business Explorer (BI)
Enterprise Data Warehousing [page 87]	■ AS ABAP ■ AS Java ■ BI ■ EP ■ BI-Java	■ TREX ■ BI accelerator	SAP GUI

IT Scenario	Usage Types	Standalone Engines	Clients
Enabling Application-to-Application Processes [page 92]	■ AS ABAP ■ AS Java ■ PI Optional to run service J2EE Adapter Engine (PI/XI) standalone ■ AS Java ■ Parts of PI		■ SAP GUI ■ J2SE Adapter Engine (PI/XI) [optional]
Enabling Business-to-Business Processes [page 94]	■ AS ABAP ■ AS Java ■ PI Optional to run service J2EE Adapter Engine (PI/XI) standalone ■ AS Java ■ Parts of PI Optional to run service Partner Connectivity Kit (PI/XI) standalone ■ As Java ■ Parts of PI ■ PCK		SAP GUI
Business Process Management [page 97]	■ AS ABAP ■ AS Java ■ PI	ARIS for SAP NetWeaver	SAP GUI
Business Task Management [page 100]	■ AS ABAP ■ AS Java ■ EP		■ SAP GUI ■ Adobe LiveCycle Designer
Enabling Enterprise Services [page 104]	■ AS ABAP ■ AS Java ■ PI		SAP GUI
Developing, Configuring, and Adapting Applications [page 107]	■ AS Java (not required for ABAP development without Web Dynpro) ■ DI (required for Java development) ■ EP (not required for ABAP development without Web Dynpro) ■ AS ABAP (for ABAP and MI development) ■ MI (for MI development)	ARIS for SAP NetWeaver (optional for *Creating Composite Applications*)	■ Developer Workplace (for Java and MI development) ■ SAP GUI (for ABAP development) ■ MI Client (for MI development) ■ Adobe LiveCycle Designer (for certain development variants) [optional]
SAP NetWeaver Operations [page 121]	■ AS ABAP ■ AS Java ■ EP	SAP Central Job Scheduling by Redwood	SAP GUI
Software Life-Cycle Management [page 127]	N/A	N/A	N/A

IT Scenario	Usage Types	Standalone Engines	Clients
Enabling Platform Interoperability	N/A	N/A	N/A
Mobilizing Business Processes [page 128]	■ AS ABAP [optional] ■ AS Java ■ MI [optional]		■ SAP GUI [optional] ■ MI client [optional]
Authentication and Single Sign-On [page 132]	■ AS Java ■ EP	LDAP directory (third-party)	
Integrated User and Access Management [page 134]	■ AS ABAP ■ AS Java ■ EP	LDAP directory (third-party)	SAP GUI

3.2 IT Scenarios

SAP NetWeaver IT scenarios address the requirements of IT management, developers, consultants, and other members of the technical community, and also demonstrate the capabilities of the technology platform.

IT scenarios help customers, partners, and ISVs to install and operate SAP NetWeaver, to run business applications, including both custom-built and packaged applications, or to implement a defined IT concept, such as evolving a company's system landscape into a service-based architecture.

IT scenarios focus on major IT challenges such as the need to combine different integration technologies, to develop composite applications leveraging existing investments, or to build new business processes in a flexible way. *Developing, Configuring and Adapting Applications* or *Business Process Management* are typical examples for IT scenarios in this context.

An IT scenario consists of multiple IT processes which are grouped into scenario variants. Implementation guidance is provided by reference models and the visualization of end-to-end-processes.

SAP NetWeaver consists of the following IT scenarios:

■ *Running an Enterprise Portal*
Organizations can give their users uniform, role-based, and secure access to any kind of applications, services, and information. With the Enterprise Portal, all members of the company's value chain – employees, customers, partners, and suppliers – have a single, uniform point of access to the applications, services, and information they need for their daily work.

■ *Enterprise Knowledge Management*
SAP NetWeaver provides everything that organizations need to plan, build, and operate an integrated work environment for information workers. It provides the framework and the tools to integrate, disseminate, and work with distributed, unstructured information and put it into business context for information workers.

■ *Enabling User Collaboration*
SAP NetWeaver enables IT organizations to help individuals, teams, and project groups collaborate more efficiently as they perform their business processes. SAP NetWeaver makes collaboration and knowledge sharing an integral, natural part of everyday work and enables efficient communication.

■ *Business Planning and Analytical Services*

SAP NetWeaver supports processes that collect and transform data within the business intelligence infrastructure, such as business planning and simulation, or analysis process design.

- *Enterprise Reporting, Query, and Analysis*

  Organizations can provide all the necessary processes and services to meet the information needs of business users. They can design and provide applications for formatted reporting, ad hoc queries, interactive analyses, information dashboards, and information broadcasting.

- *Enterprise Data Warehousing*

  SAP NetWeaver enables organizations to create and operate a data warehouse in an enterprise-wide environment, integrating data from heterogeneous systems and designing and executing business intelligence models and processes. They can combine strategic analyses and operational reporting and enable the business to report in real time.

- *Enabling Application-to-Application Processes*

  By enabling application-to-application processes, organizations can seamlessly connect SAP and non-SAP applications within the enterprise, orchestrating the process flow between them using message-based and standards-based methods for process integration. Using SAP NetWeaver, a single platform can manage the design, configuration, and execution of all business processes within the heterogeneous system landscape of an enterprise.

- *Enabling Business-to-Business Processes*

  Organizations can seamlessly connect their own business processes with those of their partners using message-based and standards-based methods for process integration. SAP NetWeaver supports various communication channels as well as process coordination and surveillance.

- *Business Process Management*

  Business process management (BPM) with SAP NetWeaver covers business process modeling, configuration, execution, and monitoring, with process models executed by either the business applications or the central integration server. Organizations can use predefined content to configure business processes and can relate application-embedded settings to business process models.

- *Business Task Management*

  Business Task Management (BTM) with SAP NetWeaver helps get the right tasks to the right people and provides the means to complete tasks on time and with the best results. SAP NetWeaver helps people coordinate, monitor, and adapt their own tasks and the tasks they assign to co-workers.

- *Enabling Enterprise Services*

  SAP NetWeaver provides organizations with a single infrastructure for uniform service definition, implementation, and usage based on Web services technology and standards. SAP NetWeaver supports enterprise services for user interaction as well as application-to-application and business-to-business interactions using synchronous, asynchronous, stateful, and stateless communication models.

- *Developing, Configuring, and Adapting*

  SAP NetWeaver offers a variety of programming models and tools to extend and enhance SAP applications or to create complementary custom applications. SAP NetWeaver supports popular development processes for the Java and ABAP programming environments.

- *SAP NetWeaver Operations*

  Organizations can set up an optimal environment for administration and data archiving with SAP NetWeaver. They can centrally manage business processes and centrally monitor the underlying SAP NetWeaver components in a highly effective manner.

- *Software Life-Cycle Management*

Organizations can manage SAP software in their system landscapes by performing implementation tasks such as planning changes, implementing new systems, copying existing systems, or enabling the creation and propagation of changes in the landscape. Organizations can also maintain their software by applying support packages and corrections or by upgrading to new software versions.

■ *Enabling Platform Interoperability*

SAP NetWeaver helps different systems or technologies coexist and interoperate, which helps organizations master the heterogeneity in their landscapes. SAP NetWeaver integrates people, information, processes, and applications.

Since this IT scenario spans a lot of different heterogeneous technologies and also multiple IT scenarios, it is not covered directly in this *Master Guide.*

■ *Mobilizing Business Processes*

SAP NetWeaver enables organizations to extend existing and new business processes into the mobile world. In addition to supporting simple productivity tools, such as e-mail, SAP NetWeaver integrates front-end mobile activities with back-end business processes.

■ *Authentication and Single Sign-On*

SAP NetWeaver helps organizations implement authentication and integrate different systems into a single sign-on landscape. SAP NetWeaver supports Lightweight Directory Access Protocol (LDAP), Security Assertion Markup Language (SAML), and Java Authentication and Authorization Service (JAAS) to ensure interoperability, and it allows organizations to leverage existing investments, such as directory servers.

■ *Integrated User and Access Management*

Organizations can manage user information and control user access to data with fine-grained authorization and control, while reducing complexity and redundancy and increasing transparency for better security and governance. SAP NetWeaver supports a number of ways to implement integrated user and access management, including leveraging existing investments by using data already available in a lightweight directory access protocol (LDAP)-based directory server.

■ *Master-Data Management*

The following *Master-Data Management* IT scenarios of SAP NetWeaver are covered in the *Master Guide – SAP NetWeaver MDM (Release 5.5)* available on SAP Service Marketplace at `service.sap.com/instguidesnw04` ®️ *Planning* ®️ *SAP MDM*:

● *Master-Data Consolidation*

SAP NetWeaver enables organizations to search for master data across linked systems, identify identical or similar objects spread across the local systems, build consolidated master data, and provide ID mapping for unified, company-wide analytics and reporting.

● *Master-Data Harmonization*

SAP NetWeaver enables organizations to consolidate and harmonize master data. They can ensure the high quality of master data by distributing consolidated data that is globally relevant and that can be augmented with locally relevant information.

● *Central Master-Data Management*

With SAP NetWeaver, organizations can consolidate and centrally manage their master data. They can support company-wide quality standards by ensuring that central control of master data begins as soon as the data is created.

3.3 Installable Software Units

The following figure shows the types of installable software units for SAP NetWeaver that are described in the following sections. These comprise the following:

- Systems that are configured for a specific purpose, as indicated by one or more usage types
- Standalone engines that provide one specific (server) function in combination with one or more SAP NetWeaver systems
- Clients used by (many) people from their local front-end PC to access functions offered by systems of SAP NetWeaver or standalone engines in the system landscape

Figure 1: Installable Software Units
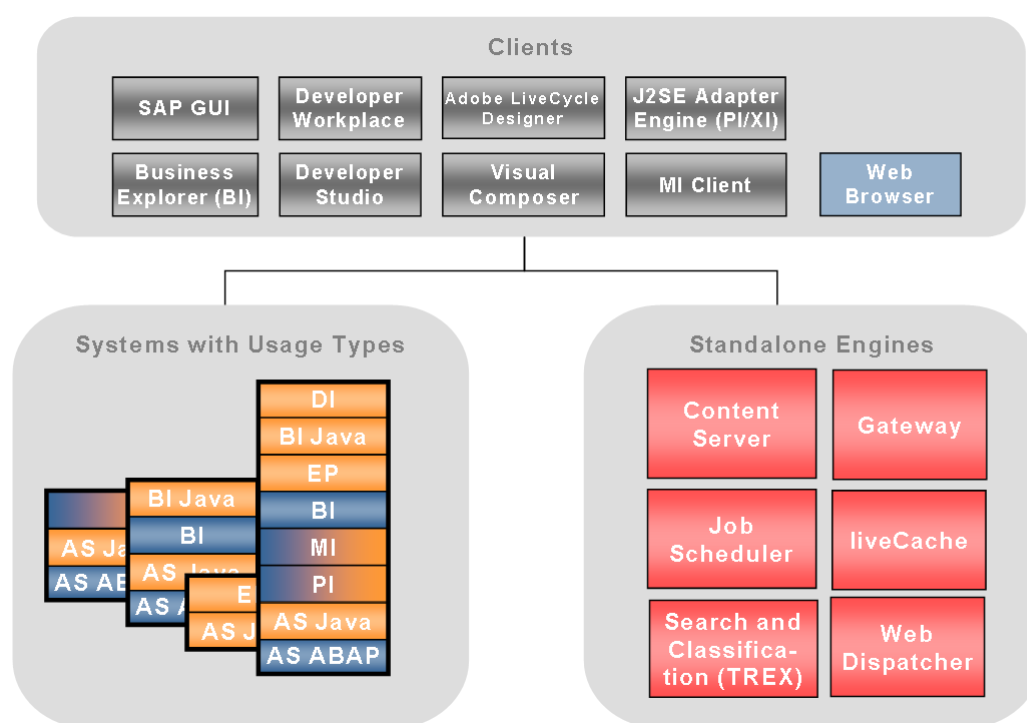
For this and other figures in this guide, the following legend applies:

Figure 2: Legend
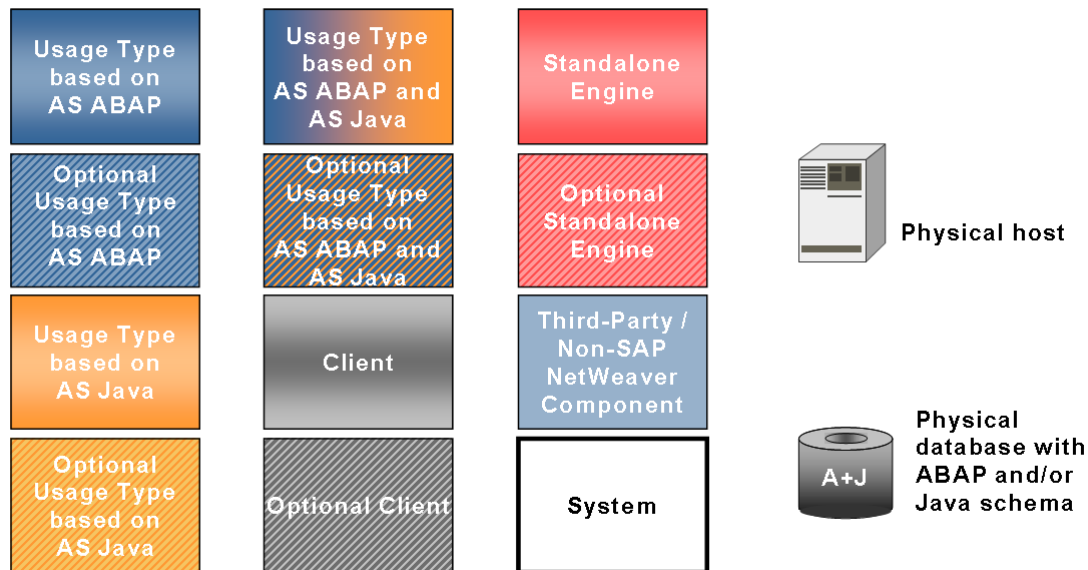
3.3.1 Systems

SAP systems are the main building blocks of SAP NetWeaver. They are identified by unique SAP system IDs (SAPSIDs) and configured for a certain purpose, as indicated by usage types. Usage types:

- Are a new structuring element for SAP software on a technical level.
- Determine the intended purpose of a system and the role it plays in a given (distributed) IT scenario.
- Are realized by installing and configuring a collection of software components.
- Allow a logical view of the technology platform SAP NetWeaver.
- May require other usage types in the same system to operate.
- Can also be run in the same system as other usage types that are not a prerequisite.

How SAP NetWeaver Systems are Used

The following lists the usage types and their dependencies for SAP NetWeaver.

- Application Server ABAP (AS ABAP)

  Purpose

  AS ABAP is used to provide the ABAP foundation of SAP NetWeaver.

  Part of AS ABAP is the Search Engine Service (SES), which enables users to search for business objects using Search and Classification (TREX). SES accesses Search and Classification (TREX) functions through the Search and Classification (TREX) ABAP client. SES replicates the business objects from the ABAP

application to Search and Classification (TREX), so that it can apply Search and Classification (TREX) search functions to them. When a user enters a search query, the Search and Classification (TREX) system responds to it, not the database for the ABAP application. For more information, see the document *Installation Guide – SAP NetWeaver TREX Single Hosts / Multiple Host*.

Dependencies

AS ABAP can be combined optionally with other usage types in one system.

> **Note**
>
> SAP List Viewer in Web Dynpro for ABAP (ALV), which is part of AS ABAP requires in certain cases the installation of Business Intelligence Java Components (BI Java). ALV is a reusable, configurable component for the visualization of tabular data. It provides a comprehensive set of generic functions for tabular data. One of the generic functions is creating a print version. If you want to use this function, you have to install BI Java. After the installation, you need to setup the communication from and to the Enterprise Portal. In addition, Adobe document services (included in Application Server Java) needs to be available.
>
> For more information about ALV, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Getting Started – Using SAP Software* ® *Working with Tools and Features* ® *Working with Lists* ® *SAP List Viewer for Web Dynpro* .

■ Application Server Java (AS Java)

Purpose

AS Java is used to provide the Java foundation of SAP NetWeaver. Among the key capabilities of AS Java are:

- J2EE Engine – a J2EE 1.3-compliant application server for running enterprise applications. In addition to the pure J2EE standard technologies, the J2EE Engine implements complementary technologies, such as Web Dynpro or Web Services, that are targeted at supporting large-scale, real-business application development projects.
- SAP Composite Application Framework Core (CAF Core) is a service-oriented architecture for building and deploying composite applications. It enables modeling of different service types – entity services that represent a domain model, application services that implement business logic, and external services that offer connectivity to back-end services by means of remote function calls (RFCs) or Web services. Usage type AS Java comprises the CAF Core runtime environment, while design time tools are part of the SAP NetWeaver Developer Studio.
- Web Dynpro is the user interface technology for developing professional business applications for mobile as well as for desktop clients. Web Dynpro applications can easily be integrated into SAP NetWeaver Enterprise Portal, providing a unified layout for the end user as well as enhanced navigation support. Web Dynpro also allows, for example, the development of interactive forms using the Adobe document services.
- Adobe document services is a set of runtime services that provide a range of form and document creation and manipulation functions such as:
  - ◆ Converting XML form templates (created using Adobe LiveCycle Designer) to PDF and various print formats
  - ◆ Setting Adobe Reader rights to enable users to fill in and annotate forms, save and print them locally, and include digital signatures for authentication using the free Adobe Reader software
  - ◆ Extracting data from SAP applications into Interactive Forms and transferring form data back into SAP applications using XML

Dependencies

AS Java can be combined optionally with other usage types in one system.

■ Enterprise Portal (EP)

Purpose

EP is used to provide the Web front end of SAP NetWeaver. It brings SAP NetWeaver to the user in a uniform and consistent manner, and provides the tools to manage this knowledge, to analyze and interrelate it, and to share and collaborate on the basis of it.

The following key capabilities are tightly integrated into usage type EP:

● Portal

Offers a single point of access in a Web-based interface to SAP and non-SAP information sources, enterprise applications, information repositories, databases, and services across organizational and technical boundaries – all integrated into a single user experience.

● Knowledge Management (KM)

Enables portal users to distribute, access, and manage unstructured information within an organization in a heterogeneous repository landscape. Capabilities include collaborative document authoring and publishing, version management, search and navigation with taxonomies, automated classification and subscription, and more.

● Collaboration: Brings users, information, and applications together to ensure successful cooperation and interaction in the portal. These tools include collaboration rooms, instant messaging, e-mail, and calendar integration.

● Guided Procedures (GP)

A framework for modeling and managing processes that involve access to multiple back-end systems. GP enables runtime collaboration and execution of ad-hoc items. It also allows the invocation of various types of applications and services within a process, such as Web Dynpro and Business Server Pages (BSP) applications, and RFCs. The framework implements differentiated role-based access to the available tools in accordance with the user's functions in the enterprise.

● Application Sharing Server

This service provides data streaming services that enable application sharing capabilities provided by SAP NetWeaver Collaboration. The server handles the flow of data between portal users collaborating through the real-time-collaboration-based application sharing feature. Real time collaboration application sharing allows users to share their Windows desktop or individual applications with other portal users in real time. Remote users can interact directly with the shared desktop or application as if they were sitting at the host's machine.

The server is installed automatically with usage type EP on the portal machine. From there, it is replicated to other instances of the J2EE Engine cluster, as are other components. In a cluster environment, the load generated by Application Sharing Server is distributed amongst all Application Sharing Server machines in the cluster.

For productive use, we recommend that you install an additional system with usage type EP to run the service Application Sharing Server standalone on a dedicated host in a separate installation procedure. This reduces networking and J2EE demands generated by the server on the portal machine.

Dependencies

EP requires AS Java as a prerequisite in the same system. Optionally, it can be combined with other usage types in one system.

■ Business Intelligence (BI)

Purpose

BI is used to provide the infrastructure for:

- Data warehousing
- Various analytical technologies and functions
- Web-based reporting and analysis
- Information Broadcasting to distribute BI content by e-mail or by using the portal either as precalculated documents with past data, or as links with live data
- Open analysis interfaces that make available various interfaces for connecting front-end tools of third-party providers
- Web design API allows you to realize highly individual scenarios and demanding applications with customer-defined interface elements

BI provides the foundation for scenarios such as *Enterprise Data Warehousing*, *Enterprise Reporting, Query, and Analysis*, and *Business Planning and Analytical Service*s. It includes the complete ABAP stack of the SAP NetWeaver BI data warehouse and BI platform units.

Dependencies

BI requires AS ABAP as a prerequisite in the same system. Usually, scenarios running on usage type BI also require usage type BI Java. Optionally, it can be combined with other usage types in one system as well.

> **Note**
>
> For usage type BI, there is no installation option in `SAPinst`. Instead, you have to install AS ABAP with `SAPinst` and then SAP NetWeaver 2004s BI Content Add-On 2 or higher.

- Business Intelligence Java Components (BI Java)

  Purpose

  BI Java is used to provide the Java runtime for IT scenarios such as *Enterprise Reporting, Query, and Analysis* as well as *Business Planning and Analytical Services*. It enables variants such as *Information Broadcasting* and *Ad-hoc Query & Analysis*. It also enables Web Dynpro-based BI applications and third party data access via Universal Data Integration.

  Dependencies

  BI Java requires AS Java and EP in the same system. Usually, scenarios running on usage type BI Java also require usage types BI and AS ABAP. Optionally, it can be combined with other usage types in one system. While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java, you do not need to perform further steps in AS Java and EP.

- Development Infrastructure (DI)

  Purpose

  Development Infrastructure of SAP NetWeaver is used to provide the environment for all processes of Java-based development and Java-based software life-cycle management: In the Change Management Service (CMS), all phases of development are centrally managed, from the definition of a central development environment for each software project, to quality management and production. CMS controls the management of sources in the Design Time Repository (DTR) and of archives in the Component Build Service (CBS). The component model adds metadata to Java-based projects, which is the basis for the new development process.

  For each IT scenario that uses SAP NetWeaver Development Infrastructure (NWDI), the following two Java development scenarios of NWDI define to what extent NWDI is used:

- *Java Projects with Central Source File Storage*:
  Development with central source code versioning only (that is, only DTR is used).
- *Developing Components with the NWDI*:
  All services of the Development Infrastructure and SAP's component model are used.

Dependencies

DI requires AS Java as a prerequisite in the same system. Optionally, it can be combined with other usage types in one system.

■ Mobile Infrastructure (MI)

Purpose

Mobile Infrastructure is used to enable field personnel to participate in a business process in an "occasionally connected" mode. Occasionally connected means that a direct connection (using WLAN or GPRS) between mobile device and back end is only established at certain times – at synchronization points, when the Mobile Infrastructure Server (that is, the system with usage type MI) and Mobile Infrastructure Client exchange data in order to keep server and client updated. This enables the end user to perform process tasks completely independently from the back end system, which is extremely helpful if a steady connection cannot be guaranteed or might be too expensive. To realize this usage type, an intelligent application needs to run on each device containing a user interface, business logic, and data handling.

> **Note**
>
> Mobile Infrastructure uses Jakarta Tomcat 3.2.4.
> The Java Secure Socket Extension includes code licensed from RSA Data Security.

Dependencies

MI requires AS ABAP and AS Java as prerequisites in the same system. Although technically possible, we do not recommend that you combine MI with other usage types (besides AS ABAP and AS Java) in one system at the moment. Instead, we recommend that you install a dedicated MI system.

■ Process Integration (PI)

Purpose

PI consists of core components that model, design, automate, and integrate processes in one or more application systems. For the integration of internal and cross-company processes, PI is used to incorporate all the functions of what was formerly known as Exchange Infrastructure (XI). In addition, PI contains core components for Business Process Management for application-embedded and application-unbounded processes.

The service J2EE Adapter Engine (PI/XI) is also part of usage type PI. You use J2EE Adapter Engine (PI/XI) to connect to SAP systems (RFC adapter) and external systems. You use the various adapters in J2EE Adapter Engine (PI/XI) to convert XML- and HTTP-based messages to the specific protocol and format required by these systems, and the other way around. You can use the J2EE Adapter Engine (PI/XI) that is part of your PI system as a central J2EE Adapter Engine (PI/XI). Optionally (for performance reasons), you can install a non-central J2EE Adapter Engine (PI/XI) separately as a system with AS Java and parts of the usage type PI on a separate host.

In addition, Partner Connectivity Kit (PCK) runs on AS Java with parts of the usage type PI. It enables a system of a smaller company or subsidiary that does not run SAP NetWeaver to connect to your SAP NetWeaver systems with usage type PI.

Dependencies

PI requires AS ABAP and AS Java as prerequisites in the same system. Optionally, it can be combined with other usage types in one system.

Nevertheless, we recommend that you have a dedicated PI system. For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release of the PI system is on the same release level – if required, you have to upgrade the PI system first to the new or a higher release. In a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other usage types running in the same system.

Configuration of Systems with Usage Types

You can find information about required configuration activities in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*:

■ For certain usage types, configuration templates exist that can be applied by the Template Installer after the installation. To do this, you start the Template Installer from the SAP NetWeaver Administrator.

■ The configuration steps for systems with usage type required for an IT scenario are accessible in the following ways:

  ● Through SAP Solution Manager
    In SAP Solution Manager, you create a project and a project structure. In the configuration phase, you select configuration structures with pre-delivered SAP content for your project and make cross-scenario configuration settings. After the configuration of these basic settings, you make scenario-specific configuration settings. To configure ABAP systems, SAP Solution Manager offers executable configuration files (IMG activities).
    To be able to use SAP Solution Manager for the configuration tasks, you have to import the latest SAP Solution Manager Implementation Content (Add-On ST-ICO) that is available for your SAP Solution Manager release. For more information, see SAP Note 631042 (*Release strategy for Implementation Content (ST-ICO)*).
    SAP Solution Manager Implementation Content is available on SAP Service Marketplace at `service.sap.com/swdc` ® *Installations & Upgrades* ® *Entry by Application Component* ® *SAP Technology Components* ® *SAP Solution Manager* ® *<Release>* ® *Content* ® *ST-ICO*.

  ● In the *Technology Consultant´s Guide*
    The *Technology Consultant´s Guide* provides you with the same textual information as SAP Solution Manager, but does not offer the executable configuration files (IMG activities) for ABAP system configuration.
    The guide is available on SAP Help Portal at `help.sap.com/nw2004s` ® *SAP NetWeaver Library* ® *Technology Consultant´s Guide*

Restrictions for Systems with Multiple Usage Types

■ If you have one system with multiple usage types, be aware that we do not provide standard tools to separate these usage types to multiple systems at a later stage. For example, if you have a system with usage types A and B, you are not able to migrate it with SAP standard tools into two systems, one only with usage type A and the other only with usage type B.
    In addition, we do not provide standard tools to merge multiple systems with different usage types into one system with multiple usage types at a later stage.
    If you want to perform these tasks, you require specific project support.

The following figure shows that SAP standard system copy and migration tools do not support you in separating or merging systems with usage types.

Figure 3: No Support for Separating or Merging Systems with Usage Types
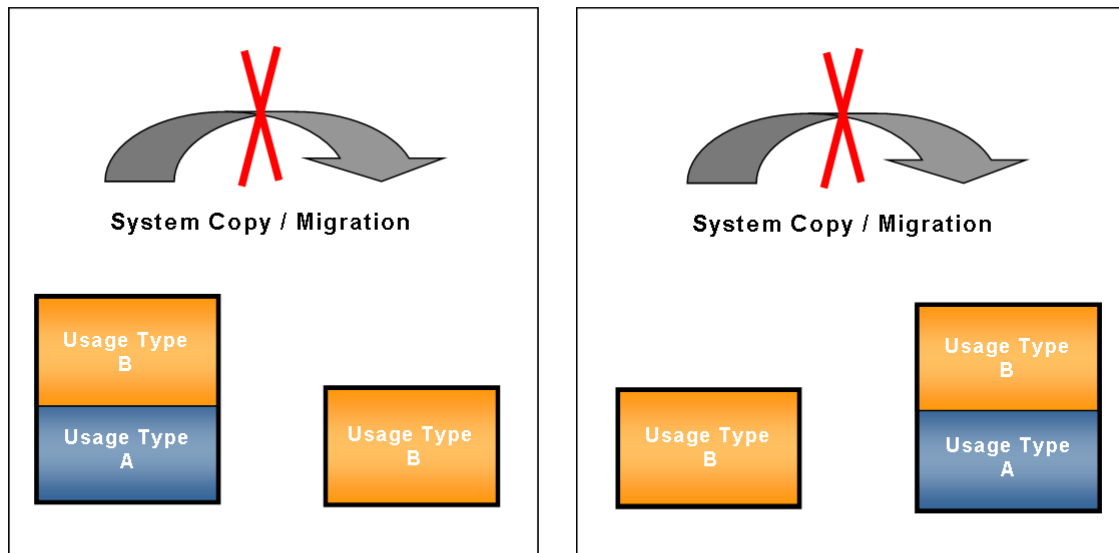
Merging and separating is not supported by standard SAP tools for system copy and migration

■ Although you can use one system for multiple usage types, client restrictions apply for the following usage types:

● PI requires a dedicated client, due to special PI requirements concerning the client pipeline. Whereas application client pipelines only send and receive messages, the central PI pipeline can also map messages to different formats before sending them.

● For BI, you should reserve a dedicated client for reporting purposes. In this client, activate SAP NetWeaver 2004s BI Content Add-On as required.

3.3.2 Standalone Engines

Standalone engines of SAP NetWeaver are additional installable software units. They do not work as full-blown systems of SAP NetWeaver, but as standalone engines that provide a specific (server) functionality in combination with one or more SAP NetWeaver systems.

Standalone engines are not part of a usage type. They do not run on AS ABAP or AS Java.

For SAP NetWeaver, the following standalone engines are available:

■ Content Server

Content Server is a separate server instance that is used to store documents or other types of content related to SAP applications. The accompanying cache server can cache content if your company operates in several locations. This reduces load on the wide area network when working with documents.

■ Gateway

It is possible to install an SAP instance of an SAP NetWeaver system based exclusively on a standalone gateway. This type of instance does not contain normal work process types (dialog, background, update, enqueue, or spool). Only the gateway process (gwrd) is started. If there is an SNA connection to an R/2 system, gateway work processes (gwwp) are also started.

■ SAP Central Job Scheduling by Redwood

SAP Central Job Scheduling by Redwood adds powerful cross-component scheduling functionality to the integration capabilities of SAP NetWeaver . The Job scheduler has the following key characteristics:

- Central functionality actively reduces TCO
- Cross-component scheduling for ABAP systems
- Seamless integration into existing CCMS monitoring solutions by retrieving and reporting scheduling monitoring information
- Many re-sell options for non-SAP features available

There are two versions available of this software:

- SAP Central Job Scheduling by Redwood (basic version), available free with SAP NetWeaver license, with which you administer jobs in your ABAP system landscape.
- SAP Central Job Scheduling by Redwood (full version), the resale version for which a fee-based license is available as an option with SAP NetWeaver. With this version, customers can also administer jobs on many non-SAP systems as well as on operating system level.

For more information, see SAP Service Marketplace at `service.sap.com/job-scheduling`.

■ liveCache

liveCache is a database engine for managing complex objects in scenarios where large volumes of data must be permanently available and modifiable. For BI, you can optionally use it as a lock server to improve the performance if you have to lock a lot of complex data records described by selection tables.

■ Search and Classification (TREX)

SAP NetWeaver Search and Classification (TREX) offers an integrated set of services. TREX services include search and retrieval in large document collections, text mining, automatic document classification, and search and aggregation over structured data in SAP applications. TREX can handle text from documents in numerous formats, including Microsoft Office and Adobe formats (PDF), and more than 30 languages. TREX search options, such as exact, boolean, fuzzy, or linguistic search, and classification options such as query-based or example-based classification, offer great power and flexibility to end users.

The BI accelerator is based on TREX technology. You need an installation based on 64-bit architecture for the BI accelerator. The hardware partners provide this variant already preconfigured as the BI accelerator box. Note that a TREX installation configured for searching in metadata and documents based on 32-bit architecture cannot be used for the BI accelerator.

Accordingly, a BI accelerator box also cannot be used for searching in metadata and documents. In order to be able to use the search function and the BI accelerator, you need separate installations.

■ Web Dispatcher

Web Dispatcher is recommended when you use an SAP system with multiple SAP Web Application Servers for Web applications. It is located between the Internet and your SAP system. It is the entry point for

HTTP(S) requests into your system, which consists of one or more Web application servers. As a "software Web switch", the Web Dispatcher can reject or accept connections. When it accepts a connection, it balances the load to ensure an even distribution across the servers.

It is also beneficial to use the Web Dispatcher if you do not need security functions (entry point in the DMZ, SSL, URL filtering), but simply want to balance the load between multiple SAP NetWeaver Application Server instances.

You can use Web Dispatcher in ABAP/Java systems and in pure Java systems, as well as in pure ABAP systems. Since Web Dispatcher is optional for every SAP system, it is not contained in the system landscapes and the implementation sequences of the IT scenarios in this documentation.

For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *SAP NetWeaver* ® *SAP NetWeaver by Key Capability* ® *Solution Life Cycle Management by Key Capability* ® *System Management* ® *Web Dispatcher*.

3.3.3 Clients

Clients are additional installable programs or tools. They either reside on local front-end PCs accessed by users or on back-end systems where they act as client programs within an SAP NetWeaver system landscape.

SAP NetWeaver has the following front-end clients and tools:

■ Adobe® LiveCycle™ Designer

Adobe LiveCycle Designer enables the creation of forms that combine high-fidelity presentation with XML data handling. The easy-to-use graphical interface of Adobe LiveCycle Designer enables users to quickly design forms, maintain form templates, define a form's business logic, make changes, and preview forms before they are deployed as Adobe PDF files.

■ Business Explorer (BI)

Business Explorer provides flexible reporting and analysis tools for strategic analyses and decision-making support within a company. These tools include query, reporting, and analysis functions. As an employee with access authorization, you can evaluate past or current data on various levels of detail and from different perspectives not only on the Web but also in Microsoft Excel.

You can use Business Explorer Information Broadcasting to distribute Business Intelligence content by e-mail either as precalculated documents with historical data, or as links with live data. You can also publish it to the Enterprise Portal.

■ J2SE Adapter Engine (PI/XI)

J2SE Adapter Engine (PI/XI) is a separate software unit. You can only use it if you have SAP NetWeaver systems with usage type PI in your system landscape. It has to be installed manually. You use J2SE Adapter Engine (PI/XI) to connect to external systems. Using the various adapters in J2SE Adapter Engine (PI/XI), XML and HTTP-based messages can be converted to the specific protocol and format required by such systems, and the other way around. In principle, you connect external systems using the adapters that are installed centrally or non-centrally in J2EE Adapter Engine (PI/XI). J2SE Adapter Engine (PI/XI) only provides some of these adapters as a standalone version with restricted functions for operating systems that do not support SAP NetWeaver 2004s, but that do have JDK 1.3.1 or higher. Therefore, you should only use J2SE Adapter Engine (PI/XI) if the platform prerequisites do not allow you to use the J2EE-based Adapter Engine (PI/XI).

■ Mobile Infrastructure Client

Mobile Infrastructure Client (MI Client) is installed locally on mobile devices, and is equipped with a Web server, a database layer and its own business logic. Staff working remotely can therefore work offline and do not have to wait for a network connection to complete time-critical business applications. Usage type MI offers tools for synchronization and data replication that make the data of the mobile device consistent with that of the back-end system.

■ SAP GUI

Note

● For SAP NetWeaver 2004s, we recommend that you use

◆ SAP GUI for Windows 6.40 (or higher) with the latest patch level.

◆ SAP GUI for Java 6.40 (or higher) with the latest revision

◆ the integrated SAP ITS 6.40

SAP GUI for Windows 6.20 (as of patch level 57) is compatible with SAP NetWeaver 2004s as well.

● If you require BI Add-On or KW Add-On comprised by SAP GUI, you need SAP GUI for Windows 6.40 Compilation 4 (or higher), since the new BI and KW add-on components required for SAP NetWeaver 2004s are only available as of this compilation CD.

● For more information about the SAP GUI family, see SAP Service Marketplace at `service.sap.com/sapgui`.

SAP offers three different client applications for accessing ABAP applications in SAP systems (such as SAP NetWeaver 2004s systems with usage type AS ABAP). This "SAP GUI family" consists of:

● SAP GUI for HTML

SAP GUI for HTML is based on the SAP integrated Internet Transaction Server (ITS) which is included in the installation of SAP NetWeaver systems as of SAP NetWeaver '04. On the client side, only a suitable browser (such as Internet Explorer 6.0 or Firefox 1.0) and a virtual machine are required. SAP ITS 6.20 is not compatible with SAP NetWeaver 2004s.

● SAP GUI for the Java environment (SAP GUI for Java)

SAP GUI for Java is a generic SAP GUI that covers a variety of platforms.

For more information about the installation of SAP GUI for Java, see the documentation *Installation Guide – SAP Front End*.

● SAP GUI for the Windows environment (SAP GUI for Windows)

SAP GUI for Windows is SAP's universal client for accessing all SAP applications built on ABAP technology. It is available on the Microsoft Windows platform only and offers the broadest feature set of all members of the SAP GUI family.

For more information about the installation of SAP GUI for Windows, see the document *Installation Guide – SAP Front End* .

SAP GUI also includes optional add-ons, for example BI add-on and KW add-on, that might be required for certain IT scenarios.

■ SAP NetWeaver Developer Studio

SAP NetWeaver Developer Studio introduces SAP's own environment for developing Java-based, multilayered business applications. The new development environment is based on Eclipse, an open source product, whose open plug-in architecture provides a suitable platform for incorporating specific functions.

■ SAP NetWeaver Developer Workplace

SAP NetWeaver Developer Workplace consists of SAP NetWeaver Developer Studio and an SAP NetWeaver 2004s system with usage types AS Java and EP. It is used for local development and testing. It is available only on Microsoft Windows with MySQL, MaxDB, or Microsoft SQL Server.

3.4 Transition from SAP NetWeaver '04 to 2004s

The following table is intended to ease the transition from SAP NetWeaver '04 and earlier releases to SAP NetWeaver 2004s. Although it is not complete, it should give you an understanding of which SAP NetWeaver 2004s IT scenarios might be relevant for you based on given topics, key words, technical scenarios, and earlier components used with SAP NetWeaver '04 and in earlier releases.

Topics / SAP NetWeaver '04 Technical Scenarios / Former Components	SAP NetWeaver 2004s IT Scenarios
ABAP development	Developing, Configuring, and Adapting Applications
Adaptive computing	SAP NetWeaver Operations
Administration	SAP NetWeaver Operations
Authorizations	Integrated User and Access Management
BI Information Broadcasting	■ Enabling User Collaboration ■ Enterprise Reporting, Query, and Analysis
Business Task Management	■ Enabling User Collaboration ■ Business Task Management
CCMS	SAP NetWeaver Operations
Co-existence	Enabling Platform Interoperability
Composite Application Framework	Developing, Configuring, and Adapting Applications
Data archiving	SAP NetWeaver Operations
Document management	Enterprise Knowledge Management
Dual portal	Enabling Platform Interoperability
Dual vendor	Enabling Platform Interoperability
Enterprise Content Management	Enterprise Knowledge Management
Global portal	Running an Enterprise Portal
Guided Procedures	Business Process Management
Human interaction	Business Task Management
IBM	Enabling Platform Interoperability
Identity Management	Integrated User and Access Management
Implementation and configuration of business content	Software Life-Cycle Management
Installation	Software Life-Cycle Management
Interoperability	Enabling Platform Interoperability
Interoperability with non-SAP systems	Enabling Platform Interoperability

Topics / SAP NetWeaver '04 Technical Scenarios / Former Components	SAP NetWeaver 2004s IT Scenarios
Java Authentication and Authorization Service (JAAS)	Authentication and Single Sign-On
Java development	Developing, Configuring, and Adapting Applications
Java Message Service (JMS)	Enabling Platform Interoperability
Job scheduling	SAP NetWeaver Operations
Knowledge Management & Collaboration (KMC)	■ Running an Enterprise Portal ■ Enterprise Knowledge Management ■ Enabling User Collaboration
Logon	Authentication and Single Sign-On
Maintenance	Software Life-Cycle Management
Messaging	Enabling Platform Interoperability
Microsoft	Enabling Platform Interoperability
Mobile Web Dynpro	Mobilizing Business Processes
Monitoring	SAP NetWeaver Operations
MQSeries	Enabling Platform Interoperability
Multiple portals	Enabling Platform Interoperability
Multiple vendors	Enabling Platform Interoperability
Passwords	Authentication and Single Sign-On
PDK for .NET	Developing, Configuring, and Adapting Applications
Roles	Integrated User and Access Management
SAP Business Intelligence (SAP BI)	■ Business Planning and Analytical Services ■ Enterprise Reporting, Query, and Analysis ■ Enterprise Data Warehousing
SAP Enterprise Portal (SAP EP)	■ Running an Enterprise Portal ■ Enterprise Knowledge Management ■ Enabling User Collaboration
SAP Knowledge Warehouse (SAP KW)	Enterprise Knowledge Management
SAP Mobile Infrastructure (SAP MI)	Mobilizing Business Processes
SAP NetWeaver Administrator	SAP NetWeaver Operations
SAP NetWeaver Development Environment	Developing, Configuring, and Adapting Applications
SAP NetWeaver Java Development Infrastructure and its administration	Software Life-Cycle Management
SAP Exchange Infrastructure (SAP XI)	■ Enabling Application-to-Application Processes ■ Enabling Business-to-Business Processes ■ Business Process Management ■ (Enabling Enterprise Services)
Search	Enterprise Knowledge Management

Topics / SAP NetWeaver '04 Technical Scenarios / Former Components	SAP NetWeaver 2004s IT Scenarios
Security	■ Authentication and Single Sign-On ■ Integrated User and Access Management
Simple Object Access Protocol (SOAP)	Enabling Platform Interoperability
Single sign-on across portals	Enabling Platform Interoperability
Software life-cycle tasks	Software Life-Cycle Management
System copy	Software Life-Cycle Management
System management	Enabling Platform Interoperability
Uniform Content Access	Running an Enterprise Portal
Upgrade	Software Life-Cycle Management
User Management	Integrated User and Access Management
Web Server Infrastructure (SAP Web Application Server)	Enabling Enterprise Services
Web Services for Remote Portlets (WSRP)	Enabling Platform Interoperability
Web Services Interoperability	Enabling Platform Interoperability
WebSphere	Enabling Platform Interoperability
Workflow	Business Process Management

4 System Landscape

4.1 Planning Your System Landscape

This section gives you a guideline of the steps required to identify your technical system landscape for SAP NetWeaver:

1. You determine the IT scenarios of SAP NetWeaver that you want to implement.
2. You determine which installable software units (that is, systems with usage types, standalone engines, and clients) are required for these IT scenarios.
3. You determine the required shared services that you want to run in central systems in your system landscape and the landscape aspects relevant for their implementation.
4. You determine your system landscape; that is, you decide how many systems you require and how you want to use each of these systems.
5. Together with your hardware partner and technical consultant, you map the required systems and standalone engines of SAP NetWeaver to hosts.
6. You implement your system landscape of SAP NetWeaver.

The following figure shows what an overall system landscape of SAP NetWeaver could look like:

Figure 4: SAP NetWeaver System Landscape
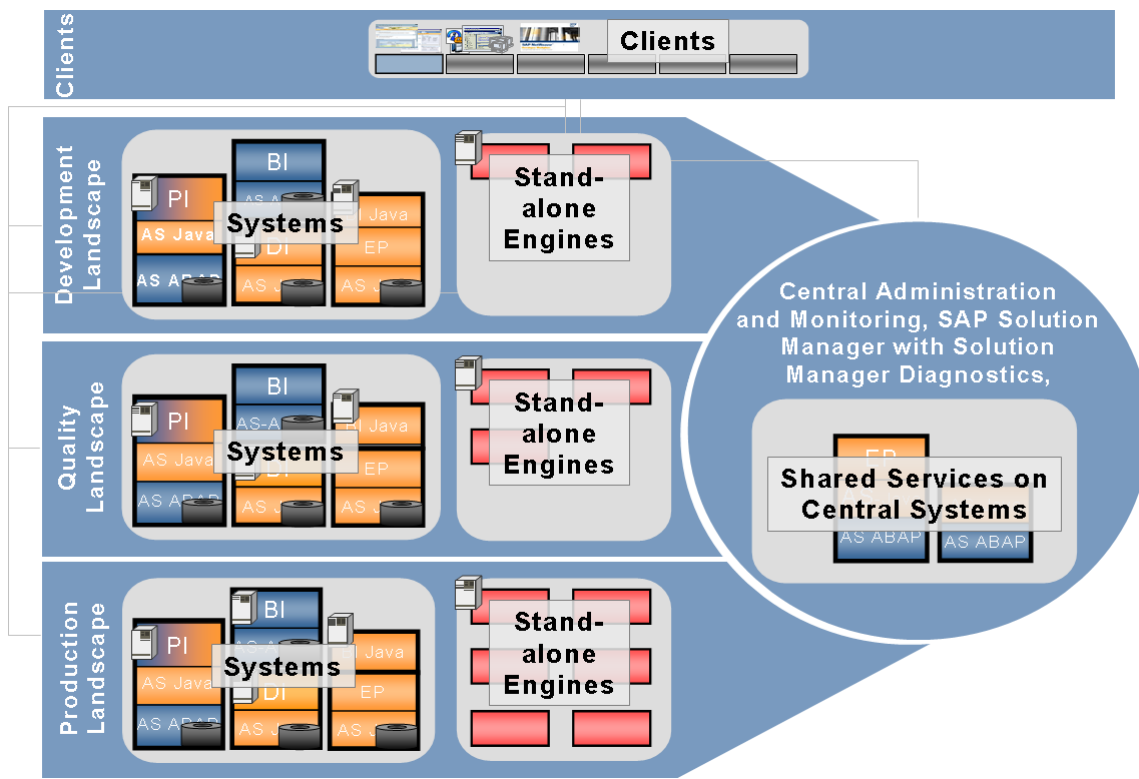
In this example, you have different environments for development, quality, and production. Additionally, there are shared services that you normally use across your system landscape, not just for your SAP NetWeaver landscape. You normally run shared services on central systems in your landscape.

Process

To plan your SAP NetWeaver system landscape, proceed as follows:

1. You determine the IT scenarios of SAP NetWeaver that you want to implement. For more information about the IT scenarios of SAP NetWeaver, see *Overview* [page 5] and the overview sections for each scenario in section *IT Scenarios* [page 65].

2. You determine which installable software units (that is, systems with usage types, standalone engines, and clients) are required for these IT scenarios. For more information, see the *Mapping of IT Scenario to Usage Types* [page 5] section.

3. You determine the required *shared services* [page 30] (such as SAP Solution Manager or SAP NetWeaver Administrator) that run on central systems in your system landscape and the landscape aspects relevant for their implementation.

4. You determine your system landscape. Consider the landscape-relevant aspects concerning your required *IT Scenarios* [page 65] and *Reference System Landscapes* [page 54] to decide how many systems you require and how you want to use each of these systems.

Figure 5: Example of a Distribution of Required Functions to Systems
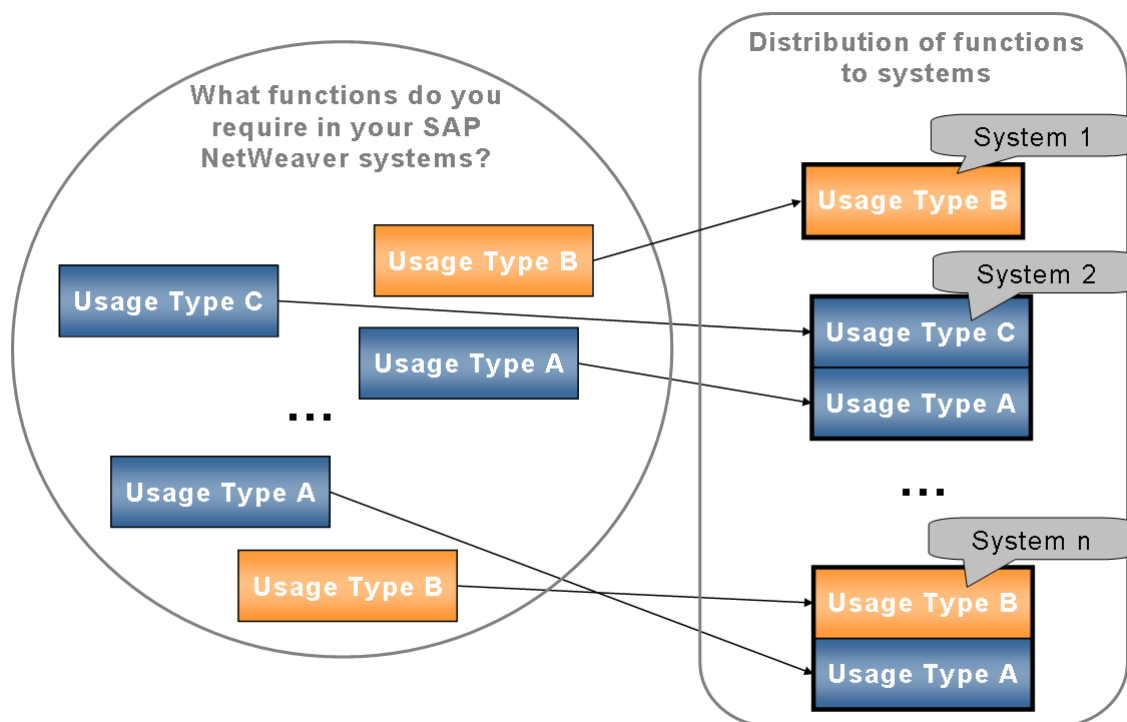
> 💡 Note
>
> While systems with multiple usage types may be easier to administrate, they may also have certain drawbacks. You cannot distribute usage types installed together in one system to several systems afterwards without specific project support. For example, if you have a system with usage types A and C, you cannot migrate it with standard procedures into two systems, one with usage type A and the other with usage type C only. As a result, you have to use other methods for scalability (such as hardware solutions, clustering or the installation of additional dialog instances).
>
> You have to patch and upgrade all components installed in a single system together, which may also be a drawback for you. This way, aspects of the business logic you require can come into play, as certain components may not be available due to patch level requirements of other components in the same system.
>
> In addition, consider such aspects as security, backup/restore, system copy, and monitoring. Total cost of ownership considerations should also comprise hardware costs, cost for operation, and costs of planned and unplanned production downtime.
>
> How you judge the different aspects will depend on your requirements. What is a drawback for one customer may be an advantage for another customer. No general guideline can be given, as this heavily relies on your requirements.
>
> As a result, it is mandatory to plan your system landscape well in advance according to your current and possible future requirements. We recommend that you perform this task together with a technical consultant.

You now have an overall idea of your required system landscape comprising the systems, standalone engines, and clients needed to drive your IT scenarios.

Figure 6: Example of a System Landscape
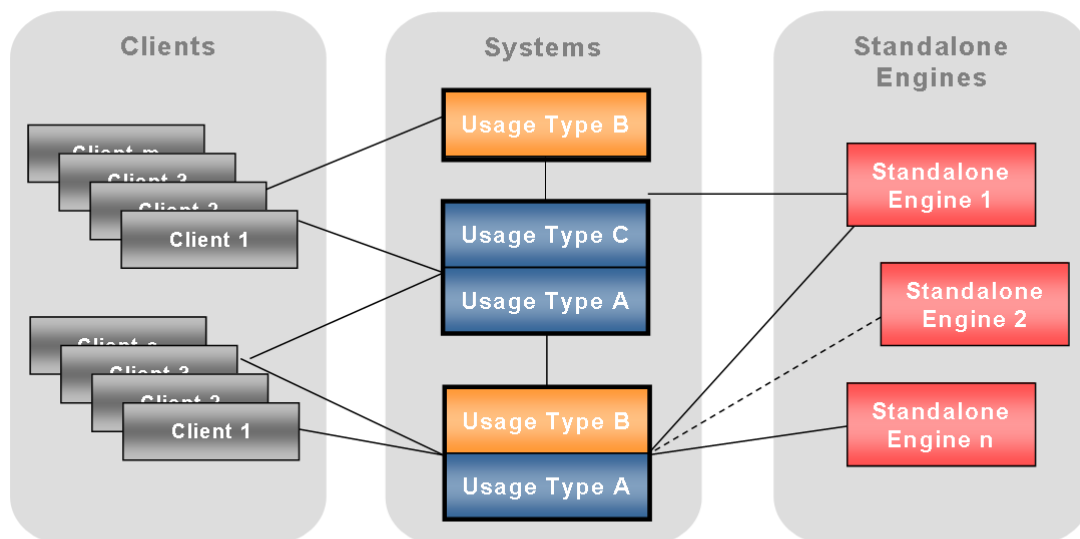
> **Note**
>
> Depending on your requirements, it could also make sense to have multiple systems with the same usage type, each configured for a more specific purpose than the usage type itself. For example, you could decide to have three DI systems in your landscape: one for Design Time Repository (DTR), one for Change Management Service (CMS), and one for Component Build Service (CBS).

5. You map the required systems and standalone engines of SAP NetWeaver to hosts.

> **Note**
>
> No general guideline can be given for this since it relies heavily on your requirements. You should therefore perform this task together with your hardware partner and your technical consultant.

There are several sources of information for the sizing of each system:

■ Your first point of reference is the Quick Sizer.
   SAP built the Quick Sizer as an online sizing questionnaire Internet application in close cooperation with its hardware partners. This tool delivers general sizing categories, based on your volume load estimates. The results provide an objective basis for sizing, independent of platform and configuration. For more information, see SAP Service Marketplace at:

- `service.sap.com/sizing` for the SAP NetWeaver 2004s sizing guides available under *Sizing Guidelines* ® *Business Suite & Services:*
    - ◆ *Sizing TREX*
    - ◆ *Sizing the Content Server — Short Guide*
    - ◆ *Sizing the Web Dispatcher*
- `service.sap.com/quicksizer` for more information and access to the tool itself

■ Also consider the following important aspects concerning sizing:
- High availability
    For more information, see SAP Service Marketplace at `service.sap.com/ha`.
- Unicode
    For more information, see SAP Service Marketplace at `service.sap.com/unicode`.
- 64-bit platforms

■ Contact your hardware partner to get the appropriate number of sized hosts.

The platform-independent, abstract results of the Quick Sizer can be used by any of our hardware partners to create a concrete offer. SAP itself does not make any hardware recommendations; the responsibility for sizing and detailed hardware configuration lies with the hardware partners.

Figure 7: Example of Mapping of Systems and Standalone Engines to Three Hosts
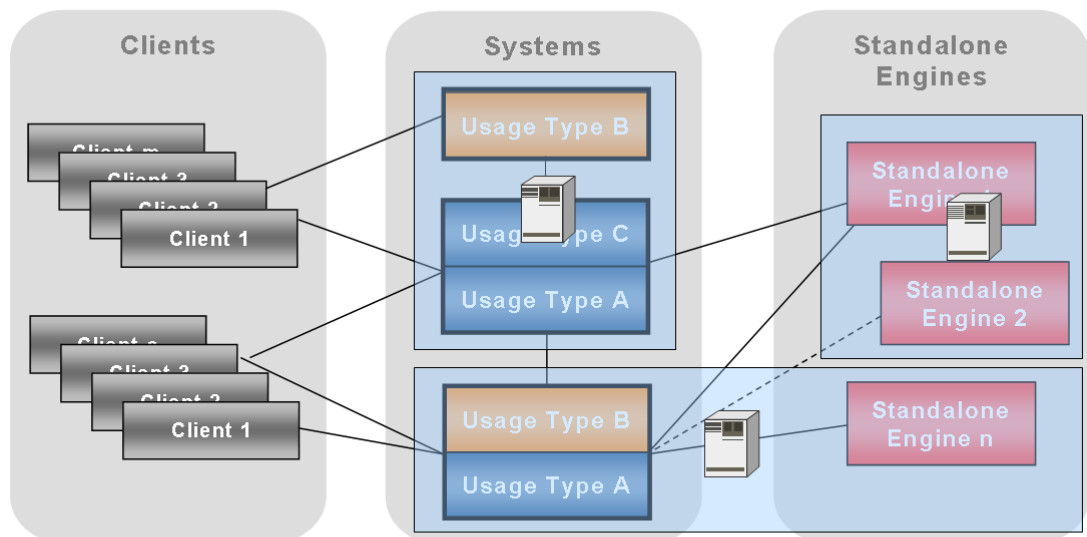
Note

Optionally, you could also distribute single systems to multiple hosts. For example, you could decide to install the database instance of an SAP system on a separate host for performance reasons or distribute other system instances to achieve high availability.

To provide a mapping that fits your required functions and performance, your hardware partner and your technical consultant have to identify the number of required instances of SAP NetWeaver and get an idea of how to distribute these instances to hosts and what functions will run on which instance. For this, the hardware partner and the technical consultant have to consider many different aspects, such as::

- Number of required SAPS (SAP Application Benchmark Performance Standard) for each system (provided by Quick Sizer)
- Landscape-relevant aspects concerning security. For more information, see the *SAP Security Guide* in the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Administrator's Guide* ® *SAP NetWeaver Security Guide*.
- Landscape-relevant aspects concerning scalability
- Landscape-relevant aspects concerning high availability

For more information about relevant aspects for the mapping of systems to hosts, see the document *Technical Infrastructure Guide − SAP NetWeaver* available on SAP Service Marketplace at `service.sap.com/installNW2004s`.

6. You implement your SAP NetWeaver system landscape.

For more information, see the corresponding *Implementation Sequence* section(s) for your IT scenarios.

> **Note**
>
> Also consider using *SAP NetWeaver Rapid Installer* [page 63], which provides an alternative implementation tool to support the initial setup of an SAP NetWeaver system landscape with specific scenarios. SAP NetWeaver Rapid Installer is an installation and configuration wizard that reduces the time needed to install, deploy, and configure certain IT scenarios of SAP NetWeaver.

4.2 Shared Services

You normally run shared services on central systems in your system landscape. For SAP NetWeaver, there are the following features that could be used to realize shared services:

■ SAP Solution Manager

Used to implement, train, test, maintain, monitor, control change and manage incidents of your SAP solution system landscape (open end to end application management).

> **Note**
>
> Be aware that you require an SAP Solution Manager system (minimum release 3.2 SP8) to install or upgrade to SAP NetWeaver 2004s SR1. An SAP Solution Manager system is required to generate the SAP Solution Manager key needed during the installation or upgrade process. Without this key, the installation or upgrade process cannot continue. For more information, see SAP Note 805390.

■ Solution Manager Diagnostics

An integral part of SAP Solution Manager that is running as a Java application on the Java stack of SAP Solution Manager 4.0. It is used to analyze the root cause of incidents in your landscape in an efficient and safe way. Before Go-Live, a Solution Manager Diagnostics has to be set up and made accessible remotely.

■ SAP NetWeaver Administrator

SAP NetWeaver Administrator is the central administration component, which is used for monitoring and administering Java applications. It is included in SAP NetWeaver systems with AS ABAP and AS Java. For

SAP NetWeaver 2004s, SAP NetWeaver Administrator is focused on Java and is used in combination with SAP Visual Administrator. In future, administration and monitoring functionality for Java and ABAP systems will be integrated into SAP NetWeaver Administrator.

- Alert Monitor

    If your system landscape consists of ABAP components only, use the alert monitor that is included in AS ABAP (transaction RZ20) as the central tool for monitoring your entire system landscape. If malfunctions or problems occur, alerts are generated. These alerts are displayed in various monitors in a tree structure, and you can assign auto-reactions to them. In this way, you are informed quickly and reliably about an alert – even if you are not working in the alert monitor at that time.

- SAP Central Job Scheduling by Redwood

    SAP Central Job Scheduling by Redwood enables central job scheduling and job monitoring of current and old releases of AS ABAP systems (as of Basis Release 3.1). Jobs and job chains can now be handled conveniently in a graphical UI.

- System Landscape Directory

    The System Landscape Directory is the central directory of system landscape information relevant for the management of your software lifecycle. It contains a description of your system landscape (that is, software components that are currently installed) and a repository of software components that can theoretically be installed in your landscape (such as the software components available from SAP).

- Software Lifecycle Manager

    SAP has developed a new tool called Software Lifecycle Manager, which you can use optionally to simplify and ease all software logistics tasks (installation, upgrade and patch installation) in your system landscape. Software Lifecycle Manager of SAPNetWeaver complements SAP Solution Manager in managing the lifecycle of your SAP solutions and products that run on multiple SAP components more effectively.

- Adaptive Computing Controller

    The Adaptive Computing Controller enables users to control an adaptive computing landscape from a single point through observation, operation and dynamic resource distribution. With adaptive computing, hardware, software, and system services are able to adapt to changing business needs. In the Adaptive Computing Controller, the run-time data of logical and physical landscapes can be monitored, application services can be started/stopped/relocated, and hardware resources can be assigned to application services. The operation can also be mass executed and be planned as tasks to be executed.

4.2.1 Use Cases

You can use these features for use cases that are normally performed centrally. This section describes these use cases.

4.2.1.1 Support Infrastructure

A key requirement for effective support of IT solutions is the ability to perform root cause analysis with speed and efficiency.

With SAP Solution Manager, SAP has long had an infrastructure in place for its ABAP applications that efficiently supports SAP solutions. This helps ensure the high availability and smooth running of business processes. For more information, see the *SAP Solution Manager* section.

With Solution Manager Diagnostics, this knowledge has been extended to Java applications. If there are problems with the performance of iViews in SAP Enterprise Portal, or if homegrown Java applications cause instability, Solution Manager Diagnostics helps trace the cause to eradicate the problem rapidly. Solution Manager Diagnostics is fully integrated into SAP Solution Manager 4.0. Solution Manager Diagnostics also contains two third-party tools, WilyTech Introscope for measuring performance, as well as troubleshooting problems of the J2EE Engine and applications running on it, and Mercury Loadrunner, which enables SAP Support to produce a defined load in the SAP solution landscape remotely. For more information, see the *Solution Manager Diagnostics* section.

The support infrastructure provides SAP Support with safe access to your productive landscape for safe root cause analysis, so ensuring that SAP Support does not change your landscape inadvertently. You require a support infrastructure to run SAP NetWeaver.

The following figure shows the overall infrastructure, including SAP NetWeaver administration tools that are used by administrators or operators at the customer site.

Figure 8: Overall Infrastructure
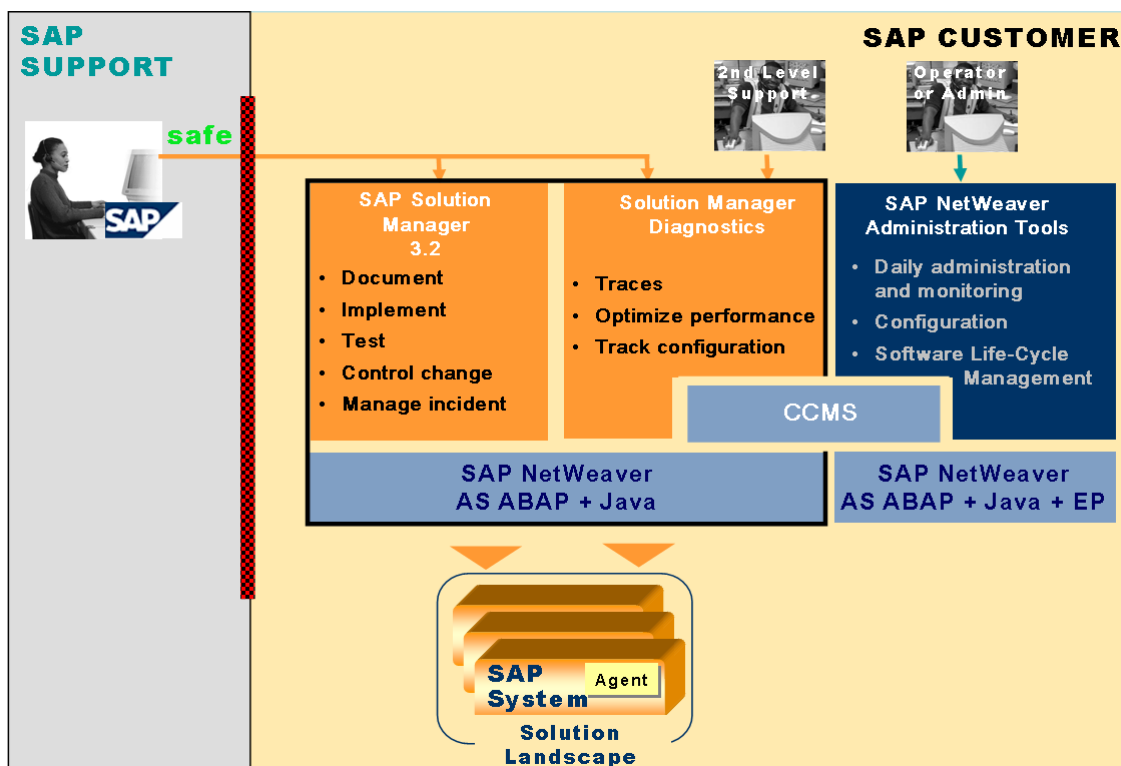
Landscape Aspects

■ If you run pure ABAP system landscapes, you have to use SAP Solution Manager as a central support platform.

■ If you use Java productively (for example, if you are using EP, PI, Web Dynpro or SAP ESS/MSS as part of mySAP ERP 2005), besides SAP Solution Manager, you have to set up Solution Manager Diagnostics for supportability reasons.

Implementation Sequence

The following table shows an overview of the required implementation steps:

No.	Action [Corresponding Documentation]	Remarks and Subsequent Steps
1	Install SAP Solution Manager 4.0 (includes Solution Manager Diagnostics) [*Master Guide — SAP Solution Manager* available on SAP Service Marketplace at `service.sap.com/instguides` ® *SAP Components* ® *SAP Solution Manager* ® *Release 4.0*]	
2	Install SAP agent package on each SAP NetWeaver component host [Installation guide on Support toolset CD]	The SAP agent package delivers data to the central monitoring system.
3	If required, make sure that you have a *System Landscape Directory* [page 46] running in your system landscape.	
4	If required, install Wily Introscope from the *Wily Introscope* CD.	
5	If you have installed Wily Introscope, install Wily Agent on each SAP NetWeaver component host that runs AS Java.	
6	If required, install Mercury Load Generator from the *Mercury Interactive* CD.	
7	Configure SAP Solution Manager and Solution Manager Diagnostics.	Solution definitions in SAP Solution Manager are a prerequisite for the configuration of Solution Manager Diagnostics.
8	Perform the supportability setup. [*Supportability Setup Guide — Solution Manager Diagnostics*]	

4.2.1.2 Central Administration and Monitoring of SAP NetWeaver

While the support infrastructure is focused on the support role, which guarantees remote accessibility and safe root cause analysis without making any changes, the focus of the central administration and monitoring infrastructure is to efficiently support daily tasks of customer administrators such as monitoring, starting and stopping applications or instances, automation, and configuration.

These daily tasks are currently safeguarded by several features and services:

■ SAP NetWeaver Administrator for central administration and monitoring
■ SAP Central Job Scheduling by Redwood, which enables central job scheduling and job monitoring of current and old releases of AS ABAP systems (as of Basis Release 3.1). Jobs and job chains can now be

handled conveniently in a graphical UI. For more information about job scheduling, see SAP Service Marketplace at `service.sap.com/job-scheduling`.

- System Management

  For most customers, it is essential to analyze SAP NetWeaver with respect to service level agreements. In the past, this has been done using expensive third party tools. Now customers can collect landscape-wide monitoring information centrally and forward this information to SAP Business Intelligence for powerful history or forecast analysis. Results can be presented in a convenient Web-based format.

  Moreover, with the next release of SAP NetWeaver, highly detailed statistics information from all parts of the landscape is forwarded to SAP Business Intelligence. This offers detailed drill-down opportunities in case of low system performance. For more information, see SAP Service Marketplace at `service.sap.com/systemmanagement`.

- History and forecast analysis using CCMS, together with the powerful reporting engine of SAP Business Intelligence

  CCMS is included in SAP NetWeaver systems with usage type AS ABAP. CCMS provides alert monitoring of both Java and ABAP parts, performance history, and performance statistics.

- On the back-end, the well known CCMS agents are used for data provisioning. There is no need to touch the productive components directly. For more information about the CCMS agents, see SAP Service Marketplace at `service.sap.com/~sapidb/011000358700003240702001E`.

- SAP NetWeaver enables adaptive computing, in which hardware, software, and system services are able to adapt to changing business needs. SAP NetWeaver provides the platform for users to run any service anytime on any server, and it provides a central point of control for flexible computing-resource assignment, the Adaptive Computing Controller, which is a shared service.

  The Adaptive Computing Controller enables users to control the whole landscape from a single point through observation, operation, and dynamic resource distribution. The runtime data of logical and physical landscapes can be monitored, application services can be started, stopped, and relocated, and hardware resources can be assigned to application services. The operation can also be mass executed and be planned as tasks to be executed.

  For more information about the installation of the Adaptive Computing Controller, see the *SAP NetWeaver Operations* IT scenario.

  For more information about Adaptive Computing in general, see SAP Service Marketplace at `service.sap.com/adaptive`.

- System Landscape Directory as a complete landscape directory

Landscape Aspects

- If you run pure ABAP system landscapes, you can use SAP Solution Manager or the Alert Monitor for central monitoring. There is no need to implement System Landscape Directory for administration and monitoring purposes in this case.

- If you use Java productively (for example, if you are using EP, PI, Web Dynpro or SAP ESS/MSS as part of mySAP ERP 2005), besides SAP Solution Manager, we recommend that you also set up SAP NetWeaver Administrator for optimal monitoring and administration and support. If required, you can also install SAP Central Job Scheduling by Redwood on the central administration and monitoring host.

  Depending on your system landscape, the other features of central administration and monitoring listed above are part of your productive business processes. SAP recommends that you centralize these SAP NetWeaver administration tools on a central administration and monitoring system (that is, a dedicated

SAP NetWeaver 2004s system with usage types AS ABAP, AS Java, and EP). The system should run on a host where no business processes are running. This system has to be ranked productive with respect to system backup, availability, security, and so on.

If required, you can also install SAP Central Job Scheduling by Redwood on the central administration and monitoring host.

If you do not have a System Landscape Directory in your system landscape yet, you can run a central System Landscape Directory in the SAP NetWeaver Administrator system.

If you already have a production System Landscape Directory (for example, for SAP NetWeaver Exchange Infrastructure), we recommend that you run a separate System Landscape Directory for administration and monitoring. For this, configure an additional System Landscape Directory on the SAP NetWeaver Administrator system and synchronize the data of both the central and the administration and monitoring System Landscape Directories consecutively.

■ If you want to perform adaptive computing with SAP NetWeaver 2004s, Adaptive Computing Controller 1.0 from SAP NetWeaver '04 is used, which is running on an SAP Web AS Java 6.40.

Implementation Sequence

SAP NetWeaver administration tools and their implementation are covered by the *SAP NetWeaver Operations* IT scenario.

4.2.1.3 Collection of Landscape Data and Central Planning of Software Life-Cycle Tasks

The support infrastructure and the SAP NetWeaver administration tools rely on system landscape data. Concerning the management of this landscape data, we need to distinguish two cases:

1. If the landscape consists of ABAP components only, SAP Solution Manager can collect all required landscape data. There is no need to implement System Landscape Directory for the collection of landscape data in this case.

2. If there are non-ABAP components in the solution landscape, System Landscape Directory is mandatory. The landscape data that is automatically gathered by System Landscape Directory is replicated to SAP Solution Manager.

   System Landscape Directory has several topology options. They offer different grades of availability at the expense of low administration and operation effort. As a result, there is no generic rule for how to set up SLD in your system landscape.

   For more information, see the *System Landscape Directory* section.

In a system where the System Landscape Directory is configured, you can optionally use Software Lifecycle Manager to plan software lifecycle tasks (such as the realization of SAP NetWeaver IT scenarios in your system landscape). Software Lifecycle Manager is included in SAP NetWeaver 2004s systems with usage type AS Java – no further configuration is required to bring Software Lifecycle Manager into operation on such a system with configured System Landscape Directory. For more information, see the *Software Lifecycle Manager* section.

4.2.1.4 Authentication and Single Sign-On

Before implementing your system landscape, plan how to implement authentication and how to integrate different systems into a Single Sign-On landscape. Single Sign-On reduces complexity for end users, saving them valuable time, while also reducing administration effort for resetting passwords, thereby contributing to TCO reduction.

After logging on to the portal where authentication takes place, all systems in the landscape – no matter if they are based on AS ABAP, AS Java, or both – can be accessed.

For more information, see the *Authentication and Single Sign-On* IT scenario.

4.2.1.5 Integrated User and Access Management

In a system landscape containing a combination of ABAP and Java components, we recommend that you integrate your user and access management so that you can use the same user data across different systems, administrate this data centrally, and control access to data. SAP's mature, fine-grained authorization concept allows detailed control of access rights. SAP NetWeaver provides both ABAP and Java-based user management solutions. The user management solution that you use to administrate your user data depends on factors such as the type of systems that are running in your landscape.

If you want to use central user administration, we recommend that you run it in a non-production system. If you do not have a central user administration yet, you can, for example, realize it in the SAP Solution Manager system or the central administration and monitoring system.

For more information, see the *Integrated User und Access Management* IT scenario.

4.2.2 Examples for the Overall System Landscape of Shared Services

In this section, we provide examples of how shared services can be set up depending on the system landscape they are intended for. The following examples aggregate the landscape aspects given in the *Use Cases* section.

> 💡 Note
> The following sections and figures mostly do not show information about the life-cycle of shared services. For example, you may also need a development and test/quality assurance system for SAP Solution Manager. You should consider this aspect in addition to the information given in this section based on your requirements.

Pure ABAP Landscape

If you run a pure ABAP system landscape, you have to use SAP Solution Manager as the central monitoring and support platform. Monitoring can be accomplished by the Alert Monitor (transaction RZ20) or SAP Solution Manager. Optionally, you can use the SAP Solution Manager system for central user administration. You do not need to use System Landscape Directory. The following figure shows an ABAP-only landscape with SAP Solution Manager.

Figure 9: ABAP-Only Landscape with SAP Solution Manager
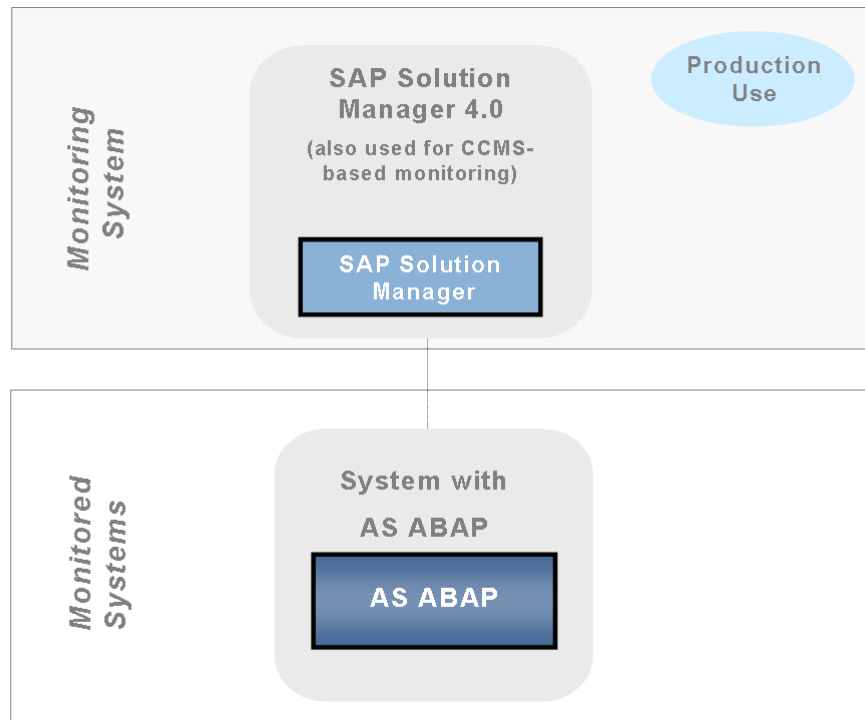
Small Customer Landscapes with Java

If you use Java productively (for example, if you are using EP, PI, Web Dynpro or SAP ESS/MSS as part of mySAP ERP 2005), besides SAP Solution Manager, you have to set up additional components for optimal monitoring, administration, and support. Solution Manager Diagnostics is already fully integrated into SAP Solution Manager 4.0 as a central hub for the support role. SAP recommends that you also set up SAP NetWeaver Administrator as central hub for administrators.

In the case of very small landscapes or test landscapes, you can activate SAP NetWeaver Administrator in a production business system with usage types AS ABAP, AS Java, and EP. If required, you can also install SAP Central Job Scheduling by Redwood on the corresponding host.

In the administration and monitoring system, you should set up a System Landscape Directory. A gateway is required for the ABAP data suppliers of the System Landscape Directory. You can use the corresponding gateway of AS ABAP of the administration and monitoring system for this.

In the system where the System Landscape Directory runs, you can optionally use Software Lifecycle Manager.

Optionally, you can use the SAP Solution Manager system for the central user administration.

The following figure shows the option where SAP Solution Manager and SAP NetWeaver Administrator are installed in one system:

Figure 10: SAP Solution Manager and SAP NetWeaver Administrator in One System
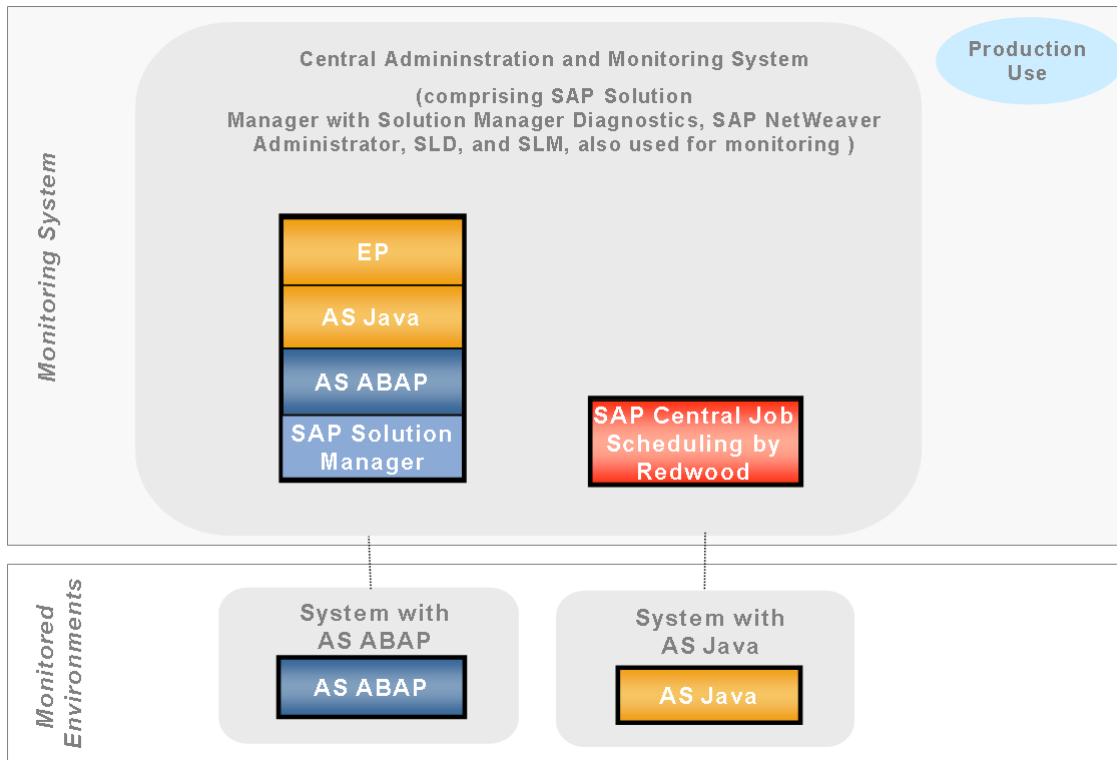
The following figure shows the option where SAP NetWeaver Administrator is activated in a production business system, whereas SAP Solution Manager runs on a separate system - for this option, also see the *Minimal System Landscape* section that shows the overall minimal system landscape of SAP NetWeaver 2004s:

Figure 11: SAP Solution Manager and SAP NetWeaver Administrator in Separate Systems
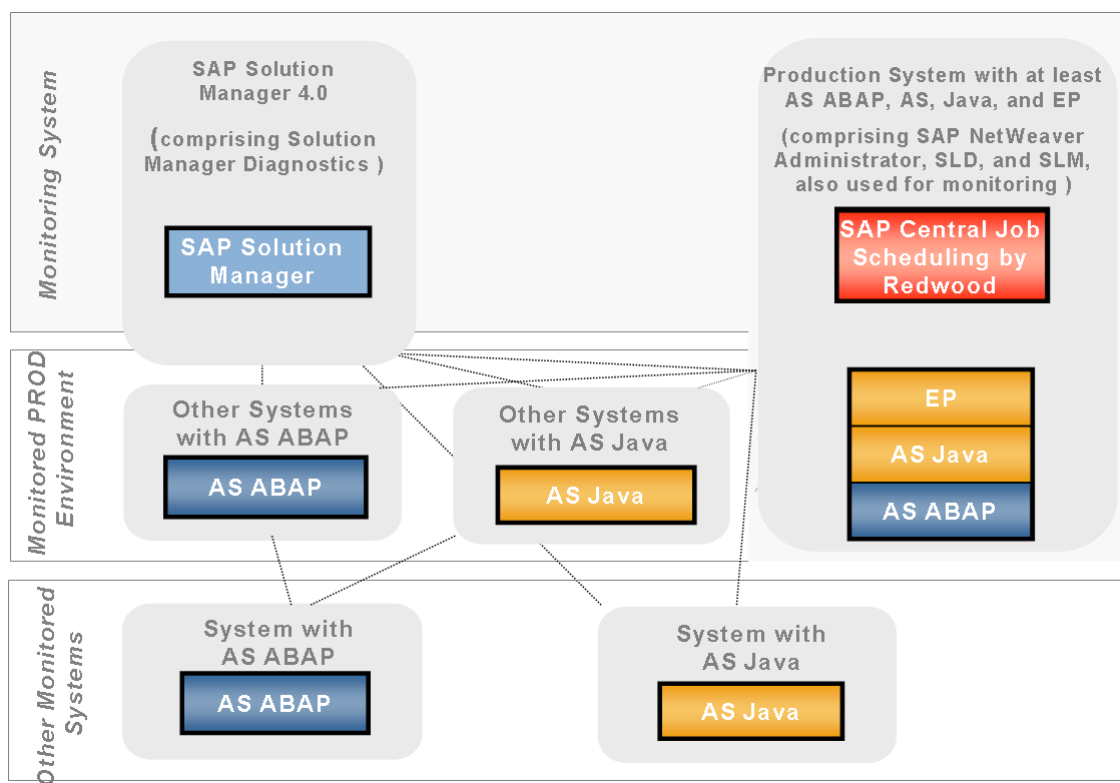
Medium/Large Customer Landscapes with Java

For medium and large customer landscapes, you can install a central SAP Solution Manager 4.0 system and a central administration and monitoring system. Solution Manager Diagnostics is already fully integrated into SAP Solution Manager 4.0 as a central hub for the support role. If required, you can also install SAP Central Job Scheduling by Redwood on the central administration and monitoring host.

In the central administration and monitoring system, you can set up the central System Landscape Directory. If you already have a central System Landscape Directory in place, we recommend that you install an additional System Landscape Directory for administration purposes in the central administration and monitoring system only if the existing System Landscape Directory is running in a non-production system.

In a system where the System Landscape Directory runs, you can opt to use Software Lifecycle Manager.

A gateway is required for the ABAP data suppliers of the System Landscape Directory. The corresponding gateway of AS ABAP of the central administration and monitoring system can be used for this.

You could opt to use the SAP Solution Manager system or the central administration and monitoring system for the central user administration.

The following figure shows an appropriate landscape.

Figure 12: Medium/Large Customer Landscapes with Java
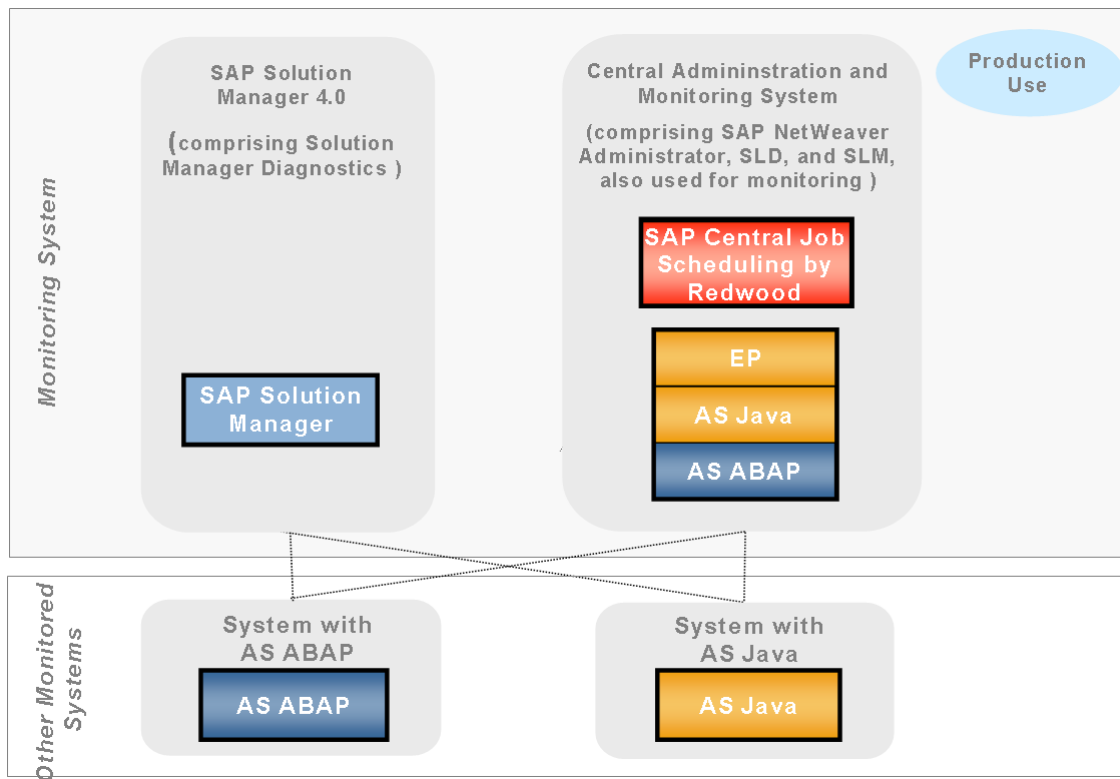
Large Customer Landscapes with Java and Special Requirements

Large customers who have environments in their landscape that are distributed, administrated by different groups, or separated for security reasons, can consider a dedicated administration and monitoring system for one, several, or all of their environments.

In this case, two central systems can be used, one for SAP Solution Manager and Solution Manager Diagnostics (included in SAP Solution Manager 4.0), and one for a central System Landscape Directory and Software Lifecycle Manager. The gateway of the AS ABAP part of SAP Solution Manager can be used for System Landscape Directory.

In addition, an administration and monitoring system comprising SAP NetWeaver Administrator and Alert Monitor can be set up in every environment. On the same host, SAP Central Job Scheduling by Redwood can be installed if required.

Since the central System Landscape Directory should either run in the production environment (either in the production administration and monitoring system – only possible if the production environment is not separated for security reasons from the other environments – or as a separate system) or classified as productive (with respect to system backups, availability, security, and so on), local System Landscape Directories would not be required in terms of availability. You can use server groups defined in System Landscape Directory to create views in SAP NetWeaver Administrator that only comprise local systems. By creating different users, you can restrict permissions so that administration teams of an environment are not able to administrate systems of another environment. Nevertheless, you may require local System Landscape Directories. If you have separated your production environment from the other environments, you require a local System Landscape Directory, at least for your production environment.

In a system where the System Landscape Directory runs, you can opt to use Software Lifecycle Manager.

With this setup, the administration group for every environment would have their own set of tools. So the single environments are separated, and usability, availability, and performance of the local tools is improved.

You could opt to use the SAP Solution Manager system for central user administration.

The following figure shows a landscape with central SAP Solution Manager, central System Landscape Directory and local administration and monitoring systems for every environment:

Figure 13: Local Administration and Monitoring Systems
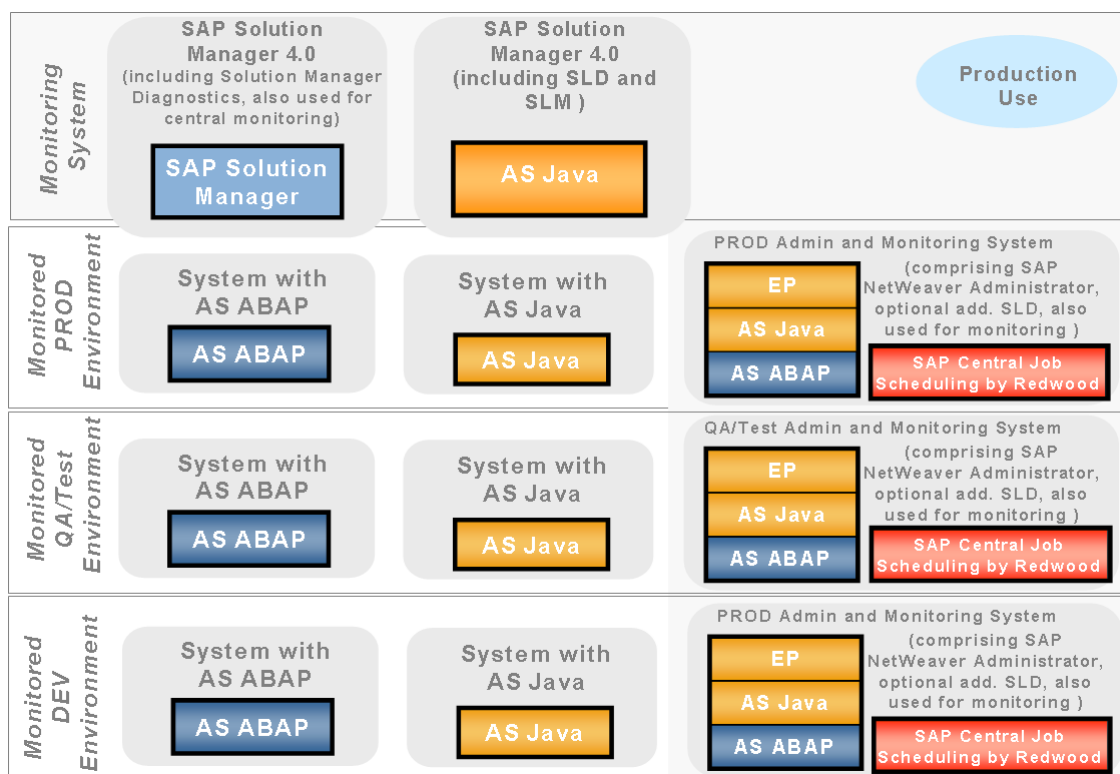
A mix of this example and the example for medium/large customer landscapes makes sense if only a dedicated administration and monitoring system is required for one environment, whereas the other environments can use a central administration and monitoring system.

The following figure shows a landscape where the production environment is separated – for example, for security reasons – from the other environments:

Figure 14: Production Environment Separated
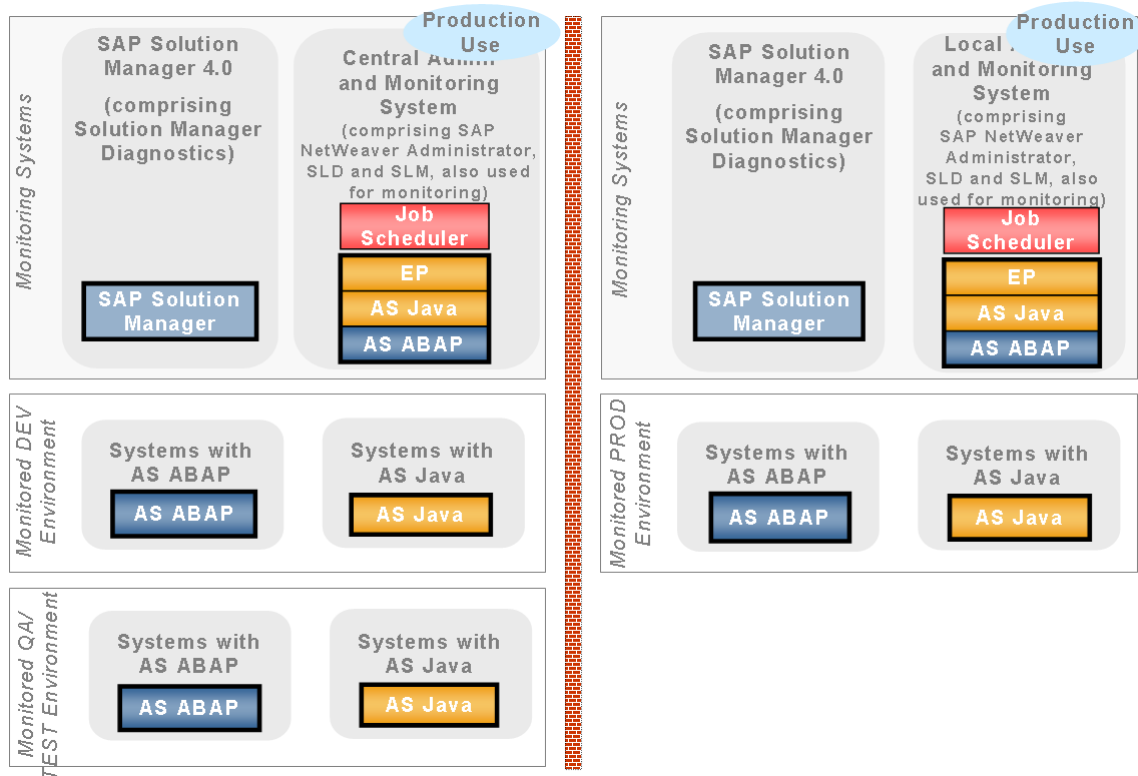
In such a landscape, you can opt to use the SAP Solution Manager system or the administration and monitoring system for the central user administration. Of course, you can further broaden this option, for example, by adding a second separated environment used for sandbox systems or a proof of concept environment that also has dedicated SAP Solution Manager and local administration and monitoring systems.

4.2.3 Feature Details

This section provides further information about the features described above.

4.2.3.1 SAP Solution Manager

SAP provides you with SAP Solution Manager as the strategic application management platform and to enable the collaboration between you and SAP. You need to install at least one productive SAP Solution Manager in your system landscape. To ensure the availability of this application management platform an SAP Solution Manager system (minimum release 3.2 SP8) is technically required to install or upgrade to SAP NetWeaver 2004s. If you are already using an SAP Solution Manager, you can also use it to manage the solution you build with SAP NetWeaver. In this case, it is highly recommended that you update SAP Solution Manager to the latest version.

> **Note**
>
> During the SAP NetWeaver 2004s installation or upgrade process, you are prompted to enter the SAP
> Solution Manager key. An SAP Solution Manager system is required to generate this key. Without this
> key, the installation or upgrade process cannot continue.
>
> You may generate all needed keys for your entire system landscape (development, quality assurance,
> and production system) in one SAP Solution Manager system. In case you plan to install several solution
> landscapes, (for example, in different countries) one SAP Solution Manager system is still sufficient.
>
> For more information, see SAP Note 805390.

It is possible to install multiple SAP Solution Managers. If you do so, they should host separate business
solutions.

If you want to reduce the risk of unavailability, you should not install SAP Solution Manager as a central
component. Instead, you can operate a two-system landscape with both a test and production environment
of SAP Solution Manager (especially if you are using time critical functions like Support Desk). If you also
develop your own content, a three-system landscape with a development, test, and production environment
is recommended.

For more information about SAP Solution Manager, see the following table:

Topic	Where to Find More Information
System infrastructure, scenarios, installation and configuration of SAP Solution Manager	*Master Guide – SAP Solution Manager* available on SAP Service Marketplace at `service.sap.com/instguides` ® *SAP Components* ® *SAP Solution Manager* ® *Installation Guides*
Benefits and usage scenarios	SAP Solution Manager – Learning Maps available on SAP Service Marketplace at `service.sap.com/rkt-solman` or `service.sap.com/solutionmanager`
Additional information	See SAP Service Marketplace at `service.sap.com/solutionmanager`

4.2.3.2 Solution Manager Diagnostics

Solution Manager Diagnostics provides efficient and safe root-cause analysis of incidents in customer solutions
powered by SAP NetWeaver. It can help monitor on operating systems, databases, Java application activities,
performance, and logs. It also supports the reporting of software and configuration changes that can lead to
malfunctions and errors.

You must run one Solution Manager Diagnostics within your SAP solution landscape if you run applications
based on SAP NetWeaver systems with usage type AS Java. Agents are responsible for delivering the data from
all productive hosts within your system landscape to the Solution Manager Diagnostics system.

> **Caution**
>
> SAP Support performs root-cause analysis on incoming incidents with Solution Manager Diagnostics. Not
> installing and configuring this support infrastructure results in a dramatically reduced service level.

Solution Manager Diagnostics is fully integrated into SAP Solution Manager 4.0.

💡 Note

The mass shipment of SAP Solution Manager 4.0 is planned for the first quarter of 2006.

If you want to use SAP Solution Manager or Solution Manager Diagnostics earlier than this, you can temporarily install an SAP Solution Manager 3.2 system that is based on SAP Web AS 6.20 and a standard SAP Web AS ABAP+Java system based on SAP NetWeaver '04, in which you deploy Solution Manager Diagnostics.

Solution Manager Diagnostics also contains two third-party tools:

- WilyTech Introscope (Display, Server, and Agent part)
  For measuring performance as well as to troubleshoot problems of the J2EE Engine and applications running on it.
- Mercury Loadrunner (Load Generator)
  Allows SAP Support to produce defined load in the SAP solution landscape remotely. SAP GoingLive Check for SAP Enterprise Portal incorporates a remote load test, which optimizes three of a company's most important user scenarios.

SAP has signed a distribution agreement for these two third party tools. Since this is not an OEM agreement, the customer can only use these third party tools for own purposes with an additional license agreement.

💡 Note

WilyTech Introscope is not released for all operating systems. For more information, see `www.wilytech.com/pdf/product/ \ ProdAvailMatrix_WilyIntroscope_041130.pdf`

For more information about Solution Manager Diagnostics and an FAQ list, see SAP Service Marketplace at `service.sap.com/diagnostics` .

Figure 15: Solution Manager Diagnostics
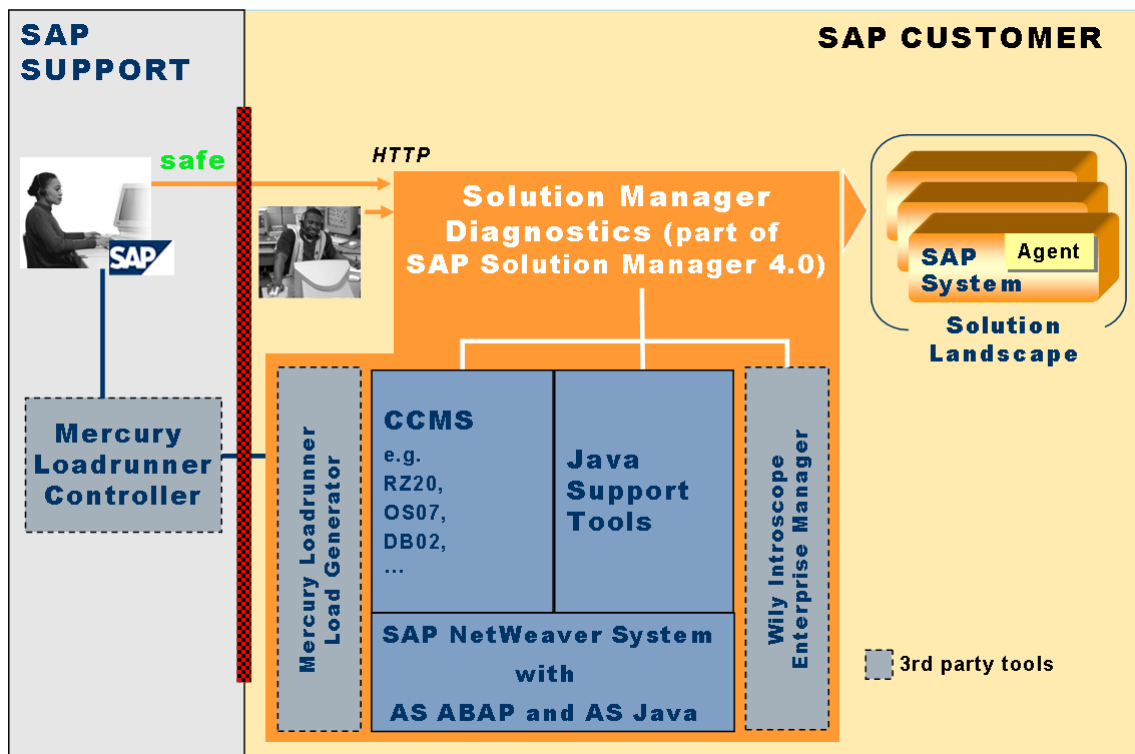
4.2.3.3 SAP NetWeaver Administrator

SAP NetWeaver Administrator is a brand new solution for monitoring and administering Java systems and their applications.

You can use the SAP NetWeaver Administrator in two ways:

■ To administer your local system
This function is available with no additional setup; you only require the usage type AS Java for it.

■ As a central administration and monitoring tool
This requires usage types AS Java, AS ABAP, and EP in the relevant system.

SAP aims to integrate all locally acting administration tools like Visual Administrator into SAP NetWeaver Administrator one by one. In the end, you will only need SAP NetWeaver Administrator for all your administration tasks. The first versions do not contain the full range of functions, so do not yet replace the old tools completely.

SAP NetWeaver Administrator´s key characteristics are as follows:

■ Monitoring and administration functionality in a new Web Dynpro UI
■ Runs with zero footprints in a Web browser
■ Fits either a single SAP NetWeaver system or a SAP NetWeaver system landscape perfectly
■ Combines ABAP and Java monitoring data in a single screen
■ Combines overview information such as component availability with detailed monitoring data

- Contains a central log viewer
- Offers standards-based (JMX) remote administration functionality such as starting and stopping Java applications

For more information, see SAP Service Marketplace at `service.sap.com/nwa`.

4.2.3.4 System Landscape Directory

Today's system landscapes consist of multiple distributed software components with different platform dependencies, different interfaces, and different requirements placed on installation and change management. An overall concept is required that facilitates the implementation, upgrade, and maintenance of your system landscapes – including the SAP NetWeaver system landscape you are installing. This is where the System Landscape Directory (from now on abbreviated as SLD) comes into play.

> 💡 Note
>
> Note that the abbreviation SLD is not intended to define a product, since the System Landscape Directory is part of SAP NetWeaver. This abbreviation is solely intended to improve readability.

The System Landscape Directory is the central directory of system landscape information relevant for the management of your software lifecycle. It contains a description of your system landscape (that is, software components that are currently installed) and a repository of software components that can theoretically be installed in your landscape (such as the software components available from SAP). Since this data gets updated automatically, System Landscape Directory provides reliable and up-to-date system landscape information with as little effort for you as possible. In this way, the System Landscape Directory acts as a central information provider for SAP and third-party tools that use this data to deliver the services you need to keep your landscape up and running.

If there are non-ABAP components in the solution landscape, the System Landscape Directory is mandatory. If your system landscape consists of ABAP components only, there is no need to implement the System Landscape Directory since SAP Solution Manager can collect all required landscape information.

The System Landscape Directory is part of SAP NetWeaver 2004s. It is automatically included in every SAP NetWeaver 2004s system with usage type AS Java. To start operating the System Landscape Directory server, you only have to perform some quick and easy configuration actions.

We recommend that you use a DNS alias so that you are able to switch to another System Landscape Directory easily. For example, if customers build a new landscape, they normally start with a sandbox environment. Over time, more and more environments are set up. Once the production environment is in place, move System Landscape Directory there. To do this, you can configure a new System Landscape Directory in the production environment, synchronize it manually with the old System Landscape Directory (export/import), and switch to the new one.

We strongly recommend that System Landscape Directory has the highest release of SAP NetWeaver in your system landscape. If you are using SAP NetWeaver 2004s components in your system landscape, we recommend that you use a System Landscape Directory running on SAP NetWeaver 2004s or higher.

> **Note**
>
> The installation process of SAP NetWeaver 2004s is compatible with old System Landscape Directory versions. After the installation, you can migrate the System Landscape Directory data to an SAP NetWeaver 2004s System Landscape Directory.

Topology

SLD offers several topology options with different grades of availability at the expense of low administration and operation effort. There is no generic rule, therefore, on how to set up SLD in your system landscape.

This section is intended to help you find the SLD topology that fits your requirements concerning the availability of SLD (and hence, the availability of the applications that rely on SLD).

> **Note**
>
> - Special considerations may be required if you want to install SAP NetWeaver in a system landscape where you use SAP Exchange Infrastructure 2.0, since this release contains a previous version of the System Landscape Directory.
> - For more information, see the documentation *Planning Guide – System Landscape Directory* available on SAP Service Marketplace at `service.sap.com/sld`.

Topology Options

- Single System Landscape Directory
  With this option, you have a single System Landscape Directory server that acts as a central information provider for the enterprise system landscape. All systems in your system landscape, including all sub networks, share a single System Landscape Directory server.
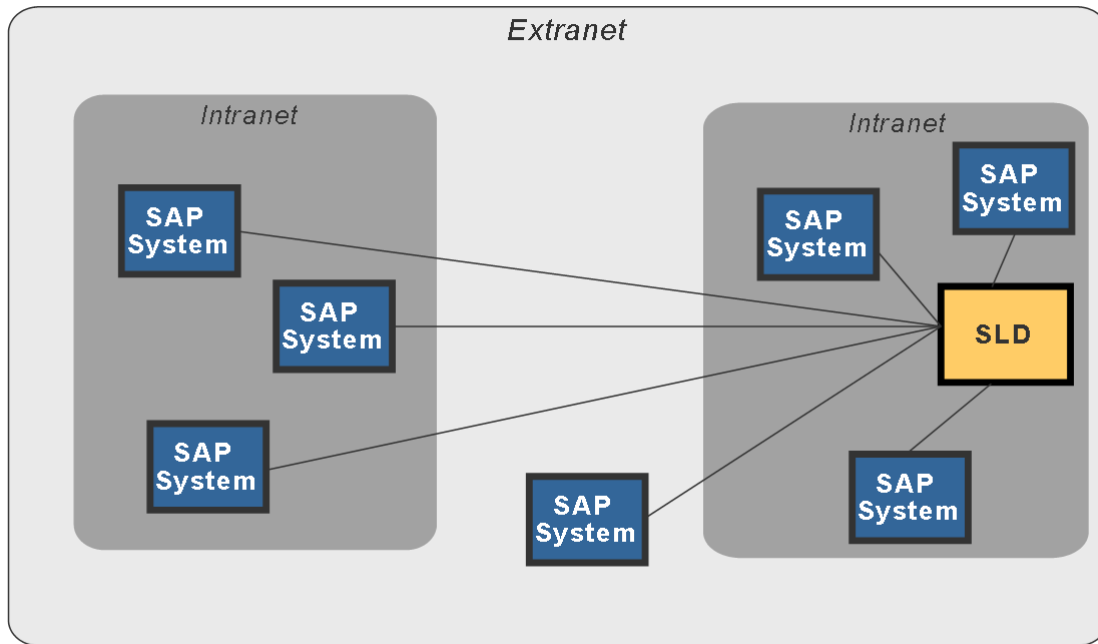
The advantages of using a single System Landscape Directory server for the entire system landscape are consistent data, easier administration, and lower operating expense.

Nevertheless, you may need to run multiple System Landscape Directories, for example, if you want to distribute System Landscape Directories across different geographic locations or if you require an additional System Landscape Directory server dedicated to a particular group of systems (such as a production environment).

You may also need several System Landscape Directories if you have high requirements concerning availability.

■ Multiple System Landscape Directories with automatic forwarding

If you need to run multiple System Landscape Directories that only contain landscape data (that is, data reported by System Landscape Directory data suppliers, and not data such as the data for SAP NetWeaver Process Integration, data entered manually into System Landscape Directory, component data, or name reservation data), you can use the automatic forwarding function offered by System Landscape Directory. By building up hierarchies, you can also opt to create System Landscape Directories with different views of your landscape.

Figure 17: Multiple System Landscape Directories with Automatic Forwarding
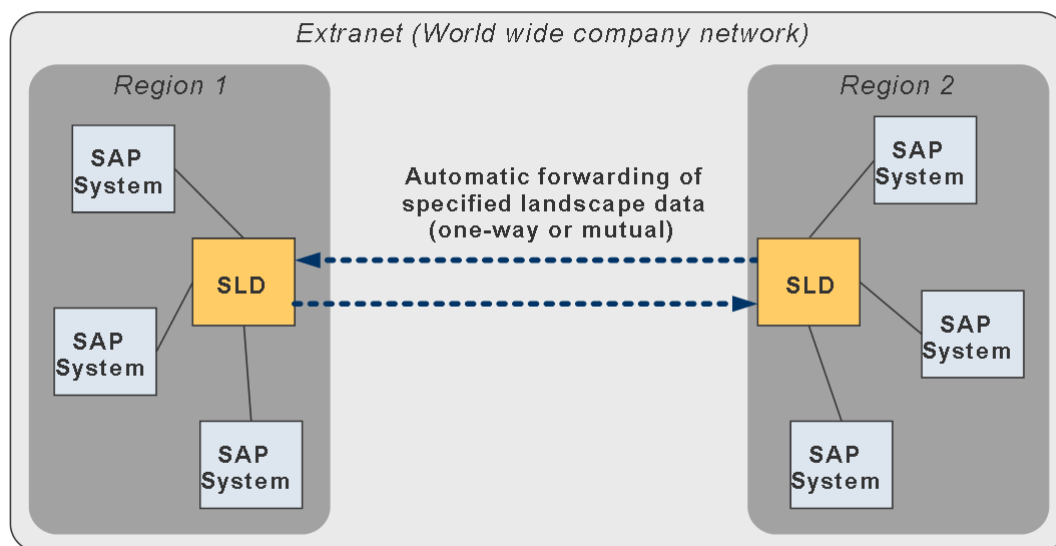
If you have System Landscape Directories with different releases or patch levels in your system landscape, automatic forwarding will still work as long as you have imported the same model data (downloaded from SAP Service Marketplace – for more information, see SAP Note 669669) in these System Landscape Directories.

So with automatic forwarding, you get the flexibility to run several System Landscape Directories in your system landscape without too much manual effort.

As only landscape data gets forwarded automatically, this approach will not suit all requirements. Also, you will have to perform the manual update of the component information available from SAP Service Marketplace for every single System Landscape Directory.

■ Several System Landscape Directories with export/import

If you need to run several System Landscape Directories and if these System Landscape Directories also have to contain a consistent view of non-landscape data, you can use the export/import function offered by System Landscape Directory to manually synchronize them.

Figure 18: Several System Landscape Directories with Export/Import
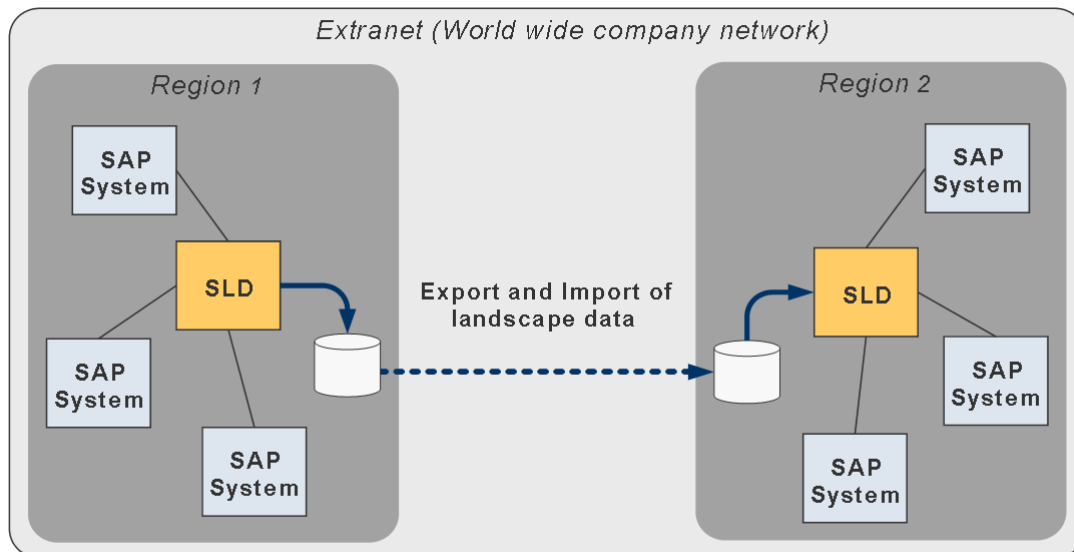
If you have System Landscape Directories with different releases or patch levels in your system landscape, automatic forwarding will still work as long as you have imported the same model data (downloaded from SAP Service Marketplace – for more information, see SAP Note 669669) in these System Landscape Directories.

This option provides best flexibility while it may require considerable operation effort. Therefore, it is only recommended if you have corresponding requirements (for example, concerning availability) or if you only have a small amount of manual changes of your System Landscape Directory data that has to be transported manually.

Reasons to Have Several System Landscape Directories

There may be several reasons to have more than one System Landscape Directory. For example, if you have geographically distributed locations with local administration groups that want to see only their local systems in the System Landscape Directory.

Furthermore, several System Landscape Directories may be required if you want to isolate your production environment. By having a System Landscape Directory dedicated for your production systems, you make sure that these systems are not visible from your development or test environment.

An important reason to have several System Landscape Directories is to provide improved availability of the information stored in System Landscape Directory. This information could be essential for applications running in your production landscape. The following list shows examples of SAP NetWeaver applications for which the availability of System Landscape Directory can be critical:

- For SAP NetWeaver Process Integration, the availability of a System Landscape Directory is required when SAP NetWeaver Process Integration is restarted, at the very least. As used caches System Landscape Directory may be invalidated manually, System Landscape Directory may also be critical during the runtime of SAP NetWeaver Process Integration.
- For Web Dynpro for Java, System Landscape Directory is critical during runtime for adaptive RFC calls.
- SAP NetWeaver Administrator requires System Landscape Directory for remote monitoring functions. If System Landscape Directory is unavailable, no central administration of systems is possible.
- Adaptive Computing Controller requires System Landscape Directory for its operation (that is, to start, stop, and change resources). If System Landscape Directory is unavailable, only monitoring functions of Adaptive Computing Controller are available.

Recommendations

> 💡 Note
>
> If you have separate environments (for example, as you separated your production environment from your development and test environment), be aware that the following recommendations should be considered for every separate environment.

- If possible, we recommend that you use one System Landscape Directory server.
  - If you do not run applications that rely critically on the availability of System Landscape Directory (see list above) and that are critical for you, we recommend that you use one System Landscape Directory. You can run this System Landscape Directory in the central administration and monitoring system (that is, the SAP NetWeaver Administrator system), on an application system, or on a dedicated system.
  - If you use exactly one application that critically relies on the availability of System Landscape Directory (see list above) and that is critical for you, we recommend that you run at least your production SLD in the system together with this critical function.
- If you use more than one application that relies critically on the availability of System Landscape Directory (see list above) and that is critical for you, we recommend that you have one dedicated master SLD and additional System Landscape Directories running in the application systems critical for you and that rely critically on the availability of System Landscape Directory (see list above).
  To keep your System Landscape Directories synchronized, you may have to perform manual exports/imports as described in the *Topology Options* section above. This approach provides good availability although it may require considerable operational effort. Therefore, it is only recommended if you have high requirements concerning availability or if you only want to make a few manual changes of your System Landscape Directory data that has to be transported manually.

The following figure shows a flow diagram that gives a recommendation according to your use case.

Figure 19: Recommendations According to Use Cases
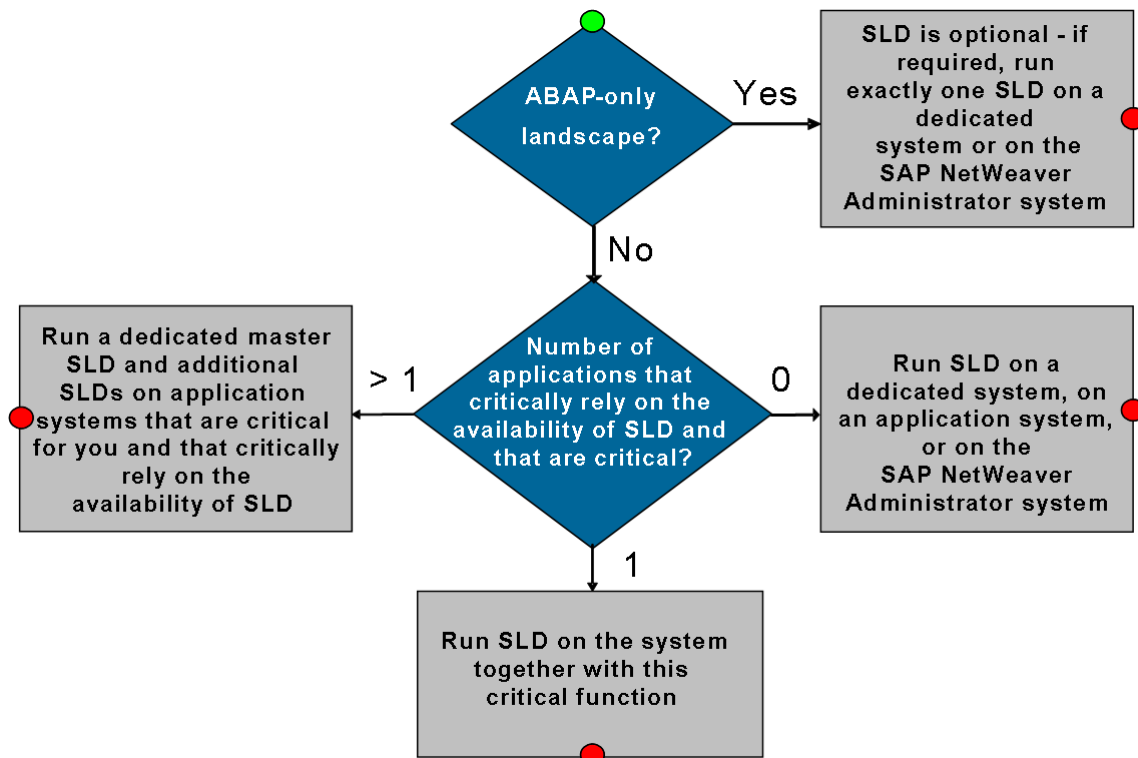
Implementation Sequence

Perform the following steps:

No.	Action [Corresponding Documentation]	Remarks and Subsequent Steps
1	If required, install the standalone engine gateway on the System Landscape Directory host.	For the data exchange between the data suppliers of ABAP-based systems and the System Landscape Directory, a gateway is required since the data is exchanged using RFC.
2	Configure the System Landscape Directory in the system where you want to run System Landscape Directory. [*Post-Installation Guide — System Landscape Directory*]	■ For SAP NetWeaver 2004s, the installation procedure offers an option to configure the System Landscape Directory automatically during the installation. ■ If you want to run the System Landscape Directory in a separate system, install an SAP NetWeaver 2004s system with usage type AS Java according to the *Installation Guide — SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	Download and install the most current SLD content - updated monthly - available on SAP Service Marketplace. [SAP Note 669669]	

4.2.3.5 Software Lifecycle Manager

SAP has developed a new tool called Software Lifecycle Manager (from now on abbreviated as SLM), which simplifies and eases all software logistics tasks (installation, upgrade, and Support Package installation) in your system landscape. Software Lifecycle Manager complements SAP Solution Manager in managing the lifecycle of your SAP solutions and products that run on multiple SAP components more effectively.

> 💡 Note
>
> Note that the abbreviation SLM is not intended to define a product, since Software Lifecycle Manager is part of SAP NetWeaver. This abbreviation is solely intended to improve readability.

Software Lifecycle Manager:

- Offers a graphical overview of the existing system landscape, including installed software components (with support package information) and realized business scenarios
- Enables you to view details about SAP solutions, products and business scenarios stored in the System Landscape Directory
- Enables you to view and maintain details about third-party software solutions and business scenarios stored in the System Landscape Directory
- Guides you through the landscape planning process using planning wizards to realize new application systems, realize new business scenarios, deploy application components, or update support packages
- Checks whether planned changes to the system landscape conflict with both planned and the existing system landscape and suggests possible actions to handle conflicts
- Offers a graphical overview of planned system landscapes

> ⚠️ Caution
>
> Be aware that Software Lifecycle Manager does not yet cover all dependencies that are relevant for planning system landscape changes. As a result, before you perform any software lifecycle tasks you still have to consult the relevant documentation, such as Master Guides, Upgrade Master Guides, Support Package Stack Guides, and SAP Notes. You cannot rely on the results of the Software Lifecycle Manager. SAP shall have no responsibility and disclaims any liability and warranties for any and all damages and/or problems resulting from your use of the Software Lifecycle Manager not in accordance with the guidelines above. In all other respects, the end user license terms shall apply.

As a result, Software Lifecycle Manager complements the relevant documentation. It provides planning functions based on the information of your current system landscape and allows you to validate planned software life-cycle tasks. For each plan, you get the list of software life-cycle tasks that are required in your system landscape to realize the plan. The information about required steps and possible conflicts of a software life-cycle task in your individual system landscape is provided without touching your systems. As the list of required changes is automatically updated based on the data from the System Landscape Directory, you can also use this list to track the realization status of such a plan.

As long as Software Lifecycle Manager does not cover all dependencies, you can use the information provided by the tool as starting point that should be cross-checked with the standard documentation. Also, Software Lifecycle Manager provides an easy way to bring the information of your individual system landscape

into the planning and validation process for software life-cycle tasks that you want to perform or about which you want to learn more.

Software Lifecycle Manager is part of SAP NetWeaver 2004s. It is automatically included in every SAP NetWeaver 2004s system with usage type AS Java. A prerequisite for Software Lifecycle Manager is a configured System Landscape Directory in the same system – no further configuration is required to start operating Software Lifecycle Manager on a system with a configured System Landscape Directory.

> 💡 Note
>
> If you want to use Software Lifecycle Manager to plan a new landscape, you can first install the SAP NetWeaver 2004s system with usage type AS Java in which Software Lifecycle Manager will run. Then, you can use Software Lifecycle Manager to plan the implementation of SAP NetWeaver 2004s systems that will be used for your SAP NetWeaver 2004s IT scenarios.

For more information, see SAP Service Marketplace at `service.sap.com/slm`.

4.3 Reference System Landscapes

4.3.1 Minimal System Landscape

In a minimal system landscape, all required installable software units are installed on as few systems as possible while retaining full operability of your system. We recommend that you use minimal system landscapes only for demonstration and test purposes

> ⚠️ Caution
>
> While minimal system landscapes may be easier to administrate, they also have certain drawbacks. Be aware that you are not able to distribute usage types that you installed together in one system to several systems later without specific project support.
>
> As a result, you have to fall back on other methods for scalability (such as hardware solutions, clustering or the installation of additional dialog instances).
>
> You also have to patch and upgrade all components installed in a single system together, which may also be a drawback for you. With this, aspects of the business logic you require could come into play, as certain components may not be available due to patching requirements of other components.
>
> As a result, it is mandatory to plan your system landscape well in advance according to your current and possible future requirements. As this heavily relies on your requirements, we recommend that you perform this task together with a technical consultant.

The following figure shows a minimal system landscape for SAP NetWeaver 2004s:

Figure 20: SAP NetWeaver Minimal System Landscape
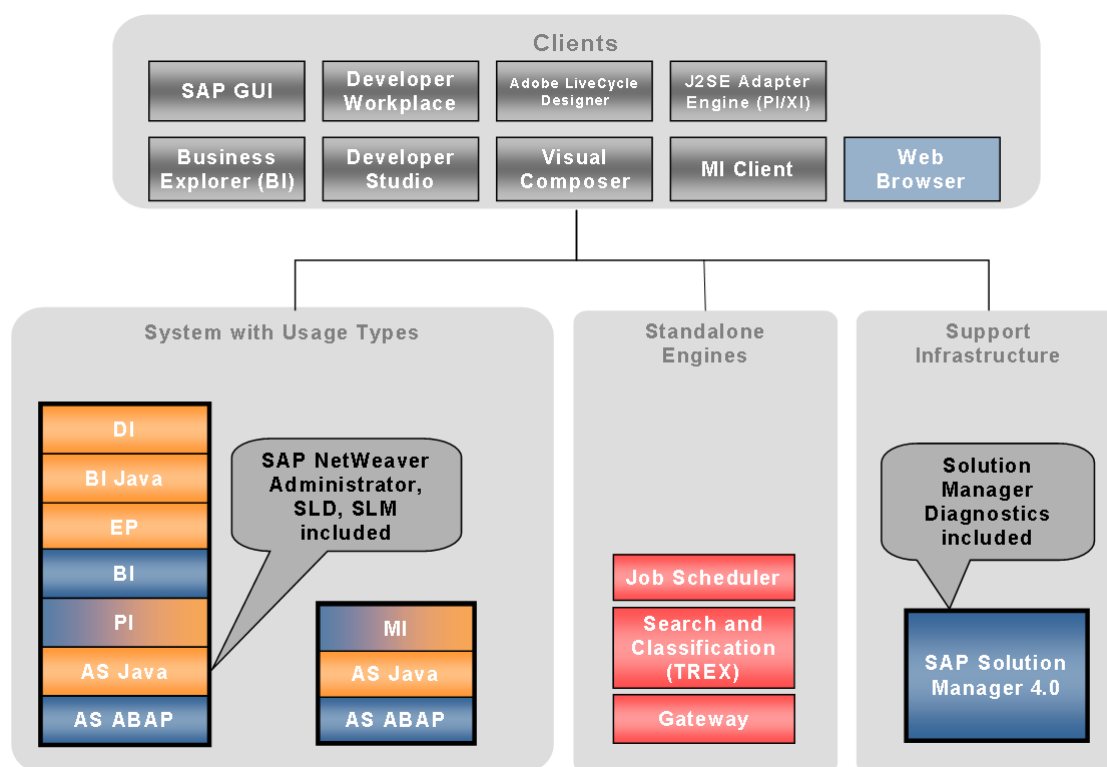
- In this minimal system landscape, you have one system with all usage types except MI and a dedicated MI system. Although technically possible, we do not recommend that you combine MI with other usage types (besides AS ABAP and AS Java) in one system at the moment. Instead, we recommend that you install a dedicated MI system.
- The system with all usage types except MI can also be used as an administration and monitoring system. Optionally, you could use a separate system with usage types AS ABAP, AS Java, and EP as a dedicated central administration and monitoring system.
- A separate system is required for SAP Solution Manager which includes Solution Manager Diagnostics. Optionally, you can use this system for both SAP Solution Manager 4.0 and the central administration and monitoring system. For more information, see the *Shared Services* [page] section.
- In addition, the standalone engines are shown that are not already included in any of the usage types.
- Smaller business partners or subsidiaries that do not run SAP NetWeaver can opt to install PCK (PI/XI) in their system landscape. PCK (PI/XI) enables XML document exchange between your SAP NetWeaver systems and their systems. Since PCK (PI/XI) gets installed in their system landscape, it is not shown in the system landscape figure above.

4.3.2 Implementation Sequence

Process

To install the minimal system landscape, perform the steps listed in the following table:

Step	Action Corresponding Documentation	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts.	
2	Install a system with all required usage types except MI. 💡 Note For usage type PI, a Unicode installation is mandatory. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide.* For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>.* ■ For the installation of the administration and monitoring system that can also be realized on this system in the minimal system landscape, also see the *SAP NetWeaver Operations* [page 121] IT scenario.

3	Install a system with usage type MI (includes the installation of AS ABAP and AS Java).
	[*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]
		■ At the moment, we do not recommend that you combine MI with other usage types (besides AS ABAP and AS Java) in one system. Instead, we recommend that you install a dedicated MI system.
		■ You require an MI system that has the same Unicode type as your MI back-end system:
		  ● If your MI back-end system is a Unicode system, also install a Unicode MI system.
		  ● If your MI back-end system is non-Unicode, also install a non-Unicode MI system.
		■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide.* For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>.*

Step	Action Corresponding Documentation	Remarks
4	Install a SAP Solution Manager system with Solution Manager Diagnostics. For more information, see the *Support Infrastructure* [page 31] section.	
5	If required, install the standalone engines: ■ On the host on which the System Landscape Directory runs, install a Gateway. [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*] ■ The installation of the SAP Central Job Scheduling by Redwood is part of the installation of the SAP NetWeaver Operations IT scenario (see above). ■ Search and Classification (TREX) ● Search and Classification (TREX) for searching across documents and meta data [*Installation Guide – SAP NetWeaver TREX*] 💡 Note After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide – SAP NetWeaver TREX*): ◆ ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. ◆ Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. ● BI accelerator The BI accelerator is based on TREX technology. You need an installation based on 64-bit architecture for the BI accelerator. The hardware partners provide this variant already preconfigured as the BI accelerator box. Note that a TREX installation configured for searching in metadata and documents based on 32-bit architecture cannot be used for the BI accelerator. Accordingly, a BI accelerator box also cannot be used for searching in metadata and documents. In order to be able to use the search function and the BI accelerator, you need separate installations.	

Step	Action Corresponding Documentation	Remarks
6	If required, business partners or subsidiaries install PCK (PI/XI) running on AS Java with parts of usage type PI in their system landscape. [*Installation Guide − Partner Connectivity Kit*]	Smaller business partners or subsidiaries that do not run SAP NetWeaver can opt to install PCK (PI/XI) to enable XML document exchange between your SAP NetWeaver systems and their systems.
7	If required, installation of clients: ■ If you want to develop interactive forms based on Adobe software, install Adobe LiveCycle Designer. [SAP Note 801524] ■ J2SE Adapter Engine (PI/XI) [*Installation Guide − Adapter Engines for SAP NetWeaver*] ■ MI Client on your mobile devices [See the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Technology Consultant´s Guide* ® *Mobilizing Business Processes*] ■ SAP GUI During the installation, make sure that you also select the option *KW Add-On*. [*Installation Guide − SAP Front End*] ■ Business Explorer (BI) Make sure that you select the options *BI Add-On including Business Explorer (SAP NetWeaver 2004s)* during the installation of SAP GUI. [*Installation Guide − SAP Front Ende*] ■ You can opt to install an additional Business Explorer (BI) with Pre-calculation Server on host B or on a separate host (Microsoft Windows only). [See the corresponding installation guide on the SAP NetWeaver 2004s *Presentation / Server Components / Content DVD*] ■ SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio [*Installation Guide − SAP NetWeaver Developer Workplace Installation Guide − SAP NetWeaver Developer Studio*]	■ If you want to use Microsoft Office as an editing tool, register the dynamic link library htmltidy.dll on each SAP GUI client. For more information, see SAP Note 517439. ■ For more information about the prerequisites for the development of interactive forms based on Adobe software, see the corresponding sections in the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*. ■ As a development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio. ■ Business Explorer (BI) with Pre-calculation Server requires Microsoft Excel 2000 or higher on the same host.
8	Installation of third-party software: ■ If required, Crystal Enterprise SAP Edition Version 10 (Crystal Enterprise [server component] and Crystal Reports [design tool]) [*Crystal Enterprise SAP Edition Installation Guide* and *Crystal Reports Installation Guide*] ■ If required, ARIS for SAP NetWeaver ■ If you want to develop interactive forms based on Adobe software, install the required version of Adobe Reader or Adobe Acrobat. [SAP Note 834573]	■ Crystal Enterprise SAP Edition is only required if you need additional capabilities for formatted reporting. For more information, see SAP Service Marketplace at service.sap.com/businessobjects ® *FAQ* . You can opt to use ARIS for SAP NetWeaver to model / adapt business processes. ARIS for SAP NetWeaver is a joint brand by SAP and IDS Scheer AG. SAP customers can obtain ARIS for SAP NetWeaver from SAP.

4.3.3 Maximum System Landscape

The following figure shows a maximum system landscape for SAP NetWeaver 2004s:

Figure 21: Maximum System Landscape
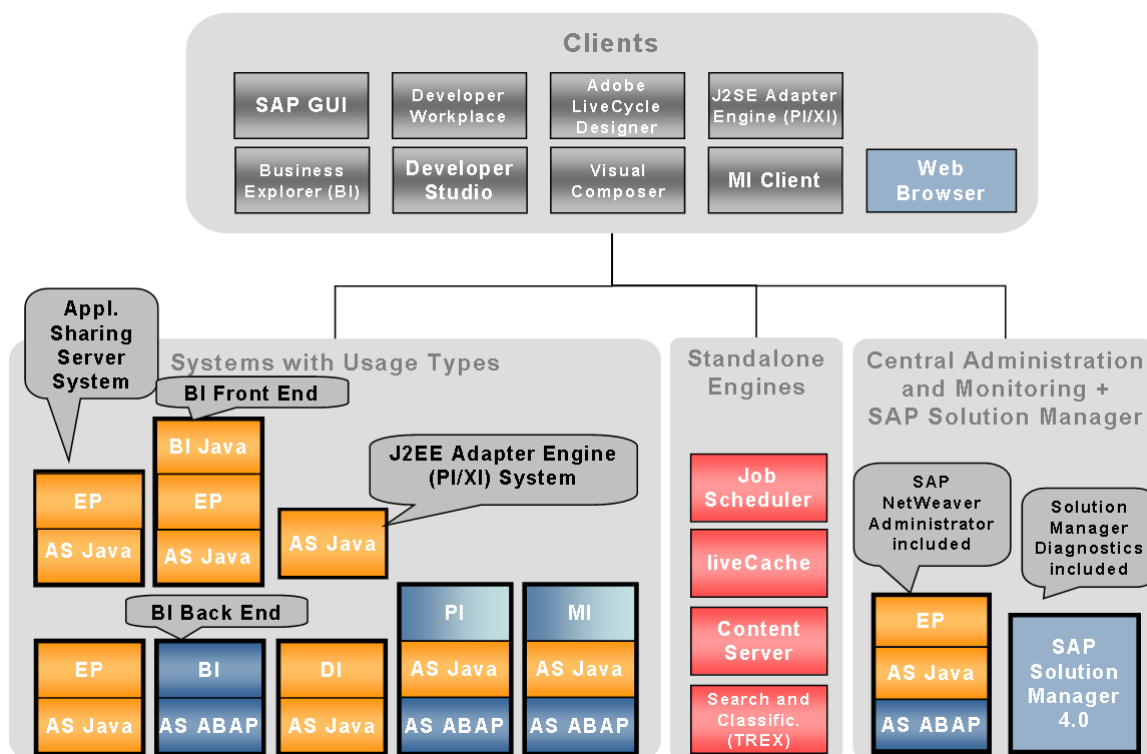
- You have to decide how and where you want to run System Landscape Directory. For more information, see the *System Landscape Directory* [page 46] section. On the host of a System Landscape Directory that receives data from ABAP data suppliers, you also require a Gateway.
- Smaller business partners or subsidiaries that do not run SAP NetWeaver can opt to install PCK (PI/XI) in their system landscape. PCK (PI/XI) enables XML document exchange between your SAP NetWeaver systems and their systems. Since PCK (PI/XI) gets installed in their system landscape, it is not shown in the system landscape figure above.
- Further distribution or scaling is possible. For example:
  - You could install multiple systems of one type – for example, multiple DI systems, one used for DTR, one used for CMS and one used for CBS.
  - You could scale every system by installing dialog instances or by distributing the database instance. For more information about distribution options on the instance level, see the *Technical Infrastructure Guide – SAP NetWeaver* available on SAP Service Marketplace at `service.sap.com/instguidesNW2004s` ® *Installation.*
  - For every SAP system, you could additionally install Web Dispatcher. For more information, see *Standalone Engines* [page 18].
  - You could further distribute certain standalone engines – for example, Search and Classification (TREX) is based on a flexible architecture that supports a distributed installation. For more information, see the *Technical Infrastructure Guide – SAP NetWeaver* available in SAP Service Marketplace at `service.sap.com/instguidesNW2004s` ® *Installation.*

4.3.4 Implementation Sequence

Process

To install the maximum system landscape, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts.	
2	Installation of the systems for central administration and monitoring and the support infrastructure: ■ For the installation of the central administration and monitoring system, see the *SAP NetWeaver Operations* [page 121] IT scenario. ■ For the installation of the SAP Solution Manager System with Solution Manager Diagnostics system and SAP Solution Manager, see the *Support Infrastructure* [page 31] section.	
3	Install the required system with the appropriate usage types. 💡 Note For usage type PI, a Unicode installation is mandatory. [*Installation Guide — SAP NetWeaver*]	■ At the moment, we do not recommend that you combine MI with other usage types (besides AS ABAP and AS Java) in one system. Instead, we recommend that you install a dedicated MI system. ■ If you require an MI system, it has to have the same Unicode type as your MI back-end system: ● If your MI back-end system is a Unicode system, also install a Unicode MI system. ● If your MI back-end system is non-Unicode, also install a non-Unicode MI system. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide — SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

Step	Action [Corresponding Documentation]	Remarks
4	If required, installation of a system with usage types AS Java and parts of PI for the service J2EE Adapter Engine (PI/XI) [*Installation Guide – Adapter Engines for SAP NetWeaver*]	
5	If required, install standalone engines: ■ Content Server [*Installation Guide – SAP Content Server*] ■ On hosts of System Landscape Directories that receive data from ABAP data suppliers, install a Gateway. [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*] ■ SAP Central Job Scheduling by Redwood: The installation of the Job Scheduler is part of the installation of the *SAP NetWeaver Operations* [page 121] IT scenario. ■ liveCache [*Installation Guide – SAP NetWeaver liveCache Technology*] ■ Search and Classification (TREX) ● Search and Classification (TREX) for searching across documents and meta data [*Installation Guide – SAP NetWeaver TREX*] 💡 Note After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide – SAP NetWeaver TREX*): ◆ ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. ◆ Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. Note that some applications use both the ABAP and the Java client. ● BI accelerator The BI accelerator is based on TREX technology. You need an installation based on 64-bit architecture for the BI accelerator. The hardware partners provide this variant already preconfigured as the BI accelerator box. Note that a TREX installation configured for	For more information about the configuration of liveCache as a lock server, see SAP Note 816730.

Step	Action [Corresponding Documentation]	Remarks
	searching in metadata and documents based on 32-bit architecture cannot be used for the BI accelerator. Accordingly, a BI accelerator box also cannot be used for searching in metadata and documents. In order to be able to use the search function and the BI accelerator, you need separate installations.	
6	If required, business partners or subsidiaries install PCK (PI/XI) running on AS Java with parts of usage type PI in their system landscape. [*Installation Guide − Partner Connectivity Kit*]	Smaller business partners or subsidiaries that do not run SAP NetWeaver can opt to install PCK (PI/XI) to enable XML document exchange between your SAP NetWeaver systems and their systems.
7	If required, install clients: ■ If you want to develop Interactive Forms based on Adobe software, install Adobe LiveCycle Designer. [SAP Note 801524] ■ J2SE Adapter Engine (PI/XI) [*Installation Guide − Adapter Engines for SAP NetWeaver*] ■ MI Client on your mobile devices [See the SAP Library at *SAP NetWeaver Library* ® *Technology Consultant´s Guide* ® *Mobilizing Business Processes*] ■ SAP GUI During the installation, make sure that you also select the option KW Add-On. [*Installation Guide − SAP Front End*] ■ Business Explorer (BI) Make sure that you select the option *BI Add-On including Business Explorer (SAP NetWeaver 2004s)* during the installation of SAP GUI. [*Installation Guide − SAP Front End*] ■ You can opt to install an additional Business Explorer (BI) with Pre-calculation Server on a separate host (Microsoft Windows only). [See the corresponding installation guide on the SAP NetWeaver 2004S *Presentation / Server Components / Content* DVD] ■ SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio [*Installation Guide − SAP NetWeaver Developer Workplace Installation Guide − SAP NetWeaver Developer Studio*]	■ If you want to use Microsoft Office as editing tool, register the dynamic link library `htmltidy.dll` on each SAP GUI client. For more information, see SAP Note 517439. ■ For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*. ■ As a development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio. ■ The Business Explorer (BI) with Pre-calculation Server requires Microsoft Excel 2000 or higher on the same host.
8	If required, install third-party software: ■ Crystal Enterprise SAP Edition Version 10 (Crystal Enterprise [server component] and Crystal Reports [design tool]) [*Crystal Enterprise SAP Edition Installation Guide* and *Crystal Reports Installation Guide*] ■ ARIS for SAP NetWeaver ■ If you want to develop Interactive Forms based on Adobe software, install the required version of Adobe Reader or Adobe Acrobat.	■ Crystal Enterprise SAP Edition is only required if you need additional capabilities for formatted reporting. For more information, see SAP Service Marketplace at service.sap.com/ businessobjects ® *FAQ* . You can opt to use ARIS for SAP NetWeaver to model / adapt business processes. ARIS for SAP NetWeaver is a joint brand by SAP

Step	Action [Corresponding Documentation]	Remarks
	[SAP Note 834573]	and IDS Scheer AG. SAP customers can obtain ARIS for SAP NetWeaver from SAP.

4.4 Implementation Aspects

4.4.1 SAP NetWeaver Rapid Installer

What is the SAP NetWeaver Rapid Installer?

At regular intervals in your system landscape, you need to realize new functions by adding new systems to an existing landscape or even build a totally new landscape.

For faster and easier installations, SAP NetWeaver Rapid Installer, an installation and configuration tool, supports a rapid and initial setup of a SAP NetWeaver system landscape. SAP NetWeaver Rapid Installer installs the usage types Enterprise Portal (EP) and Application Server – Java (AS Java). In addition, SAP NetWeaver Rapid Installer installs a clearly defined set of business packages with scenarios for mySAP ERP 2005 and mySAP CRM 5.0 along with other software components. It also installs and configures information broadcasting scenarios.

After the setup of the system landscape, you can immediately run specific IT scenarios like Running an Enterprise Portal, Enterprise Knowledge Management or Enabling User Collaboration without having to perform any additional configuration.

SAP NetWeaver Rapid Installer provides back-end connectivity to systems for Enterprise Resource Planning (ERP), Business Intelligence (BI), Customer Relationship Management (CRM) and Computing Center Management Systems (CCMS). It enables you to easily connect to these systems through a preconfigured portal with a minimum of interaction and configuration time.

SAP NetWeaver Rapid Installer allows an easy and rapid step into the world of SAP NetWeaver for mySAP ERP and mySAP CRM customers and also for customers who prefer to install specific SAP NetWeaver usage types stand-alone without additional business packages.

Product Information and Documentation

You can find detailed product information at `service.sap.com/nw-ri`

Before installing the software, read the *SAP NetWeaver Rapid Installer Installation Guide* describing in detail the installation procedure, hardware and software requirements, and pre-installation steps. You can find this document and additional information on the SAP NetWeaver Rapid Installer DVD in the folder `Documentation`.

DVD Order Process

SAP NetWeaver Rapid Installer for SAP NetWeaver 2004s can be ordered – as soon as it is available – from the SAP Software Catalog.

To access the SAP Software Catalog, see SAP Service Marketplace at `service.sap.com/swdc`. In the detailed navigation area, choose *Ordering SAP Software*. The SAP Software Catalog opens in a separate window. In the right-hand window, choose *SAP NetWeaver* ® *SAP NetWeaver Rapid Installer0*.

Limitations

Note the following limitations for SAP NetWeaver Rapid Installer:

1. It is available for a reduced set of platforms.
   One of the following combinations of operating systems and databases are required for installation:
   - Microsoft Windows Server 2000/2003 operating system with Microsoft SQL Server 2000 Enterprise Edition
   - Microsoft Windows Server 2000/2003 operating system with Oracle 9.2.0.4 64-bit database
   - Sun Solaris SPARC 8 or 9 operating system with Oracle 9.2.0.4 64-bit database
2. It supports a single-node installation on one machine.
   SAP NetWeaver Rapid Installer supports a single-node installation on the same server. An additional Java cluster environment can be set up by using the standard installation tool `SAPinst`.

5 IT Scenarios

5.1 Running an Enterprise Portal

5.1.1 Overview

SAP NetWeaver Portal serves as a single point of entry to the applications, services, and information of an organization.

Running an Enterprise Portal is an IT scenario whose implementation provides role-based and secure access to all types of applications, services, and information in an enterprise portal environment.

Customers can benefit from the numerous predefined business packages available to them, or they can create their own content.

This scenario includes the following variants:

- *Providing Uniform Content Access*
  Organizations can develop, configure, and operate a knowledge-based, Web-like user interface to give users a consistent environment for accessing content. For example, organizations may integrate both SAP and non-SAP applications into the enterprise portal using a single, consistent front-end.
- *Implementing a Federated Portal Network*
  Organizations can implement a federated portal network using the SAP NetWeaver platform to share content between portals. A federated portal network allows organizations having distributed portal installations, SAP and non-SAP, to provide a single portal access point per user to portal information, services and applications distributed on portals over the entire organizational network, while utilizing existing content and configurations, and minimizing necessary administration efforts.
- *Implementing an External-Facing Portal*
  Organizations can provide information, services and applications to customers, vendors and business partners in a public Web portal that performs well over the Internet and operates in a manner similar to standard, customizable Web sites.

> 💡 Note
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.1.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 22: System Landscape Running an Enterprise Portal
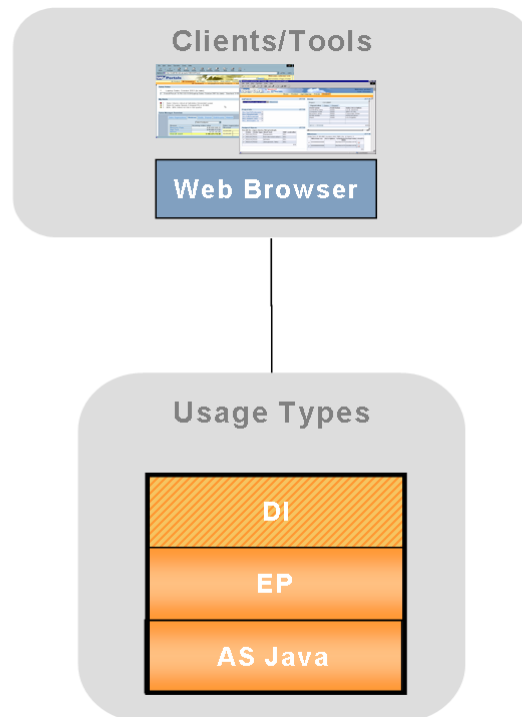
- Usage type DI is optional to this IT scenario. It is required only if you want to develop your own content.
- You can activate usage type DI either in the EP system or in a separate system. If you choose the latter option, you will have one system with usage types AS Java and EP and one system with usage types AS Java and DI.

5.1.3 Implementation Sequence

Process

The installation of the *Providing Uniform Content Access* IT scenario variant is a prerequisite for the implementation of the IT scenario variants *Implementing a Federated Portal Network* and *Implementing an External-Facing Portal*. The implementation differences among the variants are in the configuration steps.

To install the *Running an Enterprise Portal* IT scenario, perform the following steps:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, how you want to distribute required usage types and standalone engines of SAP NetWeaver to SAP systems). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage types EP (includes installation of AS Java) and optionally DI [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ You can install both EP and DI in one AS Java system, or in two separate AS Java systems. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide.* For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

5.2 Enterprise Knowledge Management

5.2.1 Overview

Enterprise Knowledge Management provides all you need for the planning, building, and operation of an integrated work environment for information workers:

■ Consolidation and integration of customers' Intranet platforms
■ A technical platform to rebuild and consolidate different internal information strategies into one, easy to maintain framework
■ Interaction between business applications and business documents

Enterprise Knowledge Management provides central, role-based access to all of your information assets and provides a connection between structured business data and unstructured documents. All users − according to their role − are enabled to contribute to and profit from the easy creation, distribution and classification of information.

   This scenario includes the following variants:

■ *Content Integration and Management*
   Integrating repositories, defining metadata, indexing documents, creating taxonomies, and configuring user interfaces.

■ *Content Creation, Publication, and Access*

Setting up an authoring environment; uploading or otherwise creating documents; publishing, classifying, approving, and sharing information; and searching for, navigating to, or being notified about information.

■ *Documentation, Training Materials and Manuals Management*

Provides the environment to create, translate, edit, publish, and manage documentation, training materials, and manuals.

Note

For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ®   *IT Scenarios at a Glance.*

5.2.2 System Landscape

The following figure shows the system landscape of the IT scenario variants *Content Integration and Management* and *Content Creation, Publication, and Access*:

Figure 23: Content Integration and Management and Content Creation, Publication, and Access
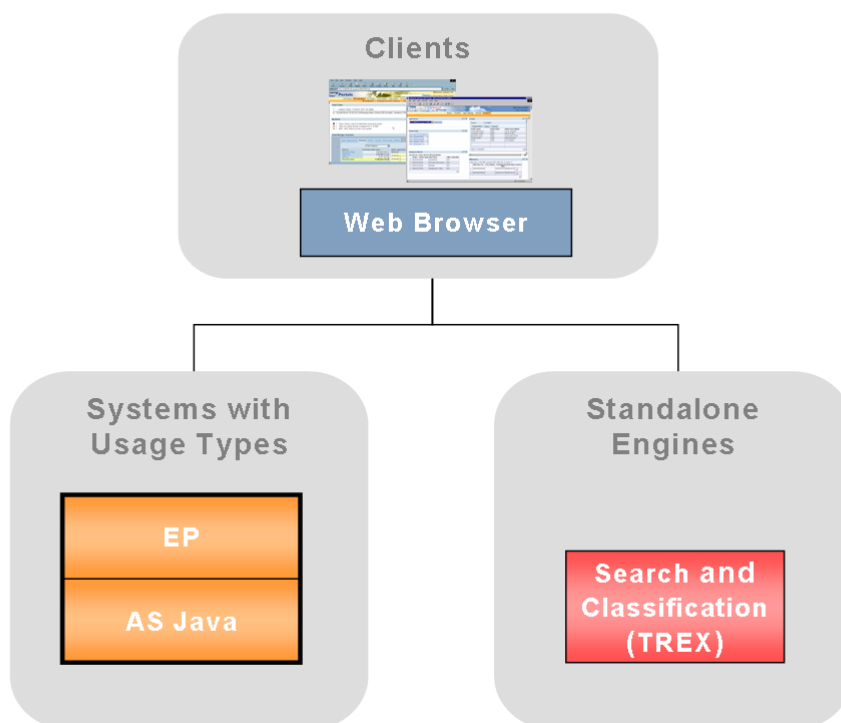
The following figure shows the system landscape of the IT scenario variant *Documentation, Training Materials and Manuals Management*:

Figure 24: Documentation, Training Materials and Manuals Management
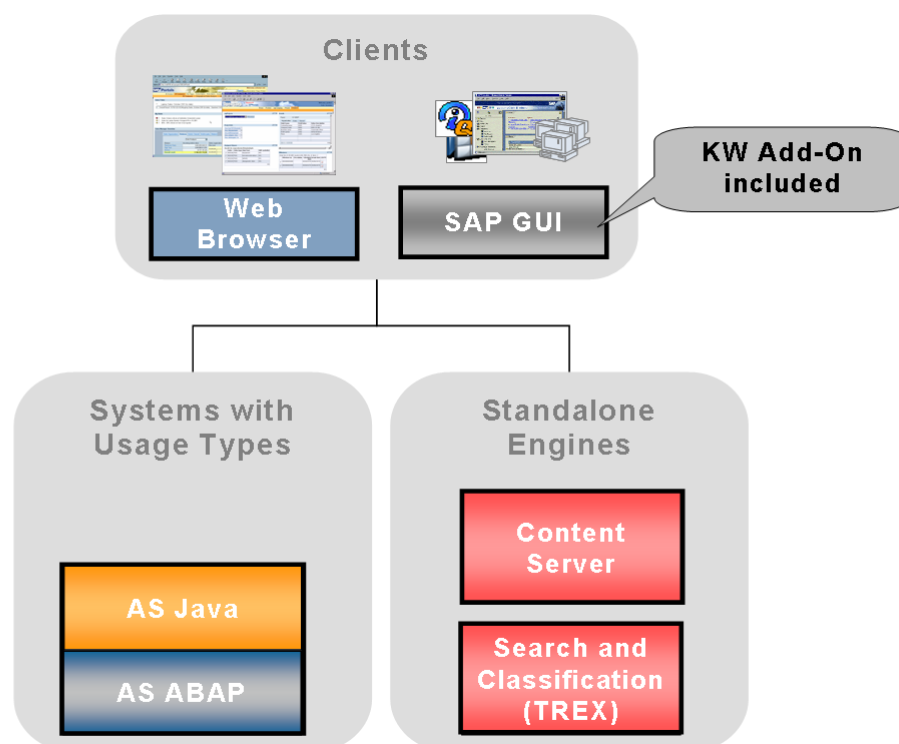
- Optionally, you could run AS ABAP and AS Java in two separate systems.
- When you install SAP GUI, make sure that you also select the installation of KW add-on.

5.2.3 Implementation Sequence

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your system landscape (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	

Step	Action [Corresponding Documentation]	Remarks
2	For the IT scenario variants *Content Integration and Management* and *Content Creation, Publication, and Access*, installation of a system with usage type EP (includes the installation of AS Java) [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	For IT scenario variant *Documentation, Training Materials and Manuals Management*, installation of a system with usage types AS ABAP and AS Java. [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ Optionally, you could run AS ABAP and AS Java in two separate systems. ■ If you want to run IT scenario variant *Documentation, Training Materials and Manuals Management* and any of the other two variants of this IT scenario, you could opt to run all required usage types EP and AS ABAP in one system. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide – SAP NetWeaver*.
4	Installation of standalone engines: ■ For IT scenario variant *Documentation, Training Materials and Manuals Management*, install the Content Server. [*Installation Guide – SAP Content Server 6.30*] ■ For both scenario variants, install Search and Classification (TREX). [*Installation Guide – SAP NetWeaver TREX*]	

Step	Action [Corresponding Documentation]	Remarks
	💡 Note After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide − SAP NetWeaver TREX*): ■ ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. ■ Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. Note that some applications use both the ABAP and the Java client.	
5	For IT scenario variant *Documentation, Training Materials and Manuals Management*: Install client SAP GUI. [*Installation Guide − SAP Front End*]	■ When you install SAP GUI, make sure that you also select the installation of KW add-on. ■ If you want to use Microsoft Office as an editing tool, register the dynamic link library `htmltidy.dll` on each SAP GUI client. For more information, see SAP Note 517439.

5.3 Enabling User Collaboration

5.3.1 Overview

The adoption of this IT scenario makes collaboration and knowledge sharing an integral, natural part of everyday work. Thus it helps increase users' productivity and business innovation by supporting efficient teamwork. User collaboration is designed to enable individuals, teams, and project groups to collaborate more efficiently within the context of their business processes. Knowledge workers want to locate information and communicate with each other in the context of their business processes.

With the aid of collaboration rooms they can share relevant information, communicate online in realtime, plan with the help of a team calendar, and provide a single point of access to business-relevant information and applications. Virtual rooms enable teams or project groups to collaborate efficiently across time zones and between geographical locations (vertical collaboration solutions such as mySAP PLM cFolders focusing on the areas of engineering, research, and development can be integrated with the horizontal collaboration capabilities of SAP NetWeaver).

By leveraging collaboration between people, companies can unveil tacit knowledge and turn knowledge into business action. Because SAP NetWeaver's collaboration capabilities are tightly integrated with the knowledge management capabilities, user collaboration provides users with standard document handling features (check in, check out, locking, versioning etc.) in a collaboration room.

User collaboration is also designed to enable people to quickly resolve issues that emerge in their daily work. To do so they can search for experts who are able to help and use real-time communication means such as instant messages or application/desktop sharing, at the same time reducing travel costs. The online presence of information enables people to choose an adequate communication mode. In summary, in today's rapidly changing business world, no company can afford poor collaboration among its people. Poor collaboration can lead to a reduction in the quality of decisions, and to unsatisfactory business results.

This scenario includes the following variants:

■ *Collaboration in Virtual Rooms*
Organizations can enable users to create their own virtual working environments, where the members of teams or project groups can collaborate efficiently across time zones and between geographical locations.
■ *Ad Hoc Collaboration*
Employees can quickly solve problems that emerge during a business process by using online communication and collaboration services.
■ *Administering Collaboration Services*
Administrators can make virtual collaboration rooms and collaboration services available to the end users, including configuring collaboration services, editing room templates, integrating business applications and third-party systems, and managing the rooms' life cycles.

💡 Note
For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.3.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 25: System Landscape Enabling User Collaboration
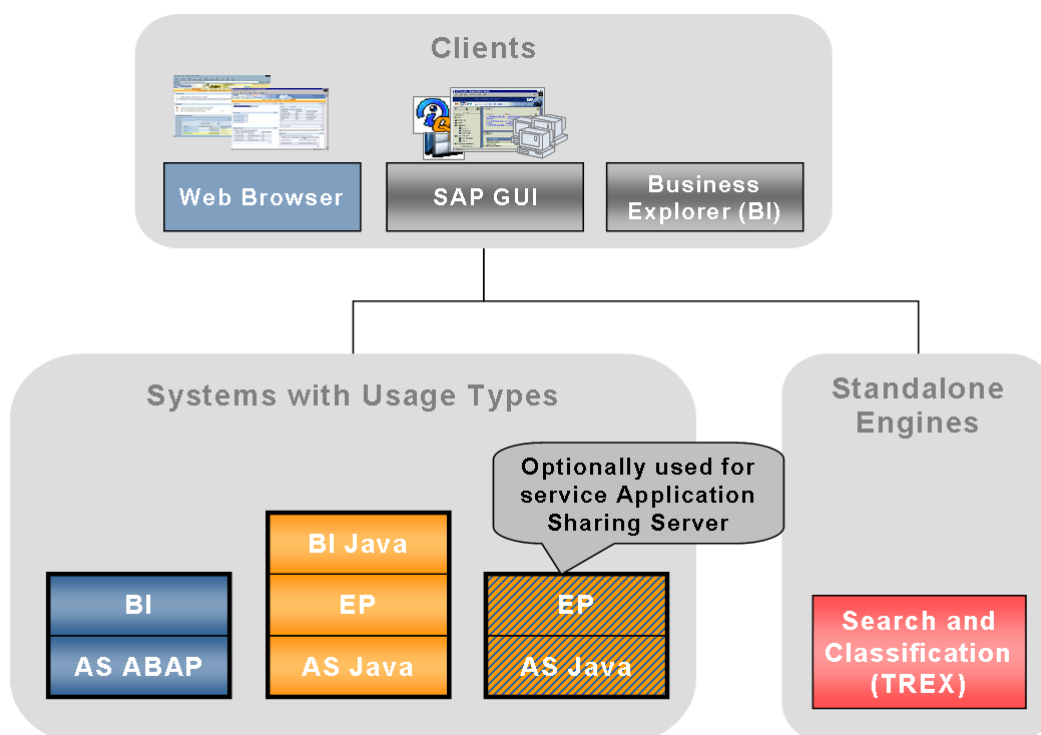
■ The service Application Sharing Server is part of usage type EP. For production use, we recommend that you install a separate system with usage type EP and AS Java on a dedicated host that runs this service as a standalone service. This reduces networking and J2EE demands generated by the server on the portal machine.

■ BI is required for Information Broadcasting. For more information about Information Broadcasting, see the section *Enterprise Reporting, Query, and Analysis*.

■ You can install BI and BI Java together in one system, as well as in separate systems. Note the following recommendation:

  ● Install BI and BI Java in one system, if you want to use a federated portal network including a central portal in your system landscape. For more information about the federated portal network, see *Enterprise Reporting Query and Analysis* [page 81], section *System Landscape*.

  ● Install BI and BI Java in separate systems, if you only require a single portal installation.

  💡 Note
     While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP, if you do not want to use EP for other scenarios as well.

■ AS Java includes BI UDI.

5.3.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your system landscape (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Install a system with usage type AS ABAP (required for usage type BI) [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*] 💡 Note For usage type BI, there is no installation option in SAPinst. Instead, install AS ABAP with SAPinst and then install SAP NetWeaver 2004s BI Content Add-On 2 or higher (see below).	■ Optionally, you could install usage types BI and BI Java in one system ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the Installation Guide − SAP NetWeaver.
3	Configure the database of your AS ABAP system for BI according to SAP Note 567745.	
4	Install SAP NetWeaver 2004s BI Content Add-On 2 or higher in the AS ABAP system according to SAP Note 847019.	
5	Install a system with usage type BI Java. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ Optionally, you could install usage types BI and BI Java in one system. ■ While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology*

Step	Action [Corresponding Documentation]	Remarks
		Consultant´s Guide. For more information, see the Installation Guide − SAP NetWeaver.
6	Optional: Install a system with usage type EP (includes the installation of AS Java) to run the service Application Sharing Server standalone [*Installation Guide − SAP Netweaver 2004s \<Technology\> on \<Operating System\>: \<Database\>*]	The service Application Sharing Server is part of usage type EP.
7	Install standalone engines: Search and Classification (TREX) [*Installation Guide − SAP NetWeaver TREX*] After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide − SAP NetWeaver TREX*): ■ ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. ■ Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. Note that some applications use both the ABAP and the Java client.	
8	Install clients: ■ SAP GUI [*Installation Guide − SAP Front End*] ■ Business Explorer (BI) Make sure that you select the option *BI Add-On including Business Explorer* (SAP NetWeaver 2004s) during the installation of SAP GUI. Deselect the option Pre-calculation Server. [*Installation Guide − SAP Front End*]	
9	Install third-party software: If required, Crystal Enterprise SAP Edition Version 10 (Crystal Enterprise [server component] and Crystal Reports [design tool]) [*Crystal Enterprise SAP Edition Installation Guide and Crystal Reports Installation Guide*]	Crystal Enterprise SAP Edition is only required if you need additional capabilities for formatted reporting. For more information, see SAP Service Marketplace at <u>service.sap.com/businessobjects</u> ® *FAQ*.

5.4 Business Planning and Analytical Services

5.4.1 Overview

This IT scenario covers processes which support decision-making by collecting data from InfoProviders, queries or other BI objects, transforming data in various ways, and writing the generated information back to BI objects.

The main tools and methods of business planning and analytical services are the Analysis Process Designer and BI integrated planning.

The Analysis Process Designer enables companies to define complete processes which can disclose relationships within their data. An analysis process collects data from InfoProviders, queries or other BI objects, transforms this data in various ways (and possibly multiple steps) and writes the new information either back to certain BI objects (like InfoObjects or ODS objects) or a downstream system such as a SAP CRM system. The transformations range from simple filter, aggregation or projection operations, to complex data mining methods.

This scenario includes the following variants:

■ Business planning
SAP NetWeaver provides state-of-the-art planning methods and tools that allow organizations to predict and react flexibly and quickly to changing market conditions. They can build applications to perform strategic or operational planning in an Excel-based or collaborative portal environment, including applications that support collaboration rooms, document integration, broadcasting, and ad hoc workflow.
■ Analysis process design
Organizations can create analysis processes, including data mining methods. They can create new levels of information, such as relationships and interdependencies within information delivered by the source systems.

> 💡 Note
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.4.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 26: Business Planning and Analytical Services

- You can install BI and BI Java together in one system, as well as in separate systems. Note the following recommendation:
  - Install BI and BI Java in one system, if you want to use a federated portal network including a central portal in your system landscape. For more information about the federated portal network, see *Enterprise Reporting Query and Analysis* [page 81], section *System Landscape*.
  - Install BI and BI Java in separate systems, if you only require a single portal installation.

  > Note
  > While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP, if you do not want to use EP for other scenarios as well.

- You need BI Java including EP, if you want to use the new SAP NetWeaver 2004s integrated planning functionality. Without BI Java and EPl, you can only use the SAP NetWeaver BI 3.5 (previously SAP BW 3.5) Business Planning and Simulation functions in combination with the 3.x runtime.
- liveCache is optional. You can use it as a lock server to improve performance if you have a lot of complex data records described by selection tables that have to be locked.
- For the *Analysis Process Design* IT scenario variant, you can opt to install an additional Business Explorer (BI) including Pre-calculation Server for precalculated workbooks on a separate host (Microsoft Windows only) to access it using the BI system (not shown in the figure above).
- AS Java comprises BI UDI.

5.4.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, how you want to distribute required usage types and standalone engines of SAP NetWeaver to SAP systems). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Optional: Prepare an SAP system as a data source: 1. The SAP system can be either an OLTP – SAP R/3 system (3.1I – 4.6C) or SAP R/3 Enterprise system (Extension Set 1.10 or higher) or any other SAP system with PI_BASIS Plug-In. 2. If you want to use SAP R/3 or SAP R/3 Enterprise as a data source, make sure that SAP R/3 Plug-In 2004.1 is installed on the OLTP system: See SAP Note 704564 (*R/3 plug-in:PI 2004.1 installation/delta upgrade*) and SAP Service Marketplace at `service.sap.com/r3-plug-in` 💡 Note ■ New and extended interfaces for integrating SAP R/3, SAP R/3 Enterprise, and SAP ERP Central Component (SAP ECC) will no longer be delivered with their own add-on (SAP R/3 Plug-In). As of SAP ECC 6.00, they will be directly included in SAP ECC. Therefore, this step is not required for SAP ECC 6.00 or higher. ■ With BI Java, you get access to non-SAP data sources by using the corresponding JDBC driver.	You have to prepare this SAP system only if you want to use an OLTP system (such as SAP R/3 or SAP R/3 Enterprise backend) as a data source.

Step	Action [Corresponding Documentation]	Remarks
3	Install a system with usage type AS ABAP (required for usage type BI) [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*] 💡 **Note** For usage type BI, there is no installation option in `SAPinst`. Instead, install AS ABAP with `SAPinst` and then install SAP NetWeaver 2004s BI Content Add-On 2 or higher (see below).	■ Optionally, you could install usage types BI and BI Java in one system. ■ Make sure that you perform the configuration steps as described in the installation guide. For usage type BI Java, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
4	Configure the database of your AS ABAP system for BI according to SAP Note 567745.	
5	Install SAP NetWeaver 2004s BI Content Add-On 2 or higher on the AS ABAP system according to SAP Note 847019.	
6	Install a system with usage type BI Java. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ Optionally, you could install usage types BI and BI Java in two systems. ■ While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager. For more information, see the *Installation Guide − SAP NetWeaver*.

7	Install standalone engines:
	 ■ If required, SAP liveCache
	   [*Installation Guide − SAP NetWeaver liveCache Technology*]
	 ■ Search and Classification (TREX)
	   [*Installation Guide − SAP NetWeaver TREX*]
		For more information about the configuration of SAP liveCache as lock server, see SAP Note 816730.

Step	Action [Corresponding Documentation]	Remarks
	Note After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide − SAP NetWeaver TREX*): - ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. - Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. Note that some applications use both the ABAP and the Java client. [*Installation Guide − SAP NetWeaver TREX*]	
8	Install clients: - SAP GUI [*Installation Guide − SAP Front End*] - Business Explorer (BI) Make sure that you select the option *BI Add-On including Business Explorer* (SAP NetWeaver 2004s) during the installation of SAP GUI. [*Installation Guide − SAP Front End*] - For the Analysis Process Design IT scenario variant, you can opt to install an additional Business Explorer (BI) with Pre-calculation Server on a separate host (Microsoft Windows only). [See the corresponding installation guide on the SAP NetWeaver 2004S *Presentation / Server Components / Content* DVD]	The Business Explorer (BI) with Pre-calculation Server also requires Microsoft Excel 2000 or higher on the same host.
9	Installation of third-party software: If required, Crystal Enterprise SAP Edition Version 10 (Crystal Enterprise [server component] and Crystal Reports [design tool]) [*Crystal Enterprise SAP Edition Installation Guide and Crystal Reports Installation Guide*]	Crystal Enterprise SAP Edition is only required if you need additional capabilities for formatted reporting. For more information, see SAP Service Marketplace at `service.sap.com/businessobjects` ® *FAQ*.

5.5 Enterprise Reporting, Query, and Analysis

5.5.1 Overview

Enterprise Reporting, Query, and Analysis provides all necessary processes and services to meet the information needs of business users. This comprises reporting, ad hoc query, interactive analysis, dashboards, analytic applications and list views, both from a design-time and runtime perspective.

The design-time processes are increasingly integrated into an overall strategy for SAP NetWeaver design-time.

The runtime environment utilizes the Java platform and open standard technologies to provide an infrastructure that is both flexible and extensible. It can be closely embedded into the operational context.

All information that a user acquires from reporting, query or analysis is actionable. This means that users can print it, attach it to a workflow, distribute it through broadcasting, give feedback on it and so on.

Scenario variants cover the different possibilities for design, deployment and interaction with BI data by using the different tools and capabilities in the Business Explorer (BI) suite:

- *Enterprise Reporting, Query, and Analysis*
  With SAP NetWeaver, power users can design, deploy, and execute queries, formatted reports, and Web applications.
- *Excel Integration*
  The Business Explorer (BI) analyzer tool of SAP NetWeaver can be used to design and interact with Excel-based business intelligence applications and workbooks.
- *Ad Hoc Query*
  Expert business users can use the Web analyzer tool in SAP NetWeaver to analyze ad hoc queries and create views of information from various data sources.
- *Information Broadcasting*
  Organizations can design, deploy, and execute information broadcasting, seamlessly integrating business intelligence, knowledge management, and collaboration into a single, blended experience for the portal end user.

> **Note**
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance.*

5.5.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 27: Enterprise Reporting, Query, and Analysis
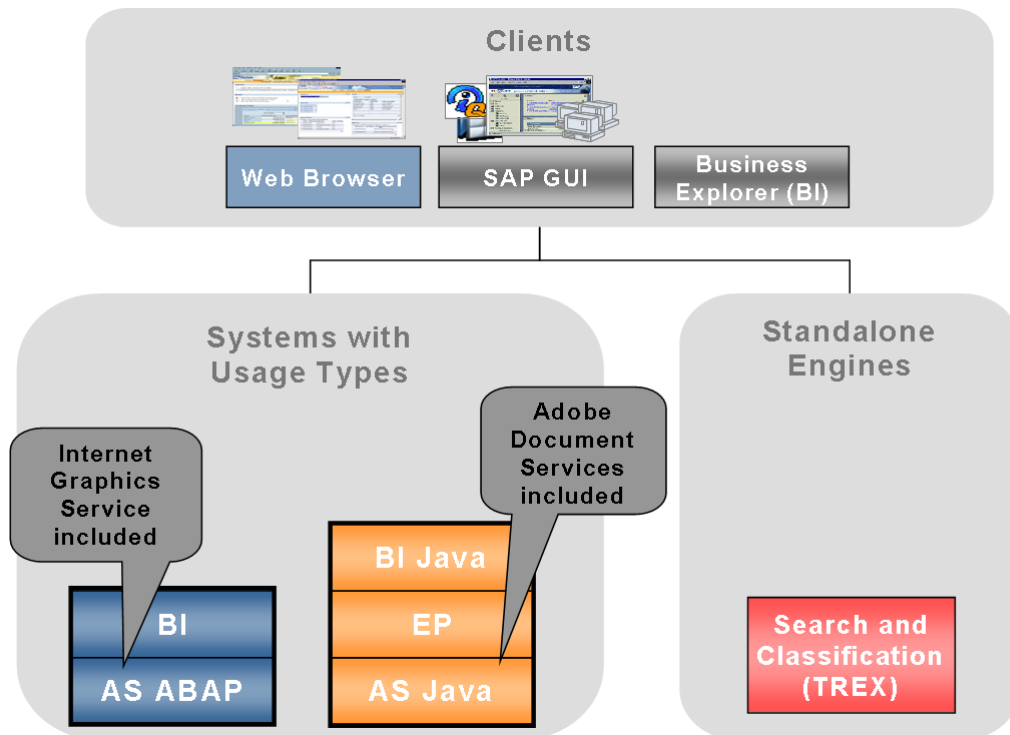
■ You can install BI and BI Java together in one system, as well as in separate systems. Note the following
   recommendation:
   ● Install BI and BI Java in one system, if you want to use a federated portal network including a central
      portal in your system landscape (see below).
   ● Install BI and BI Java in separate systems, if you only require a single portal installation.

   💡 Note
       While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not
       need to perform further steps in AS Java and EP, if you do not want to use EP for other scenarios as well.

■ You need BI Java including EP if you want to use the new SAP NetWeaver 2004s functionality. Without
   BI Java and EP, you can only use the SAP NetWeaver BI 3.x (previously SAP BW 3.x) Business Explorer
   tools and runtime. For more information, see the *Frequently Asked Questions* on SAP Service Marketplace at
   service.sap.com/bifaq ® *SAP NetWeaver 2004s BI FAQs*
■ For the IT scenario variants Excel Integration and Information Broadcasting, you can opt to install an
   additional Business Explorer (BI) including Pre-calculation Server for precalculated workbooks on a
   separate host (Microsoft Windows only) to access it using the BI system (not shown in the figure above).
■ AS Java includes BI UDI.

The following figure shows a system landscape where a federated portal network is used:

Figure 28: System Landscape With Federated Portal Network
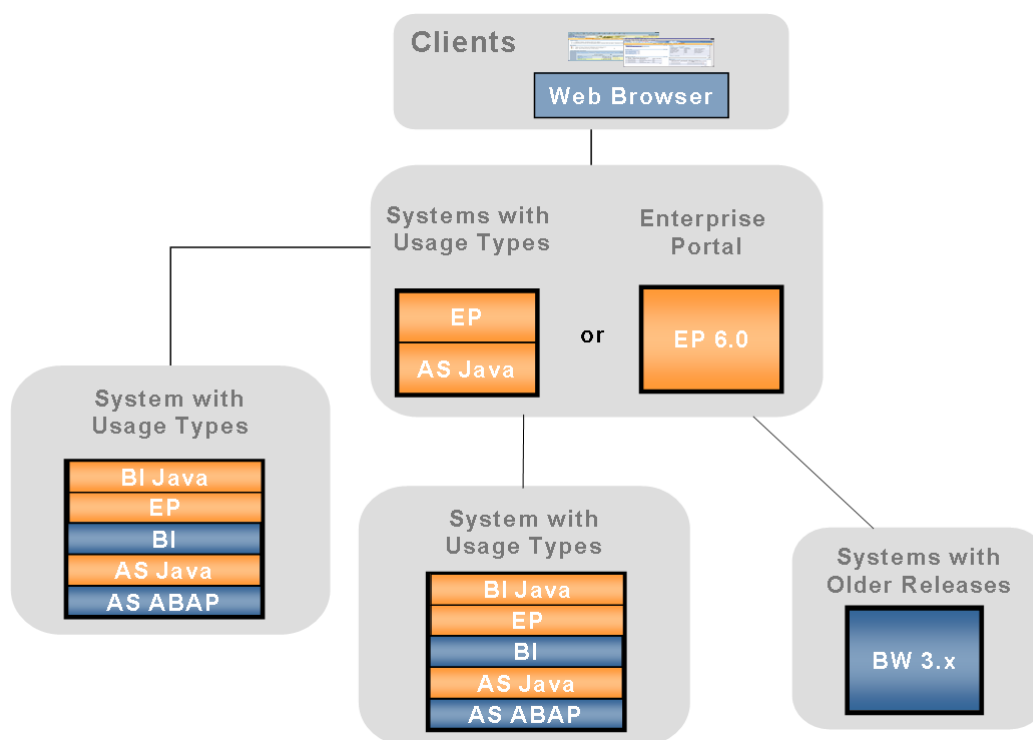
- A federated portal network is a network of independent portals which share content. Each portal can use content exposed by another producer portal, but at the same time expose its own content for use by other consumer portals.

  For more information about federated portal network, see also *Running an Enterprise Portal* [page 65].
- You can either use an SAP NetWeaver ´04 Portal or an SAP NetWeaver 2004s system with usage type EP as a central portal. Be aware that different methods are used to connect BI capabilities of SAP NetWeaver to the central portal:
    - To connect a SAP NetWeaver 2004s system with usage type BI Java to a SAP NetWeaver 2004s system with usage type EP, you use the federated portal feature *remote role assignment*.
    - To connect the following systems, you use application integrator iViews:
        - SAP NetWeaver BI 3.x (previously SAP BW 3.x) to SAP NetWeaver ´04 Portal
        - SAP NetWeaver BI 3.x (previously SAP BW 3.x) to SAP NetWeaver 2004s usage type EP
        - SAP NetWeaver 2004s usage type BI Java to SAP NetWeaver ´04 Portal
- For clarity, Search and Classification (TREX) is not shown in the figure above. You need to connect a TREX to each SAP NetWeaver BI system.

5.5.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30]. 💡 Note ■ New and extended interfaces for integrating SAP R/3, SAP R/3 Enterprise, and SAP ERP Central Component (SAP ECC) will no longer be delivered with their own add-on (SAP R/3 Plug-In). As of SAP ECC 6.00, they will be included directly in SAP ECC. Therefore, this step is not required for SAP ECC 6.00 or higher. ■ With BI Java, you get access to non-SAP data sources by using the corresponding JDBC driver.	
2	Optional: Prepare an SAP system as adata source: 1. The SAP system can be either an OLTP – SAP R/3 system (3.1I – 4.6C) or SAP R/3 Enterprise system (Extension Set 1.10 or higher) or any other SAP system with PI_BASIS Plug-In. 2. If you want to use SAP R/3 or SAP R/3 Enterprise as datas ource, make sure that SAP R/3 Plug-In 2004.1 is installed on the OLTP: See SAP Note 704564 (*R/3 plug-in:PI 2004.1 installation/delta upgrade*) and SAP Service Marketplace at `service.sap.com/r3-plug-in`.	You have to prepare this SAP system only if you want to use an OLTP system (such as SAP R/3 or SAP R/3 Enterprise back-end) as data source.

Step	Action [Corresponding Documentation]	Remarks
3	Install a system with usage type AS ABAP (required for usage type BI) [*Installation Guide – SAP Netweaver 2004s* <*Technology*> *on* <*Operating System*>: <*Database*>] 💡 Note For usage type BI, there is no installation option in `SAPinst`. Instead, install AS ABAP with `SAPinst` and then install SAP NetWeaver 2004s BI Content Add-On 2 or higher (see below).	■ Optionally, you could install usage types BI and BI Java in one system. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager. For more information, see the *Installation Guide – SAP Netweaver 2004s* <*Technology*> *on* <*Operating System*>: <*Database*>.
4	Configure the database of your AS ABAP system for BI according to SAP Note 567745.	
5	Install SAP NetWeaver 2004s BI Content Add-On 2 or higher in the AS ABAP system according to SAP Note 847019.	
6	Install a system with usage type BI Java. [*Installation Guide – SAP Netweaver 2004s* <*Technology*> *on* <*Operating System*>: <*Database*>]	■ Optionally, you could install usage types BI and BI Java in one system. ■ While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP. ■ Make sure that you perform the configuration steps as described in the installation guide. For usage type BI Java, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager. For more information, see the *Installation Guide – SAP Netweaver 2004s* <*Technology*> *on* <*Operating System*>: <*Database*>.
7	Install standalone engines: Search and Classification (TREX) [*Installation Guide – SAP NetWeaver TREX*]	

Step	Action [Corresponding Documentation]	Remarks
	Note After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide – SAP NetWeaver TREX*): ■ ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. ■ Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. Note that some applications use both the ABAP and the Java client.	
8	Install clients: ■ SAP GUI [*Installation Guide – SAP Front End*] ■ Business Explorer (BI) Make sure that you select the options BI Add-On including Business Explorer (SAP NetWeaver 2004s) during the installation of SAP GUI. [*Installation Guide – SAP Front End*] ■ For the IT scenario variants Excel Integration and Information Broadcasting, you can opt to install an additional Business Explorer (BI) with Pre-calculation Server on a separate host (Microsoft Windows only). [See the corresponding installation guide on the SAP NetWeaver 2004s *Presentation / Server Components / Content* DVD]	The Business Explorer (BI) with Pre-calculation Server requires Microsoft Excel 2000 or higher on the same host.
9	Install third-party software: If required, Crystal Enterprise SAP Edition Version 10 (Crystal Enterprise [server component] and Crystal Reports [design tool]) [*Crystal Enterprise SAP Edition Installation Guide and Crystal Reports Installation Guide*]	Crystal Enterprise SAP Edition is only required if you need additional capabilities for formatted reporting. For more information, see SAP Service Marketplace at `service.sap.com/businessobjects` ® *FAQ*.

5.6 Enterprise Data Warehousing

5.6.1 Overview

Enterprise Data Warehousing (EDW) enables customers to create and operate a data warehouse in an enterprise-wide environment. This methodology encompasses the integration of heterogeneous systems, supports various system topologies and their development, and describes a layering methodology for highly flexible information access. An EDW approach also facilitates both strategic analyses and operational reporting.

The structure of the Enterprise Data Warehousing IT scenario comprises two scenario variants, which cover design time (modeling/implementation) and runtime aspects of a highly flexible, reliable, robust and scalable BI solution:

- *Modeling the Enterprise Data Warehouse*
  Organizations can perform data modeling, meta data management, data acquisition from heterogeneous systems, data transformation, and data distribution.
- *Running the Enterprise Data Warehouse*
  Organizations can control the data flow in the enterprise data warehouse, and administrate and monitor the warehouse. They can use data lifecycle and performance capabilities and define user authorizations.

> 💡 Note
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance.*

5.6.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 29: Enterprise Data Warehousing

■ You can install BI and BI Java together in one system, as well as in separate systems. Note the following recommendation:

- Install BI and BI Java in one system, if you want to use a federated portal network including a central portal in your system landscape. For more information about the federated portal network, see *Enterprise Reporting Query and Analysis* [page 81], section *System Landscape*.
- Install BI and BI Java in separate systems, if you only require a single portal installation.

> 💡 Note
> While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP, if you do not want to use EP for other scenarios as well.

■ You only need BI Java and EP if you want to use the BI Administration Cockpit. The BI Administration Cockpit is part of a Business Package that is installed on top of SAP NetWeaver Portal.
If you do not want to use the BI Administration Cockpit, BI Java and EP are not required. However, note that BI Java and EP are usually required for the IT scenarios *Enterprise Reporting, Query & Analysis* [page 81] and *Business Planning and Analytical Services* [page 76].

■ AS Java includes BI UDI.

5.6.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Optional: Prepare an SAP system as a data source: 1. The SAP system can be either an OLTP – SAP R/3 (3.1I – 4.6C) or SAP R/3 Enterprise (Extension Set 1.10 or higher) or any other SAP system with PI_BASIS plug-in. 2. If you want to use SAP R/3 or SAP R/3 Enterprise as a data source, make sure that SAP R/3 Plug-In 2004.1 is installed on the OLTP: See SAP Note 704564 (R/3 plug-in:PI 2004.1 installation/delta upgrade) and SAP Service Marketplace at `service.sap.com/r3-plug-in`. 💡 Note ■ New and extended interfaces for integrating SAP R/3, SAP R/3 Enterprise, and SAP ERP Central Component (SAP ECC) will no longer be delivered with their own add-on (SAP R/3 Plug-In). As of SAP ECC 6.00, they will be included directly in SAP ECC. Therefore, this step is not required for SAP ECC 6.00 or higher. ■ With BI Java, you get access to non-SAP data sources by using the corresponding JDBC driver.	You have to prepare this SAP system only if you want to use an OLTP system (such as SAP R/3 or SAP R/3 Enterprise backend) as a data source. Although SAP R/3 3.1I to 4.6C or SAP R/3 Enterprise Extension Set 1.10 or higher can be used for the OLTP, we recommend that you use SAP R/3 Enterprise 4.70 Extension Set 2.00.

Step	Action [Corresponding Documentation]	Remarks
3	Install a system with usage type AS ABAP (required for usage type BI) [*Installation Guide – SAP Netweaver 2004s \<Technology\> on \<Operating System\>: \<Database\>*]	■ Optionally, you could install usage types BI and BI Java in one system. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager. For more information, see the *Installation Guide – SAP Netweaver 2004s \<Technology\> on \<Operating System\>: \<Database\>.*
4	Configure the database of your AS ABAP system for BI as described in SAP Note 567745.	
5	Install SAP NetWeaver 2004s BI Content Add-On 2 or higher in the AS ABAP system as described in SAP Note 847019.	
6	Install a system with usage type BI Java (includes the installation of AS Java and EP). [*Installation Guide – SAP Netweaver 2004s \<Technology\> on \<Operating System\>: \<Database\>*]	■ Optionally, you could install usage types BI and BI Java in one system. ■ While installing BI Java, AS Java and EP get installed automatically. After configuring BI Java you do not need to perform further steps in AS Java and EP. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager. For more information, see the *Installation Guide – SAP Netweaver 2004s \<Technology\> on \<Operating System\>: \<Database\>.*
7	Install standalone engines: ■ Search and Classification (TREX) [*Installation Guide – SAP NetWeaver TREX*]	

Step	Action [Corresponding Documentation]	Remarks
	Note After the installation of Search and Classification (TREX), you have to configure the systems that communicate with TREX (for more information, see the documentation *Installation Guide – SAP NetWeaver TREX*): ● ABAP applications access TREX functions using the TREX ABAP client and the RFC protocol. In this case, you have to perform the post-installation steps to set up an RFC connection. ● Java applications access TREX functions using the TREX Java client and the HTTP/HTTPS protocol. In this case, you have to perform the post-installation steps to set up an HTTP connection. Note that some applications use both the ABAP and the Java client. ■ The BI accelerator is based on TREX technology. You need an installation based on 64-bit architecture for the BI accelerator. The hardware partners provide this variant already preconfigured as the BI accelerator box. Note that a TREX installation configured for searching in metadata and documents based on 32-bit architecture **cannot** be used for the BI accelerator. Accordingly, a BI accelerator box also cannot be used for searching in metadata and documents. In order to be able to use the search function and the BI accelerator, you need separate installations.	

Step	Action [Corresponding Documentation]	Remarks
8	Install clients: SAP GUI [*Installation Guide − SAP Front End*]	
9	Install third-party software: If required, Crystal Enterprise SAP Edition Version 10 (Crystal Enterprise [server component] and Crystal Reports [design tool]) [*Crystal Enterprise SAP Edition Installation Guide* *and Crystal Reports Installation Guide*]	Crystal Enterprise SAP Edition is only required if you need additional capabilities for formatted reporting. For more information, see SAP Service Marketplace at `service.sap.com/businessobjects` ® *FAQ.*

5.7 Enabling Application-to-Application Processes

5.7.1 Overview

This IT scenario involves message-based and standard-based integration of intra-company processes by seamlessly connecting SAP and non-SAP applications.

Today's IT landscapes are increasingly complex and difficult to integrate. New levels of collaboration and connectivity are needed among all the systems and applications within an enterprise. In addition, their implementation needs to support the goal of standardizing on a services-based architecture.

To enable application-to-application processes, SAP NetWeaver provides one platform to centrally manage the design, configuration, and execution of business processes. The shared collaboration knowledge is based on open standards. This ensures openness and interoperability for communication with existing integration solutions and connection to non-SAP applications or third party systems. Furthermore, pre-delivered content is provided to allow an out-of-the-box integration of SAP solutions with other SAP or non-SAP applications.

By providing one common infrastructure for the integration of business processes between SAP and non-SAP applications, the complexity of a company's system landscape is reduced, and the company's performance increased. In addition, the overall maintenance costs are reduced by supporting the full solution life cycle from configuration, through execution, to change.

This scenario includes the variant *Application-to-application integration*.

With this scenario variant, organizations can carry out message-based and standards-based integration of intracompany processes by seamlessly connecting both SAP and non-SAP applications.

> 💡 Note
>
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.7.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 30: Enabling Application-to-Application Processes
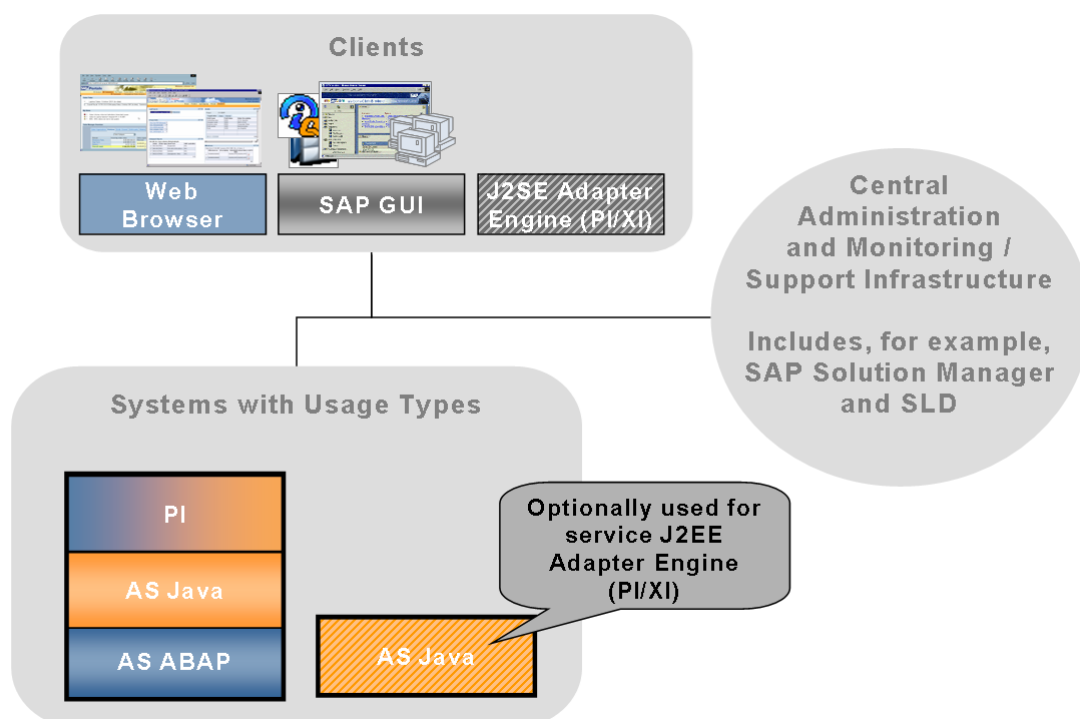
- We recommend that you have a dedicated PI system. For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release of the PI system is on the same release level – if required, you have to upgrade the PI system first to the new or a higher release. With a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other usage types running in the same system.
- You can use the J2EE Adapter Engine (PI/XI) that is part of your PI system as a central J2EE Adapter Engine (PI/XI). Optionally (for performance reasons), you can also install a non-central J2EE Adapter Engine (PI/XI) separately as a system with AS Java and parts of the usage type PI on a separate host.
- J2SE Adapter Engine (PI/XI) can be installed in a non-SAP Java environment. However, it only hosts a subset of the adapter functionality, is only supported for compatibility reasons, and should only be used if this is a precondition in your environment.

5.7.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of system with usage type PI (includes the installation of AS ABAP and AS Java) 💡 Note For usage type PI, a Unicode installation is mandatory. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	If required, installation of a system with usage types AS Java and parts of PI for the service J2EE Adapter Engine (PI/XI) [*Installation Guide − Adapter Engines for SAP NetWeaver*]	

4	Installation of clients:
	■ SAP GUI
	    [*Installation Guide − SAP Front End*]
	■ SAP GUI
	    [*Installation Guide − SAP Front End*]	

5.8 Enabling Business-to-Business Processes

5.8.1 Overview

This IT scenario is about message- and standard-based integration of inter-company processes by seamlessly connecting SAP and non-SAP applications and orchestrating the process flow between them.

For enabling business-to-business processes SAP NetWeaver provides one platform to centrally manage the design, configuration, and execution of business processes running within and beyond your enterprise. The functionality provided in SAP NetWeaver for B2B includes means to maintain and manage Collaboration Profiles and Agreements between Business Partners, a Partner Connectivity Kit (PI/XI) to enable XML document exchange between a smaller business partner and a bigger partner using SAP NetWeaver, an enhanced message protocol that is conducive to B2B process characteristics, security enhancements, as well as the support of industry standard B2B message protocols like RosettNet Implementation Framework, and CIDX.

Enabling Business-to-Business Processes in SAP NetWeaver adds business value because it supports XML-based business processes between business partners using industry standards and also enables small business partners to conduct XML business document exchange by providing them with a small scale, easy-to-use client.

This scenario includes the following variants:

■ *Business Partner Integration Using Industry Standards*
Organizations can perform message-based and standards-based integration of intercompany processes using various communication channels.
■ *Small-Business Partner and Subsidiary Integration*
Organizations can use SAP Partner Connectivity Kit (PI/XI) to conduct business with subsidiaries and small-business partners that do not have another integration solution.
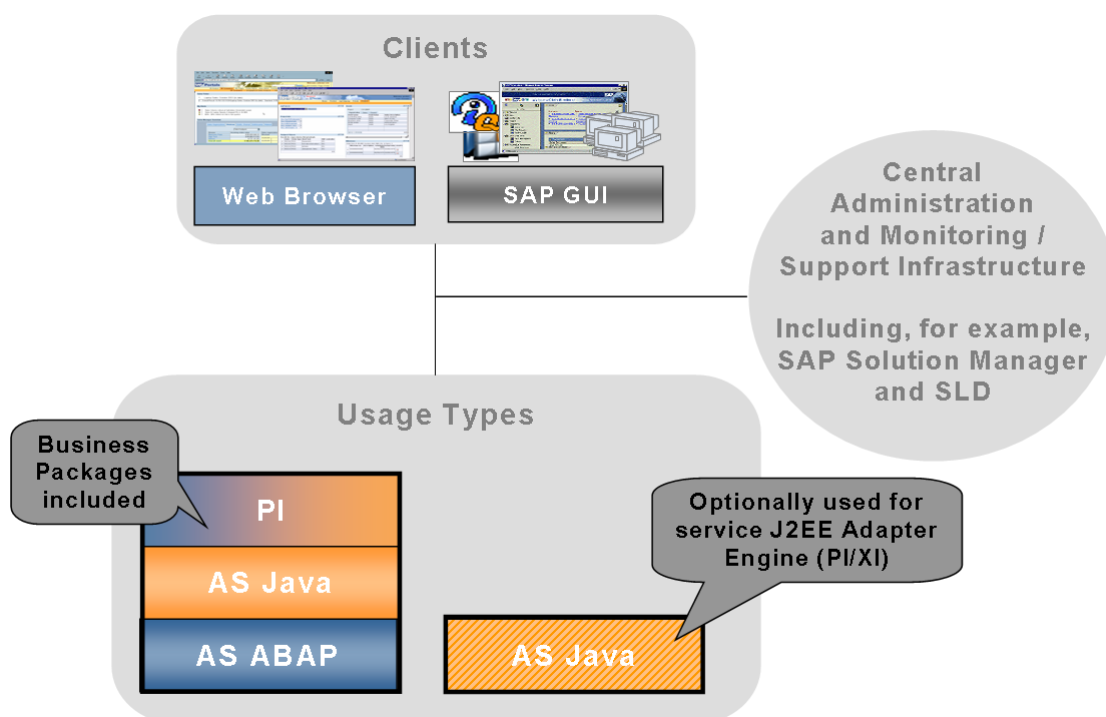
Note

For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance.*

5.8.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 31: Enabling Business-to-Business Processes

■ We recommend that you have a dedicated PI system. For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release of the PI system is on the same release level — if required, you have to upgrade the PI system first to the new or a higher release. With a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other usage types running in the same system.

■ Business packages provide customers with an end-to-end solution for collaborative commerce based on industry standards. If required for IT scenario variant *Business Partner Integration Using Industry Standards*, install an appropriate business package on your PI host. For example, the SAP Business Package for RosettaNet offers, amongst others, the RosettaNet Implementation Framework (RNIF) Adaptor, which specifies information exchange between trading-partner servers using XML.

■ You can use the J2EE Adapter Engine (PI/XI) that is part of your PI system as a central J2EE Adapter Engine (PI/XI). Optionally (for performance reasons), you can also install a non-central J2EE Adapter Engine (PI/XI) separately as a system with AS Java and parts of the usage type PI on a separate host.

■ For the IT scenario variant *Small-Business Partner and Subsidiary Integration*, smaller business partners or subsidiaries that do not run SAP NetWeaver install PCK (PI/XI) running on AS Java with parts of usage type PI in their system landscape. PCK (PI/XI) enables XML document exchange between your SAP NetWeaver systems and their systems. Since PCK (PI/XI) gets installed in their system landscape, it is not shown in the system landscape figure above.

5.8.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	

Step	Action [Corresponding Documentation]	Remarks
2	Install a system with usage type PI (includes the installation of AS ABAP and AS Java) 💡 Note For usage type PI, a Unicode installation is mandatory. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	▪ For IT scenario variant Business Partner Integration Using Industry Standards, also install required business packages on your PI host. ▪ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	For the IT scenario variant *Small-Business Partner and Subsidiary Integration*, business partners or subsidiaries install PCK (PI/XI) running on AS Java with parts of usage type PI in their system landscape [*Installation Guide − Partner Connectivity Kit*]	
4	If required, install a system with usage types AS Java and parts of PI for the service J2EE Adapter Engine (PI/XI) [*Installation Guide − Adapter Engines for SAP NetWeaver*]	
5	Install the required clients: SAP GUI [*Installation Guide − SAP Front End*]	

5.9 Business Process Management

5.9.1 Overview

Implementing this IT scenario enables companies to model, configure, execute, and monitor business scenarios and processes, to adapt them continuously to new strategies, and thereby manage the current economic conditions effectively. With a comprehensive perspective ranging from modeling to monitoring, business process management (BPM) bridges the gap between business-management requirements and their IT implementation.

Business process management overcomes the communication barrier by delivering methods, procedural models and pre-defined business process content throughout the company's value-added chain. Internal, enterprise-wide business processes are viewed as a whole, from the design (Business Strategy) and modeling (Business Model) stages to configuration, with automated execution either embedded in an application or unbounded in a central process integration layer.

Scenario variants cover the different ways of leveraging pre-defined content, automating business processes in a controlled fashion and, combining applications, embedded with unbounded processes.

This scenario includes the following variants:

- *Usage and Adaptation of Predefined Content*
  Organizations can use predefined content for business process configuration and tailor it on the execution layer.
- *Process Automation*
  Organizations can create and execute role-specific processes, design business processes, implement software, and perform inter-application integration as well as process execution.
- *Combining Embedded with Unbounded Processes*
  Specifies the combination of application-embedded processes with unbounded, cross-component processes.

Note

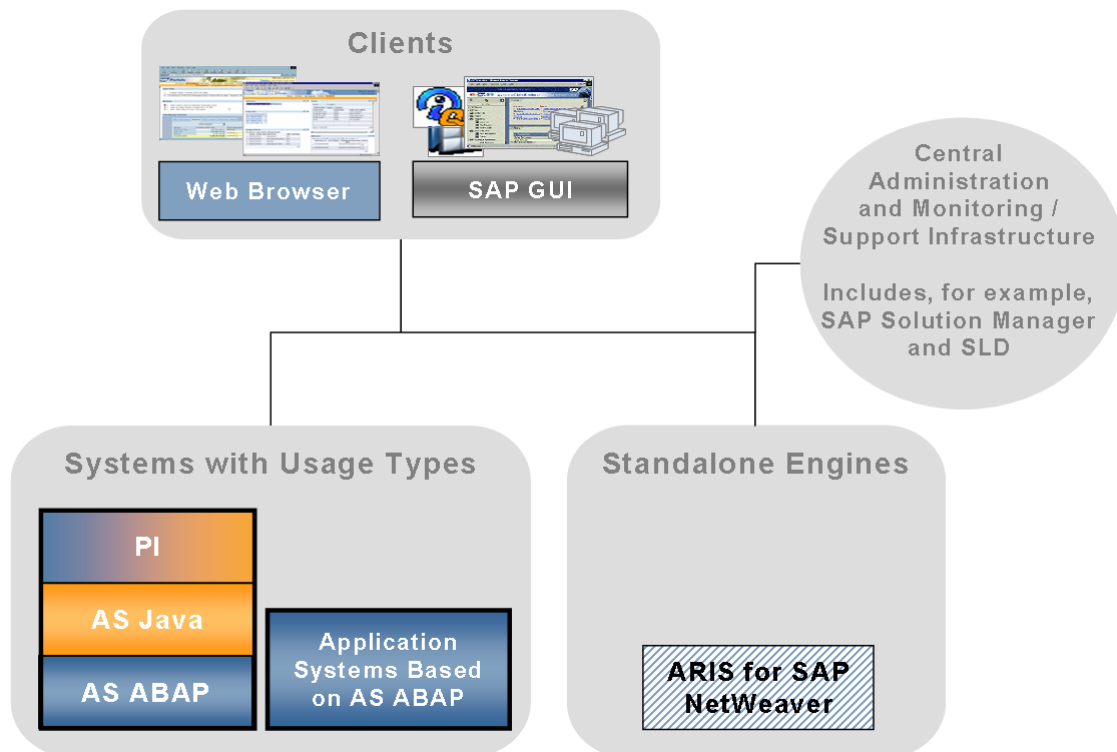For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.9.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 32: Business Process Management

- SAP Solution Manager is used to identify pre-defined reference content (process models) and to implement SAP applications driving business configuration.

■ Optionally, you can use ARIS for SAP NetWeaver to model and adapt business processes. ARIS for SAP NetWeaver is a joint brand by SAP and IDS Scheer AG. SAP customers can obtain ARIS for SAP NetWeaver from SAP.

■ We recommend that you run the business process engine (that is, the PI system) and the workflow engine (that is, the AS ABAP system) in two different systems. For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release of the PI system is on the same release level − if required, you have to upgrade the PI system first to the new or a higher release. With a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other usage types running in the same system.

■ For the scenario variant *Combining Embedded with Unbounded Processes*, you can integrate existing ABAP-based application systems.

■ For human interaction, *Business Process Management* is normally run together with the *Business Task Management* [page 100] IT scenario.

5.9.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage type PI (includes the installation of AS ABAP and AS Java) [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

Step	Action [Corresponding Documentation]	Remarks
3	Installation of clients: SAP GUI [*Installation Guide — SAP Front End*]	
4	If required, installation of ARIS for SAP NetWeaver.	Optionally, you can use ARIS for SAP NetWeaver to model and adapt business processes. ARIS for SAP NetWeaver is a joint brand by SAP and IDS Scheer AG. SAP customers can obtain ARIS for SAP NetWeaver from SAP.

5.10 Business Task Management

5.10.1 Overview

Business tasks are the activities generated either by the company's underlying business processes or by the users themselves as reminders for their own benefit or in order to delegate work to colleagues. The sooner users complete the tasks, the quicker the processes run. The easier it is for users, departments and companies to generate and track the tasks, the higher the quality of the output from the processes and the higher the transparency of processes within a company.

Tasks in SAP NetWeaver span the range from collaboration tasks generated manually in response to exceptions, through work items generated from automated business processes. Tasks in SAP NetWeaver are typically links to activities or transactions rendered by the mySAP Business Suite, or form-based tasks, such as in *Manager Self Services using Interactive Forms based on Adobe software*, for the occasional user.

Administration of the tasks in SAP NetWeaver is greatly simplified because the tasks generated from the automated processes (workflows) are all generated by the same BPM runtime software. This means that administration, such as locating tasks without owners or archiving, can be carried out on a uniform basis, irrespective of the source of the tasks. This reduces the total cost of ownership and ensures that the business processes run as fast as possible

This scenario includes the following variants:

■ *Central Access to Tasks*
Organizations can decompose tasks into coordinated activities performed by various people. They can support predefined activity patterns and ensure that all tasks, regardless of their origin, are performed using a single, consistent access point and user interface.

■ *Support for Offline Processes*
Offline support for business processes includes development and interaction using forms.

Note
For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance.*

5.10.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 33: System Landscape for Business Task Management
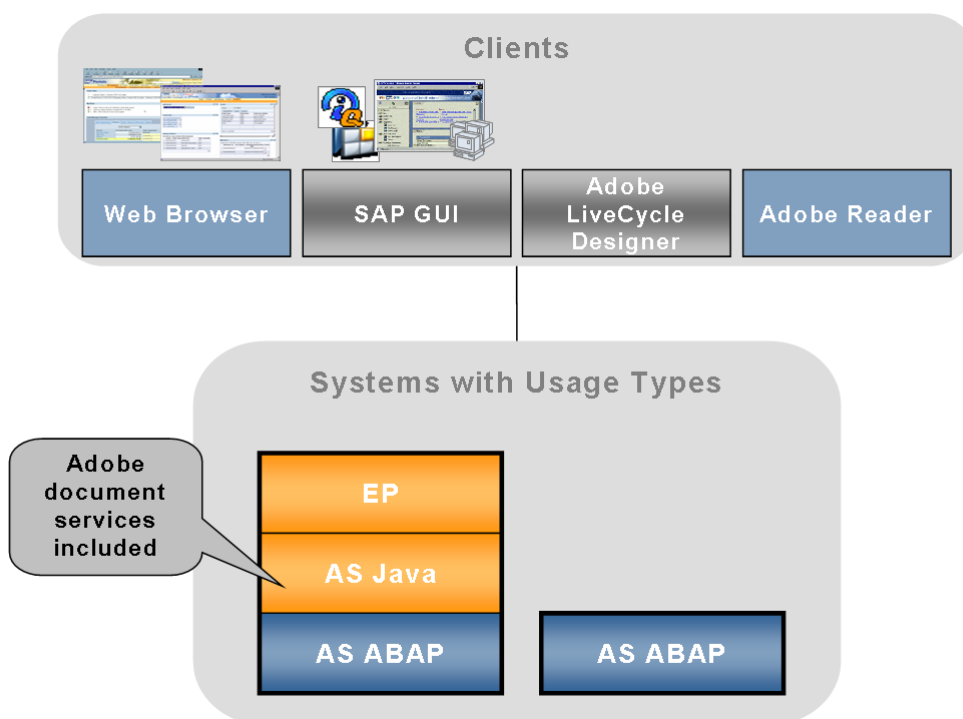
- The exact usage types that are required for a *Business Task Management* IT scenario depend on exactly what is required. Here are some of the most common constellations:
  - Collaboration tasks from different collaboration rooms are accessed centrally instead of in the different collaboration rooms. This requires EP, which includes AS Java.
  - SAP Business Workflow items from different SAP Business Suite applications or Web Applications Servers are accessed centrally. This requires one EP system for accessing and launching the tasks deployed in the same system landscape as the SAP Business Suite applications, and AS ABAP usage types for any independent workflow.
  - Alerts are accessed from a single task list. This requires the Central Alert server which is part of AS ABAP, together with EP, which includes AS Java.
  - Interactive Forms based on Adobe software forms are integrated in a workflow. This requires usage type EP for accessing the work items and AS Java, which includes the Adobe document services software needed for the Interactive Forms together with AS ABAP for workflow management. On the front end, you require Adobe Reader or Adobe Acrobat . Also, the installation of the Adobe LiveCycle Designer client is required. This enables the creation of forms that combine high-fidelity presentation with XML data handling.

For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

- Guided procedures are accessed from a central task list. This requires one EP, which includes AS Java, for the guided procedure modeling environment and universal worklist, and AS ABAP for the BPM runtime engine.

- Interactive Forms based on Adobe software are integrated in guided procedures. This requires one EP, which includes AS Java, for the guided procedure modeling environment and universal worklist, and AS ABAP for the BPM runtime engine. The AS Java that is used for the Interactive Forms is part of the EP usage type. On the front end, you require Adobe Reader or Adobe Acrobat . Also, the installation of the client Adobe LiveCycle Designer is optional. This enables the creation of forms that combine high-fidelity presentation with XML data handling.

  For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

- For workflows, *Business Task Management* requires the *Business Process Management* [page 97] IT scenario.

- In certain cases (mainly for the *Support for Offline Processes* IT scenario variant), an additional license for Interactive Forms based on Adobe software is required:

  - When you create your own custom-developed templates for Interactive Forms based on Adobe software.

  - When you modify an SAP-delivered template for Interactive Forms based on Adobe software by, for example, adding interactive fields. This would be considered to be more than a cosmetic change (such as inserting your logo or some static text on an SAP-delivered interactive form template), and is therefore licensable.

    > **Note**
    > The license applies only when you use interactive forms in a production system, that is when PDF forms are generated for filling in by end users.

  - An additional license is not required for using the Adobe LifeCycle Designer (this is covered by the SAP NetWeaver license).

  For more information, see the FAQs for Interactive Forms based on Adobe software solution on SAP Service Marketplace at `service.sap.com/adobe`.

- Landscape Considerations for Adobe Document Services (ADS)

  - Using One ADS Installation from Several Systems

    To optimize the use of your system landscape, it is possible to connect several ABAP-based SAP systems to one SAP NetWeaver AS Java running the ADS for the generation of the Interactive Forms output formats. In general, this setup is suitable for the use of Interactive Forms in interactive scenarios, or in printing scenarios where slower performance is acceptable.

    To take full advantage of the performance improvements for high-volume printing shipped in SAP Netweaver 2004s, you require a ABAP+Java double stack installation for each system from which you want to realize a high-volume printing scenario. This precludes the possibility of using one ADS for several systems.

For all scenarios using one ADS for several systems, ensure that the Java system and the corresponding ADS are on the same Support Package Stack level. If possible (for example, with mySAP ERP 2005), also have the ABAP system connecting to the ADS on the same SAP NetWeaver SPS level.

● Using Several ADS Installations from One System

In an ABAP system, it is possible to create connections to several ADS installations through a corresponding RFC destination.

In general, the ABAP system uses the default ADS destination shipped with SAP NetWeaver. Note that this configuration is only created by the installer when you install an ABAP+Java double stack system. If you install a Java standalone system, this destination is not created automatically. Therefore choosing a setup with several destinations needs to be coordinated with the business application using a specific ADS installation, as the destination needs to be specified explicitly in the application.

In Java development (Web Dynpro), you can only connect to one ADS installation at a time.

5.10.3 Implementation Sequence

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Correpsonding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage types EP (includes the installation of AS Java) and AS ABAP (as runtime for Guided Procedures) [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

Step	Action [Correpsonding Documentation]	Remarks
3	Installation of a system with usage type AS ABAP for alert management. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

4	Installation of clients:
	■ SAP GUI
	   [*Installation Guide − SAP Front End*]
	■ If you want to develop Interactive Forms based on Adobe software, install Adobe LiveCycle Designer.
	   [SAP Note 801524]
		For more information about the prerequisites for the development of interactive forms based on Adobe software, see the corresponding sections in the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

5	Installation of third-party software: If you want to develop Interactive Forms based on Adobe software, install the required version of Adobe Reader or Adobe Acrobat. [SAP Note 834573]	

5.11 Enabling Enterprise Services

5.11.1 Overview

Enterprise Services Architecture is a service-oriented architecture (SOA) that merges SAP's enterprise application content with the open composition platform SAP NetWeaver to enable flexible business processes by SAP, partners and customers. The first key element of enterprise services architecture is service enablement of applications within an enterprise. Service-enabling means providing the means to allow Web services-based access to an application. Service-enabling consists of two components: From a technology perspective, the SAP system has to support communication based on the Web services standards stack, while from an application perspective, the SAP system has to provide meaningful application services.

Enterprise service enablement using SAP NetWeaver is mainly achieved by having one infrastructure for uniform service definition, implementation and usage based on Web services standards. This includes all types of enterprise services for UI, A2A and B2B requirements and covers all relevant interaction models, such as synchronous, asynchronous, stateful and stateless models.

By implementing enterprise service enabling applications, enterprises become more agile, thus being able to react quickly and take advantage of opportunities, and to react efficiently to threats. Today, IT is an integral part of any enterprise, and therefore the IT infrastructure as a whole, not just individual parts of it, is made more flexible by this approach.

This scenario includes the following variants:

■ *Point-to-Point Services-based Integration*

Creates both ABAP and Java Web services and uses the Web services toolset integrated into the SAP NetWeaver development tools.

■ *Brokered Services-based Integration*

Uses SAP NetWeaver as a virtual interface to applications that are not Web service enabled.

> **Note**
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance.*

5.11.2 System Landscape

The following figure shows the system landscape of this IT scenario:

Figure 34: System Landscape for Enabling Enterprise Services
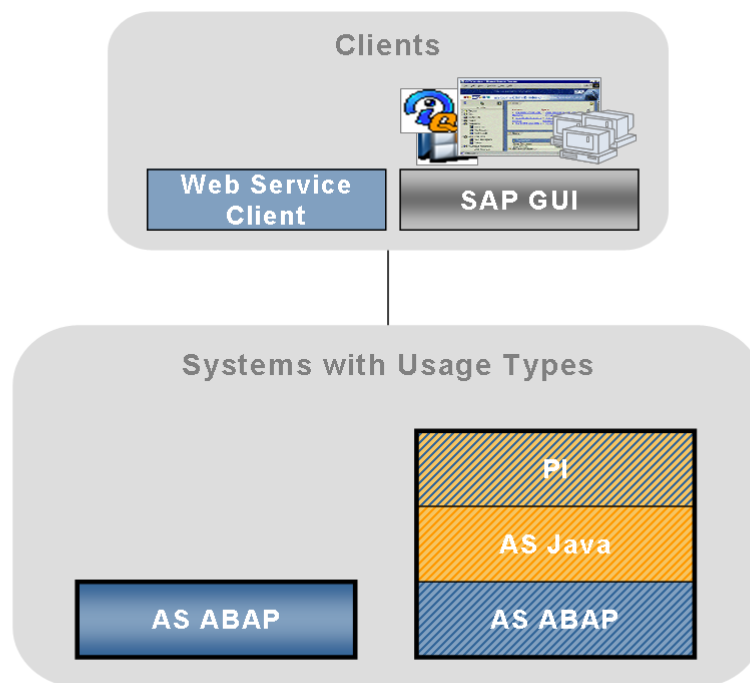
■ The AS ABAP system acts as an application and service provider. For Java Web Services, you also require AS Java. In addition, you require SAP NetWeaver Developer Studio or SAP NetWeaver Developer Workplace on the client side as a development environment.

■ The Web service client can be either an SAP or a non-SAP application. For example, an AS ABAP system or a Web browser could act as application or service consumer.

■ The PI system is optional. It is only required for the IT scenario variant *Brokered services-based integration,* where it acts as an integration broker.

■ We recommend that you run the application or service provider (that is, the AS ABAP system) and the integration broker (that is, the PI system) in two different systems. For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system. If you want to upgrade or install an application in your system landscape, you first have to make sure that the current release of the PI system is on the same release level − if required, you have to upgrade the PI system first to the new or a higher release. With a dedicated PI system, this can be accomplished with a minimum of downtime. Also, the PI system would not be affected by the downtime of other usage types running in the same system.

5.11.3 Implementation Sequence

To install this IT scenario, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage type AS ABAP [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

Step	Action [Corresponding Documentation]	Remarks
3	For the IT scenario variant *Brokered services-based integration*, installation of a system with usage type PI (includes the installation of AS ABAP and AS Java). [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
4	Installation of clients: - SAP GUI - If required as development environment, SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio [*Installation Guide − SAP Front End Installation Guide − SAP NetWeaver Developer Workplace or Installation Guide − SAP NetWeaver Developer Studio*]	As development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio.

5.12 Developing, Configuring, and Adapting Applications

5.12.1 Overview

This IT scenario offers a variety of ways to develop, configure, extend, and adapt applications. The scenario covers all aspects of application development, starting with elementary questions of software logistics and continuing with development of both back-end logic and web-based user interfaces for subsequent deployment in the Portal.

This scenario includes the following variants:

■ *Developing Java Applications using Web Dynpro*
  Organizations can use a model-driven programming model with a runtime and a design time environment to easily and flexibly develop, configure, and adapt Web Dynpro for Java applications. The integration of the Web Dynpro applications into SAP NetWeaver Development Infrastructure is easily done using design time tool support, and the Web Dynpro iView wizard brings the application quickly and seamlessly into the Enterprise Portal of SAP NetWeaver.

■ *Leveraging Java 2 Platform, Enterprise Edition (J2EE) Standards for Porting and Adopting Applications*
  Organizations have the methodology and tools to easily port to SAP NetWeaver any application that conforms to the Java 2 Platform, Enterprise Edition (J2EE) standard.

■ *Creating Composite Applications*
  Composite applications are built and deployed on top of data and functions provided as services by platforms and applications, combining these into user-centric processes and views, supported by their own business logic and specific user interfaces. Composite applications are loosely coupled to the back-end

systems on which they are based, resulting in a new logical application tier which can be deployed and upgraded independently of the back-end infrastructure.

■ *Creating Business Applications Using ABAP*
SAP NetWeaver provides the methodology and tools to create business applications using ABAP and ABAP Workbench.

■ *Developing ABAP Applications Using Web Dynpro*
SAP NetWeaver provides a model-driven and code-driven environment for developing Web applications using Web Dynpro in the ABAP environment.

■ *Developing Mobile Applications for Occasional Connection*
Organizations can develop disconnected mobile applications using the mobile development kit within SAP NetWeaver Developer Studio (or SAP NetWeaver Developer Workplace). The kit provides a code-driven environment for developing custom applications. Organizations can also develop connected mobile applications using a model-driven and code-driven environment to develop, configure, and adapt mobile applications based on Java 2 Platform, Enterprise Edition (J2EE), and to develop, model, and configure custom applications.

> **Note**
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.12.2 System Landscape

The following sections show system landscapes for all scenario variants. When planning your system landscape, note the following considerations, if you want to use Adobe Document Services (ADS):

■ Using One ADS Installation from Several Systems
To optimize the use of your system landscape, it is possible to connect several ABAP-based SAP systems to one SAP NetWeaver AS Java running the ADS for the generation of the Interactive Forms output formats. In general, this setup is suitable for the use of Interactive Forms in interactive scenarios, or in printing scenarios where slower performance is acceptable.
To take full advantage of the performance improvements for high-volume printing shipped in SAP Netweaver 2004s, you require a ABAP+Java double stack installation for each system from which you want to realize a high-volume printing scenario. This precludes the possibility of using one ADS for several systems. For all scenarios using one ADS for several systems, ensure that the Java system and the corresponding ADS are on the same Support Package Stack level. If possible (for example, with mySAP ERP 2005), also have the ABAP system connecting to the ADS on the same SAP NetWeaver SPS level.

■ Using Several ADS Installations from One System
In an ABAP system, it is possible to create connections to several ADS installations through a corresponding RFC destination.
In general, the ABAP system uses the default ADS destination shipped with SAP NetWeaver. Note that this configuration is only created by the installer when you install an ABAP+Java double stack system. If you install a Java standalone system, this destination is not created automatically. Therefore choosing a setup with several destinations needs to be coordinated with the business application using a specific ADS installation, as the destination needs to be specified explicitly in the application.

In Java development (Web Dynpro), you can only connect to one ADS installation at a time.

Developing Java Applications Using Web Dynpro

The following figure shows the system landscape for the scenario variant *Developing Java Applications using Web Dynpro*:

Figure 35: Developing Java Applications Using Web Dynpro

- On the front-end side, you use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio as the development environment.
- Usage type DI provides the development infrastructure. Although SAP strongly recommends that you use DI, you could opt to develop small projects without this infrastructure.
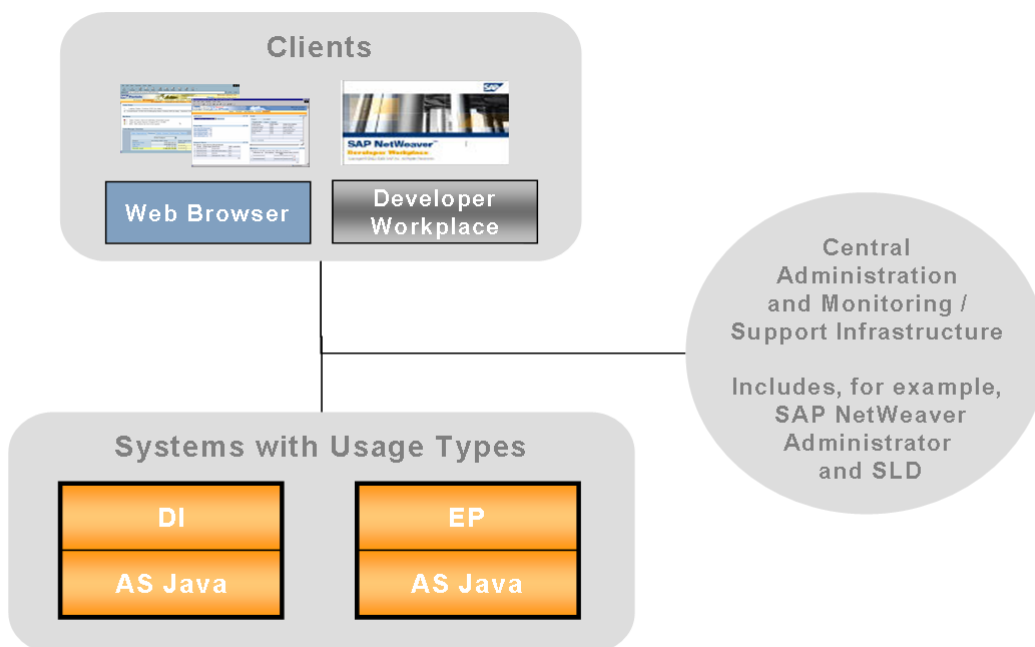- SAP strongly recommends that Java Web Applications are integrated in Enterprise Portal (EP). For this, you require an EP system in your landscape (SAP Enterprise Portal 6.0 SP2 or higher).
- Besides other services provided by the central administration and monitoring and support infrastructure, the development of Java applications requires the naming service of System Landscape Directory and administration services provided by SAP NetWeaver Administrator.
- The installation of the Adobe LiveCycle Designer client is optional. This enables the creation of forms that combine high-fidelity presentation with XML data handling. If you installed Adobe LiveCycle Designer, you require Adobe Reader or Adobe Acrobat on the front end.
  For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

Leveraging Java 2 Platform, Enterprise Edition (J2EE) Standards for Porting and Adopting Applications

The following figure shows the system landscape for the scenario variant *Leveraging Java 2 Platform, Enterprise Edition (J2EE) Standards for Porting and Adopting Applications*:

Figure 36: Leveraging Java 2 Platform, Enterprise Edition (J2EE) Standards for Porting and Adopting Applications

- On the front-end side, you use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio as the development environment.
- Usage type DI provides the development infrastructure. Although SAP strongly recommends that you use DI, you could opt to develop small projects without this infrastructure.
- SAP strongly recommends that Java Web Applications are integrated in Enterprise Portal (EP). For this, you require an EP system in your landscape (SAP Enterprise Portal 6.0 SP2 or higher).
- Besides other services provided by the central administration and monitoring and support infrastructure, the development of Java applications requires the naming service of System Landscape Directory and administration services provided by SAP NetWeaver Administrator.

Creating Composite Applications

The following figure shows the system landscape for the scenario variant Creating Composite Applications:

Figure 37: Creating Composite Applications
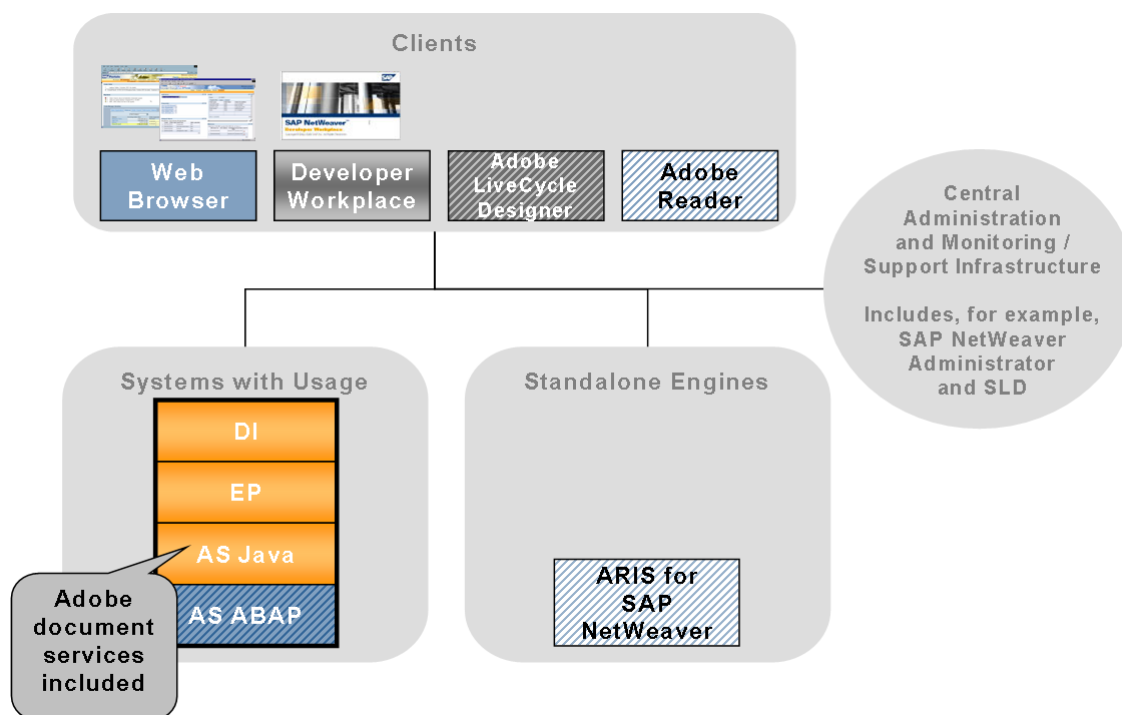
- Optionally, you can install DI and EP in two separate systems (one system with DI and AS Java, one system with EP and AS Java).
- AS ABAP is optional. You require it if you want to use business workflow. You can install it either in one system with DI and EP or as separate system.
- The installation of the Adobe LiveCycle Designer client is optional. It enables the creation of forms that combine high-fidelity presentation with XML data handling. If you installed Adobe LiveCycle Designer, you require Adobe Reader or Adobe Acrobat on the front end. For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
- Besides other services provided by the central administration and monitoring and support infrastructure, the development of composite applications requires the naming service of System Landscape Directory and administration services provided by SAP NetWeaver Administrator.
- On the front-end side, you use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio as the development environment.
- Optionally, you can use ARIS for SAP NetWeaver in the modeling phase of this Creating Composite Applications scenario variant. ARIS for SAP NetWeaver is a joint brand by SAP and IDS Scheer AG. SAP customers can obtain ARIS for SAP NetWeaver from SAP.

Creating Business Applications Using ABAP

The following figure shows the system landscape for the scenario variant *Creating Business Applications Using ABAP*:

Figure 38: Creating Business Applications Using ABAP
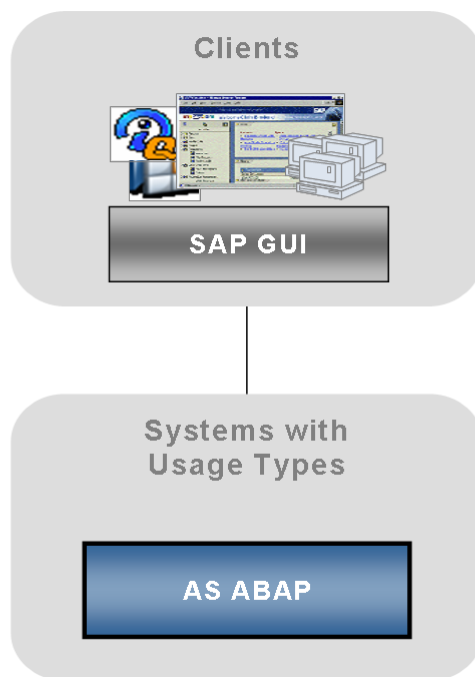
Developing ABAP Applications Using Web Dynpro

The following figure shows the system landscape for the scenario variant *Developing ABAP Applications Using Web Dynpro*:

Figure 39: Developing ABAP Applications Using Web Dynpro
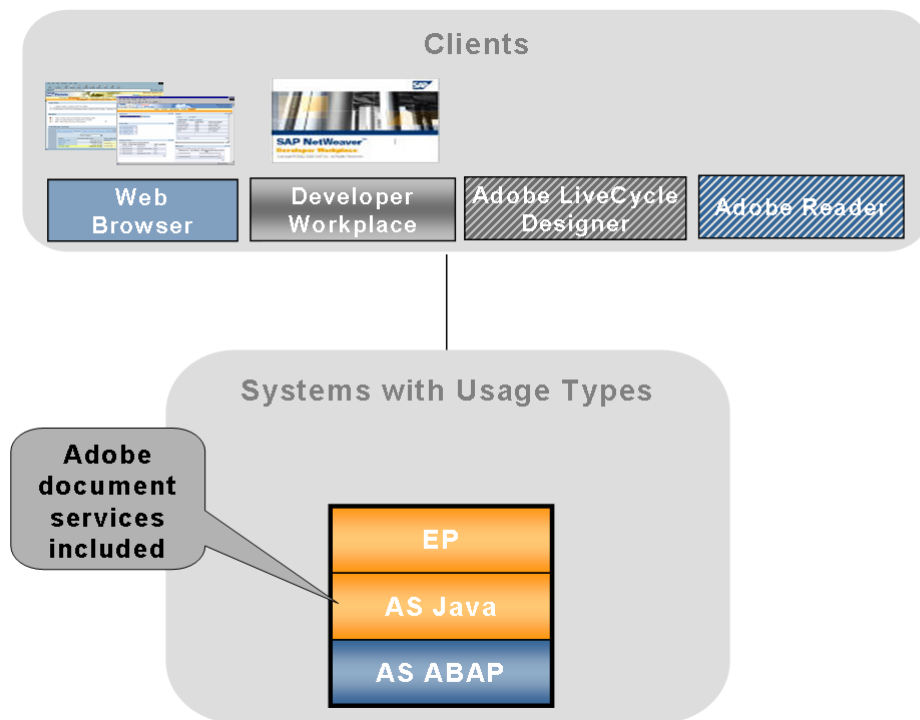
The installation of the Adobe LiveCycle Designer client is optional. It enables the creation of forms that combine high-fidelity presentation with XML data handling. If you installed Adobe LiveCycle Designer, you require Adobe Reader or Adobe Acrobat on the front end.

For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.

Developing Mobile Applications for Occasional Connection
The following figure shows the system landscape for the scenario variant *Developing Mobile Applications for Occasional Connection*:

Figure 40: Developing Mobile Applications for Occasional Connection
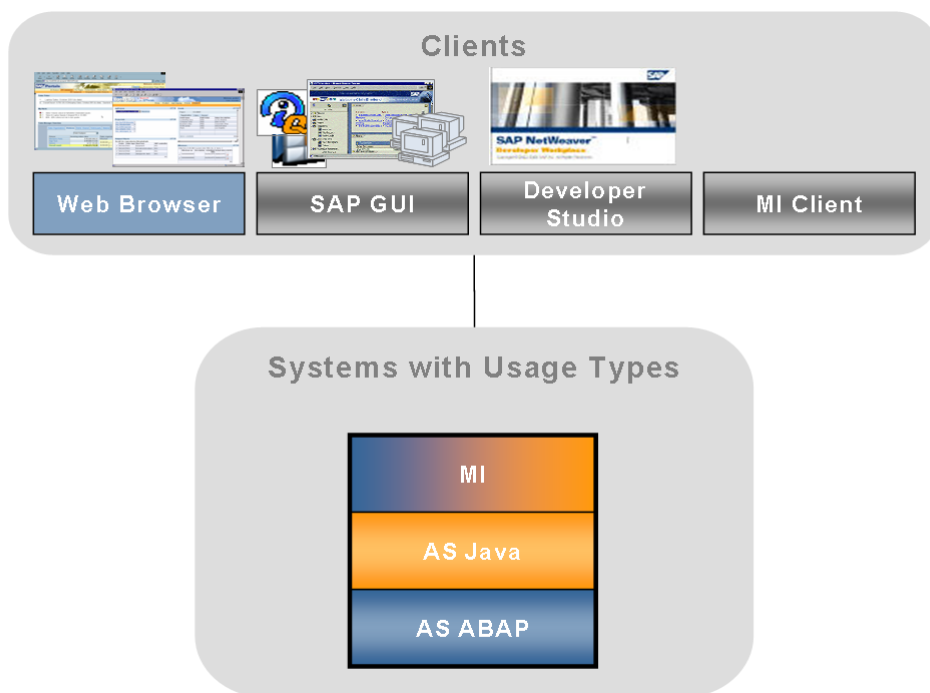
On the front-end side, you use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio as development environment.

5.12.3 Implementation Sequence

Process

Developing Java Applications using Web Dynpro

To install the IT scenario variant *Creating Applications using Web Dynpro for Java*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require).	

Step	Action [Corresponding Documentation]	Remarks
	■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage types DI and AS Java [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	If no EP system is available in your system landscape, see the section *Running an Enterprise Portal* [page 65] and follow the implementation sequence for *Running an Enterprise Portal* to implement it.	You could use any EP system in your system landscape with SAP Enterprise Portal 6.0 SP2 or higher.
4	Installation of clients: SAP NetWeaver Developer Workplace or SAP Developer Studio [*Installation Guide – SAP NetWeaver Developer Workplace Installation Guide – SAP NetWeaver Developer Studio*] If you want to develop Interactive Forms based on Adobe software, install Adobe LiveCycle Designer. [SAP Note 801524]	■ As development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio. ■ For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
5	Installation of third-party software: If you want to develop Interactive Forms based on Adobe software, install the required version of Adobe Reader or Adobe Acrobat. [SAP Note 834573]	

Java 2 Platform, Enterprise Edition (J2EE) Standards for Porting and Adopting Applications

To install the IT scenario variant *Leveraging Java 2 Platform, Enterprise Edition (J2EE) Standards for Porting and Adopting Applications*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage types DI and AS Java [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	If no EP system is available in your system landscape, see the section *Running an Enterprise Portal* [page 65] and follow the implementation sequence for *Running an Enterprise Portal* to implement it.	You could use any EP system in your system landscape with SAP Enterprise Portal 6.0 SP2 or higher.
4	Installation of clients: SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio [*Installation Guide − SAP NetWeaver Developer Workplace Installation Guide − SAP NetWeaver Developer Workplace or Installation Guide − SAP NetWeaver Developer Studio*]	As development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio.

Creating Composite Applications

To install the IT scenario variant *Creating Composite Applications*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts.	

Step	Action [Corresponding Documentation]	Remarks
	■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage types EP, DI, AS Java, and (optionally) AS ABAP. [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ Optionally, you can install DI and EP in two separate systems (one system with DI and AS Java, one system with EP and AS Java). ■ AS ABAP is optional. You require it if you want to use business workflow. You can install it either in one system with DI and EP or as separate system. ■ EP includes Guided Procedures. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	Installation of clients: ■ SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio [*Installation Guide – SAP NetWeaver Developer Workplace Installation Guide – SAP NetWeaver Developer Studio*] ■ If you want to develop Interactive Forms based on Adobe software, install Adobe LiveCycle Designer. [SAP Note 801524]	■ As a development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio. ■ For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
4	Installation of third-party software: If you want to develop Interactive Forms based on Adobe software, install the required version of Adobe Reader or Adobe Acrobat. [SAP Note 834573]	
5	If required, installation of ARIS for SAP NetWeaver	Optionally, you can use ARIS for SAP NetWeaver in the modeling phase of this *Creating Composite Applications* scenario variant. ARIS for SAP NetWeaver is a joint brand by SAP and IDS Scheer AG. SAP customers can obtain ARIS for SAP NetWeaver from SAP.

Creating Business Applications Using ABAP

To install the IT scenario variant *Creating Business Applications Using ABAP*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage type AS ABAP. [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	Installation of clients: SAP GUI [*Installation Guide − SAP Front End*]	

Developing ABAP Applications Using Web Dynpro

To install the IT scenario variant *Developing ABAP Applications Using Web Dynpro*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	

Step	Action [Corresponding Documentation]	Remarks
2	Install a system with usage types EP (includes the installation of AS Java) and AS ABAP. [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide.* For more information, see the Installation Guide – SAP NetWeaver. ■ After the installation, configure the portal integration in AS ABAP. For more information, see the SAP Library at *SAP NetWeaver Library* ® *SAP NetWeaver Developers' Guide* ® *IT Scenario-Driven Enhancements to Applications* ® *Running an Enterprise Portal* ® *Getting Involved* ® *Web Dynpro Applications for the Portal.*
3	Installation of clients: ■ SAP GUI [*Installation Guide – SAP Front End*] ■ Install Adobe LiveCycle Designer. [SAP Note 801524]	For more information about the prerequisites for the development of Interactive Forms based on Adobe software, see the corresponding sections in the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>.*
4	Installation of third-party software: If you want to develop Interactive Forms based on Adobe software, install the required version of Adobe Reader or Adobe Acrobat. [SAP Note 834573]	

Developing Mobile Applications for Occasional Connection

To install IT scenario variant *Developing Mobile Applications for Occasional Connection*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts.	

Step	Action [Corresponding Documentation]	Remarks
	■ You have planned and installed *shared services* [page 30].	
2	Install a system with usage type MI (includes the installation of AS ABAP and AS Java). [*Installation Guide — SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ At the moment, we do not recommend that you combine MI with other usage types (besides AS ABAP and AS Java) in one system. Instead, we recommend that you install a dedicated MI system. ■ You require an MI system that has the same Unicode type as your MI back-end system: • If your MI back-end system is a Unicode system, also install a Unicode MI system. • If your MI back-end system is non-Unicode, also install a non-Unicode MI system. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide — SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	Installation of clients: ■ SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio [*Installation Guide — SAP NetWeaver Developer Workplace Installation Guide — SAP NetWeaver Developer Studio*] ■ MI Client on your mobile devices [See the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Technology Consultant´s Guide* ® *Mobilizing Business Processes* ® *Setting Up SAP MI on the Mobile Device*] ■ SAP GUI [*Installation Guide — SAP Front End*]	As development environment, you can either use SAP NetWeaver Developer Workplace or SAP NetWeaver Developer Studio.

5.13 SAP NetWeaver Operations

5.13.1 Overview

The SAP NetWeaver Operations IT scenario deals with tools and methods that help you to run an SAP NetWeaver system landscape efficiently and ensure its reliability.

This scenario includes the following variants:

■ *Monitoring SAP NetWeaver*

Organizations have all the tools and services to monitor a single SAP NetWeaver instance as well as a system landscape based on the SAP NetWeaver platform. They can perform central alert monitoring and problem solving and can monitor all online activities.

■ *Administering SAP NetWeaver*

Organizations have all the tools and services they need to administer SAP NetWeaver. They can perform system configuration and optimization; manage continuous operations, including daily tasks and checks; and perform service-level reporting.

■ *Data Archiving*

Organizations can archive data to reduce system load and comply with regulatory requirements. They can manage the analysis and categorization of data, the archiving process itself, and access to archived data.

■ *Adaptive Computing*

SAP NetWeaver enables adaptive computing, in which hardware, software, and system services are able to adapt to changing business needs. SAP NetWeaver provides the platform for users to run any service anytime on any server, and it provides a central point of control for flexible assignment of computing resourcees.

> 💡 Note
>
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.13.2 System Landscape

Monitoring SAP NetWeaver / Administering SAP NetWeaver

The following figure shows the system landscape for the two scenario variants.

Figure 41: Monitoring SAP NetWeaver / Administering SAP NetWeaver
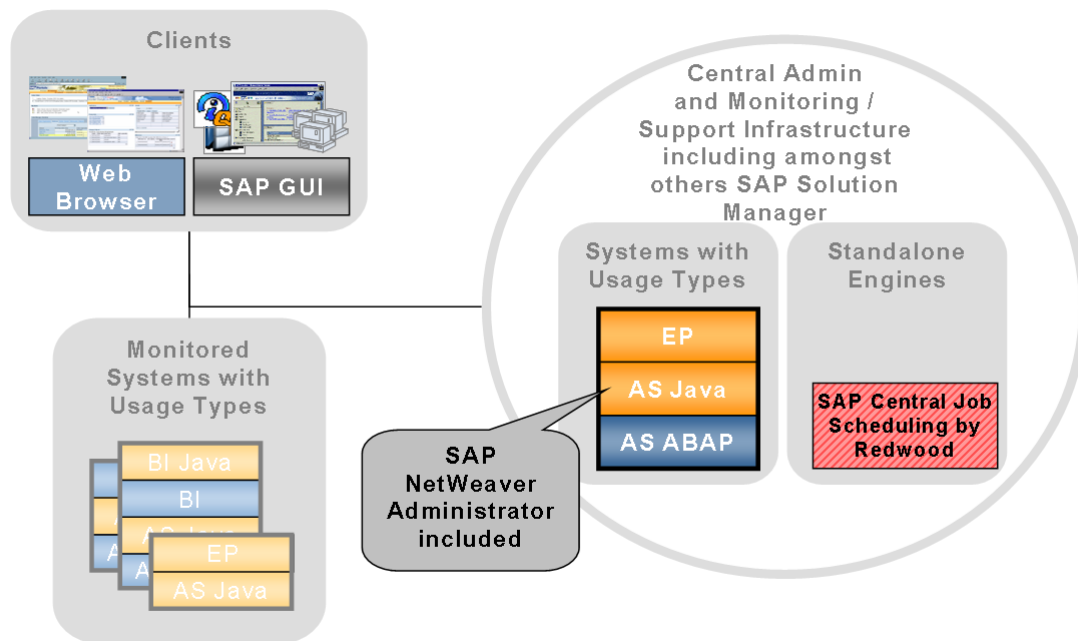
You can opt to install SAP Central Job Scheduling by Redwood to enhance the integration capabilities of SAP NetWeaver with powerful cross-component scheduling functionality.

Data Archiving

The following figure shows the system landscape for this scenario variant.

Figure 42: Data Archiving
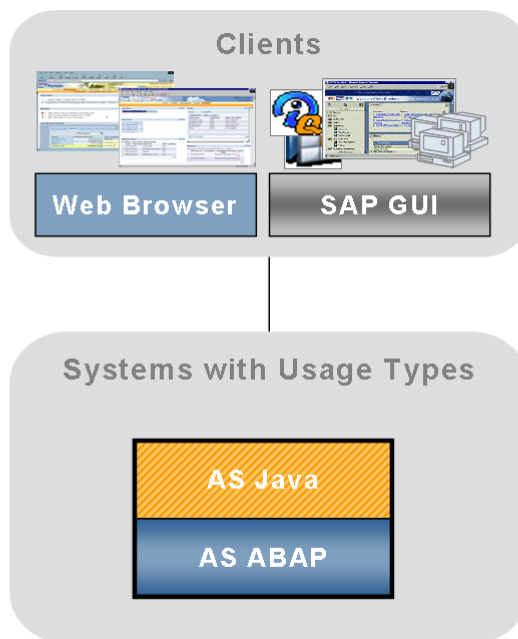
The technological foundation of *Data Archiving* is available in two different variants:

■ If you want to perform archiving based on the Archive Development Kit (ADK), set up archiving in every system with usage type AS ABAP.

■ If you want to perform XML-based archiving for ABAP, you can choose one system in your system landscape with either usage type AS ABAP and AS Java that can perform data archiving for multiple systems. If you want to perform XML-based archiving for Java, you can choose one system in your system landscape with usage type AS Java that can perform data archiving for multiple systems. Just like in ADK-based archiving, you can also set up archiving separately in every system for XML-based archiving for both ABAP and Java.

■ If you want to perform XML-based archiving, choose one system in your system landscape with usage types AS ABAP and AS Java that is able to perform data archiving for multiple systems.

For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Administrator's Guide* ® *Technical Operations Manual for SAP NetWeaver* ® *General Administration Tasks* ® *Data Archiving*.

Adaptive Computing

The following figure shows the system landscape for this scenario variant.

Figure 43: Adaptive Computing
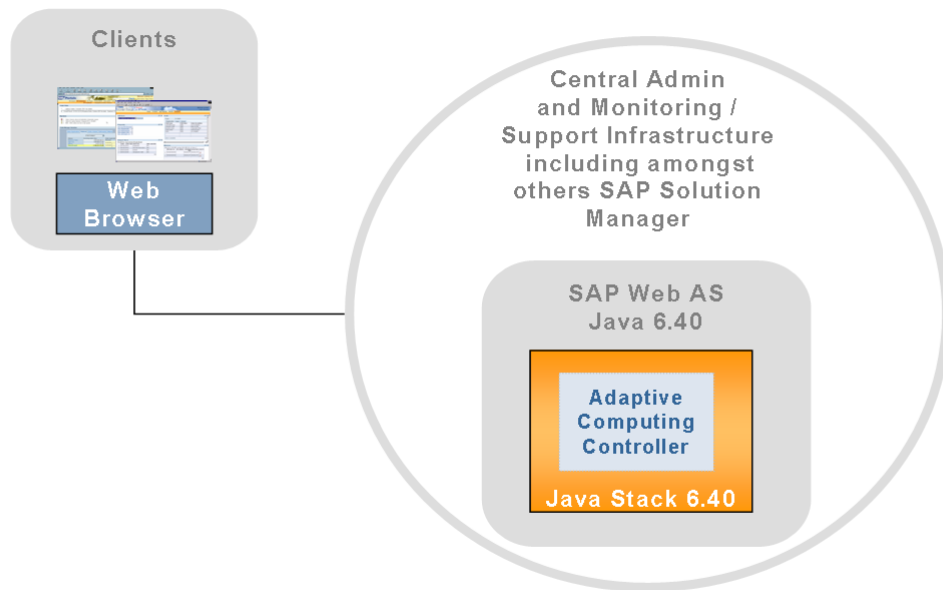
■ For SAP NetWeaver 2004s, Adaptive Computing Controller 1.0 from SAP NetWeaver '04 is used. This runs on an SAP Web AS Java 6.40.

■ SAP Solution Manager is used for the configuration and customizing of the adaptive computing landscape – application services and servers.

5.13.3 Implementation Sequence

Process

Monitoring SAP NetWeaver / Administering SAP NetWeaver

To install IT scenario variants *Monitoring SAP NetWeaver* or *Administering SAP NetWeaver*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, how you want to distribute required usage types and standalone engines of SAP NetWeaver to SAP systems). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage types EP (includes installation of AS Java) and AS ABAP [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ This system is the central administration and monitoring system, on which SAP NetWeaver Administrator, and optionally a local System Landscape Directory will run. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	Setup of SAP NetWeaver Administrator in this system [*Monitoring Setup Guide for SAP NetWeaver*]	SAP NetWeaver Administrator is used for the management and monitoring of the Java part.
4	If required, setup of a local System Landscape Directory in this system [*Post-Installation Guide − System Landscape Directory*]	System Landscape Directory is included in SAP NetWeaver systems with AS Java. It is used as supplier of system and version information.
5	Installation of standalone engines: If required, SAP Central Job Scheduling by Redwood Download the corresponding installation DVD from SAP Service Marketplace following the link at the entrance page at `service.sap.com/swdc`. The *Quick Installation Guide − Job Scheduling* is part of the download.	SAP Central Job Scheduling by Redwood is used for cross-component scheduling.
6	Installation of clients: SAP GUI [*Installation Guide − SAP Front End*]	

Step	Action [Corresponding Documentation]	Remarks
7	Installation of CCMS agents on your back-ends: ■ On each client running an SAP NetWeaver 2004s system with usage type AS Java (or AS ABAP and AS Java), one SAPCCMSR agent must be registered per Java instance. ■ On each client running an SAP NetWeaver system with usage type AS ABAP (or AS ABAP and AS Java), one SAPCCM4x agent should be registered per ABAP instance. ■ On clients running components that do not rely on SAP NetWeaver with usage type AS ABAP or AS Java (for example, Search and Classification [TREX]), SAPCCMSR agent plus SAPOSCOL must be installed. There is no need to touch the productive components directly.	CCMS agents are used for data provisioning. For more information, see SAP Service Marketplace at `service.sap.com/~sapidb/011000358700003240702001E`.
8	Installation of SAP agent package on each SAP NetWeaver component host [See the installation guide on the *Support Toolset* CD]	The SAP agent package delivers data into the central monitoring system.
9	Installation of the log viewer remote server on each SAP NetWeaver component host running Java and other non-ABAP applications: ■ The log viewer is included in SAP NetWeaver systems with usage type AS Java. The log viewer (client and server) and its user guide is located in `<Java_Installation_Directory>\admin\ \ logviewer-standalone`. ■ For other non-ABAP systems, you can download the complete package including user guide from SAP Service Marketplace at `service.sap.com/patches` ® *Entry by Application Group* ® *Additional Components* ® *Java Log Viewer*.	The log viewer remote server is required for central log viewing.

Data Archiving

For the IT scenario variant *Data Archiving*, no installation is required. However, for XML-based data archiving for ABAP and for Java, you perform the configuration steps described in the SAP Library at *SAP NetWeaver Library* ® *Administrator's Guide* ® *Technical Operations Manual for SAP NetWeaver* ® *General Administration Tasks* ® *Data Archiving*.

Adaptive Computing

To install IT scenario variant *Adaptive Computing*, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, how you want to distribute required usage types and standalone engines of SAP NetWeaver to SAP systems). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	If required, install an SAP Web AS Java 6.40 system for the Adaptive Computing Controller. [*Installation Guide − SAP NetWeaver '04* available on SAP Service Marketplace at `service.sap.com/instguidesnw04` ® *Installation*]	Optionally, you can run the Adaptive Computing Controller on an SAP Web AS ABAP + Java 6.40 system.
3	Install an Adaptive Computing Controller on this SAP Web AS 6.40 system. [*Installation Guide − Adaptive Computing Controller* available on SAP Service Marketplace at `service.sap.com/adaptive` ® *Guides*]	

5.14 Software Life-Cycle Management

5.14.1 Overview

Software Life-Cycle Management by SAP comprises the management of SAP products and solutions in real, customer-specific system landscapes.

Organizations can manage SAP software in their system landscapes by performing implementation tasks such as planning changes, implementing new systems, copying existing systems, or enabling the creation and propagation of changes in the landscape. Organizations can also maintain their software by importing support packages and corrections or by upgrading to new software versions.

This scenario includes the following variants:

■ *Implementation Support*
 Addresses the need to implement new functions, implement and configure business content, copy or migrate systems, and support the creation and propagation of customer-specific changes in an existing landscape.
■ *Software Maintenance*
 Addresses the need to update your system landscape to keep it up and running and to upgrade the scenarios realized in your landscape to new releases.

Software Life-Cycle Management provides the services to implement, copy, maintain, and upgrade every SAP NetWeaver IT scenario and to support software change management:

■ Implementation is included implicitly in the description of the other IT scenarios. Therefore, no general system landscape or implementation sequence can be given for Software Life-Cycle Management.

■ For information about copy and migration, see the *Homogeneous and Heterogeneous System Copy Guide for SAP Systems Based on SAP NetWeaver* available on SAP Service Marketplace at `service.sap.com/instguidesnw2004s` ® *Installation*.

■ Software change management is implicit in the description of development scenarios, such as *Developing, Configuring, and Adapting Applications* [page 107].

■ For information about maintenance, see the *Support Package Stack Guide — SAP NetWeaver* available on SAP Service Marketplace at `service.sap.com/instguidesnw2004s` ® *Maintenance*.

■ For information about upgrade, see the *Upgrade Master Guide — SAP NetWeaver* available on SAP Service Marketplace at `service.sap.com/instguidesnw2004s` ® *Upgrade*.

> **Note**
>
> For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.15 Mobilizing Business Processes

5.15.1 Overview

The IT scenario Mobilizing Business Processes enables you to extend your existing and new business processes into the mobile world. In addition to simple productivity tools such as e-mail, SAP NetWeaver integrates mobile end users in back-end business processes. It enables you to extend critical enterprise resources to mobile devices that connect your global organization into a single team.

Using the SAP NetWeaver application server as an intermediary server between mobile devices and business back-end systems, SAP NetWeaver can serve different user scenarios and user groups by providing optimized client technology platforms for them. By using ABAP and Java as programming languages, companies can leverage their existing expertise in this area and do not need to invest in specialized mobile device platforms and programming languages. The IT scenario covers all aspects of end-user integration, back-end integration and administration.

Mobile end users need to be integrated into back-end business processes in order to replace manual paper-driven processes (in delivery and service management). These end users can be of very different kinds (business managers, truck delivery drivers, warehouse workers).

Companies need to integrate application functionality from multiple application servers within their system landscape.

Mobile devices need to be set up, while users, devices and applications need to be monitored during the whole life-cycle.

The development of mobile applications is seamlessly embedded as variants in the *Developing, Configuring and Adapting Applications* [page 107] IT scenario and is based on the Mobile Development Kit (offline applications) and Web Dynpro technology (online applications). Customers are afforded great flexibility in developing their own mobile applications, or adapting mobile business solutions from SAP to their own specific needs.

This scenario includes the following variants:

■ *Running Mobile Applications with an Online Connection*

End users with mobile devices that are always connected can access the back-end system in real time. All business logic resides on the server, where the user interface is generated and sent to the mobile device.

For the development of *Running Mobile Applications with an Online Connection*, see the *Developing Java Applications using Web Dynpro* IT scenario variant of the *Developing, Configuring and Adapting Applications* [page 107] IT scenario.

■   *Enabling Mobile Applications for Occasional Connection*

End users with mobile devices that are occasionally connected can carry out their tasks without being connected to the back-end system. The required business logic and user interface reside on the mobile device, and when the mobile device connects to the back-end system, it exchanges all modified data.

For the development of *Enabling Mobile Applications for Occasional Connection*, see the *Developing Mobile Applications for Occasional Connection* IT scenario variant of the *Developing, Configuring and Adapting Applications* [page 107] IT scenario.

> 💡 Note
>
> Note that this IT scenario variant is only an example. For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ®   *IT Scenarios at a Glance*.

5.15.2 System Landscape

Running Mobile Applications with an Online Connection

The following figure shows the system landscape for this scenario variant.

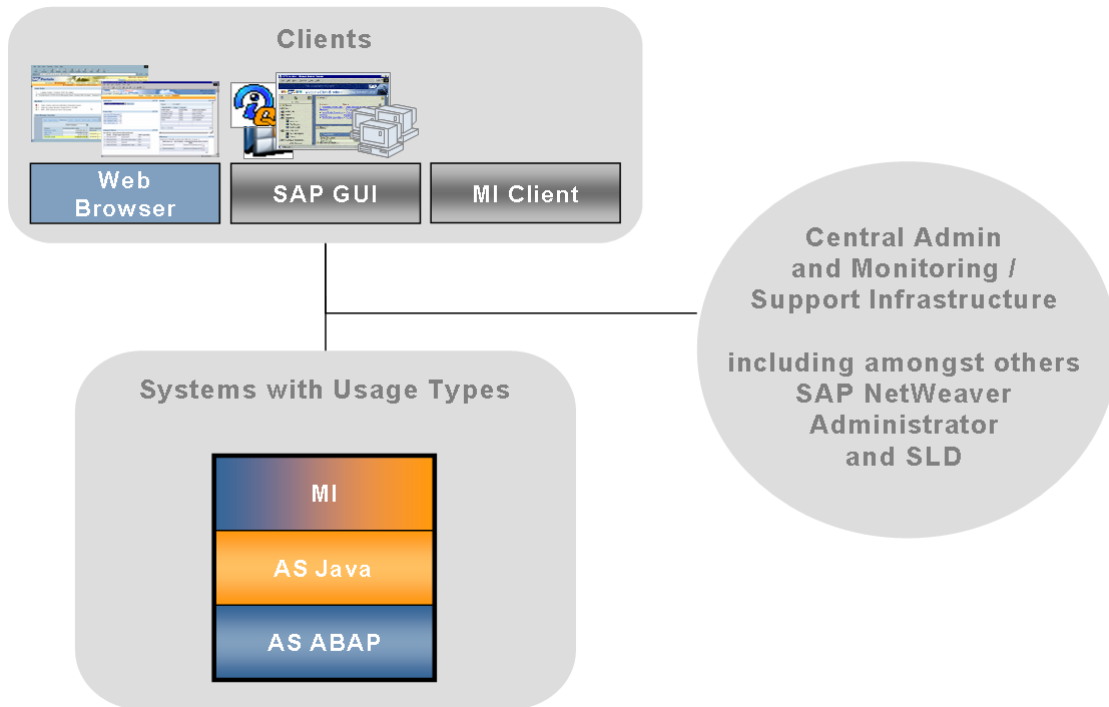**Figure 44:** Running Mobile Applications with an Online Connection
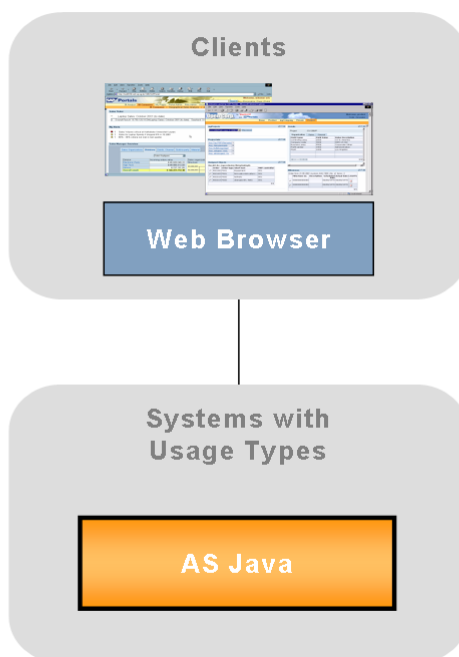
In addition to the AS Java system, you normally also require business back-end systems for your mobile applications.

Enabling Mobile Applications for Occasional Connection

The following figure shows the system landscape for this scenario variant.

Figure 45: Enabling Mobile Applications for Occasional Connection

- In addition to the MI system, you normally also require business back-end systems for your mobile applications.
- Besides other services provided by the central administration and monitoring and support infrastructure, Mobilizing Business Processes integrates the SAP NetWeaver Mobile Administrator into SAP NetWeaver Administrator for the administration of devices and the deployment of mobile applications.

5.15.3 Implementation Sequence

Process

Running Mobile Applications with an Online Connection

To install the IT scenario variant, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Installation of a system with usage type AS Java [*Installation Guide – SAP Netweaver 2004s ＜Technology＞ on ＜Operating System＞: ＜Database＞*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide – SAP Netweaver 2004s ＜Technology＞ on ＜Operating System＞: ＜Database＞*.

Mobile Applications for Occasional Connection

To install the IT scenario variant, perform the steps listed in the following table:

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	

Step	Action [Corresponding Documentation]	Remarks
2	Installation of a system with usage type MI (includes the installation of AS ABAP and AS Java) [*Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	■ At the moment, we do not recommend that you combine MI with other usage types (besides AS ABAP and AS Java) in one system. Instead, we recommend that you install a dedicated MI system. ■ You require an MI system that has the same Unicode type as your MI back-end system: ● If your MI back-end system is a Unicode system, also install a Unicode MI system. ● If your MI back-end system is non-Unicode, also install a non-Unicode MI system. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide.* For more information, see the *Installation Guide − SAP Netweaver 2004s <Technology> on <Operating System>: <Database>.*
3	Installation of clients: ■ MI Client on your mobile devices /[See the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Technology Consultant´s Guide* ® *Mobilizing Business Processes* ® *Setting Up SAP MI on the Mobile Device*] ■ SAP GUI [*Installation Guide − SAP Front End*]	

5.16 Authentication and Single Sign-On

5.16.1 Overview

The *Authentication and Single Sign-On* IT scenario provides several recommended ways to implement authentication and one way to integrate different systems into a Single Sign-On landscape. The scenario is based on industry standards (LDAP, SAML, JAAS) to ensure interoperability. It enables customers to leverage their existing investments, for example in a directory server. Single Sign-On reduces complexity for end users, saving them valuable time, while also reducing administration effort for resetting passwords, thereby contributing to TCO reduction.

This scenario features the following types of initial authentication: User name and password authentication, header-based authentication, SAML-based authentication, third-party authentication using a JAAS login module, and Single Sign-On using SAP logon tickets.

This scenario includes the variant *Authentication Using a Directory with SSO Integration Using SAP Logon Tickets*. Organizations can implement authentication using information stored in a lightweight directory access protocol (LDAP) directory and integrate different SAP software systems into a Single Sign-On landscape.

💡 Note

Note that this IT scenario variant is only an example. For more information, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *IT Scenarios at a Glance*.

5.16.2 System Landscape

The following figure shows the system landscape for this IT scenario.

Figure 46: Authentication and Single Sign-On
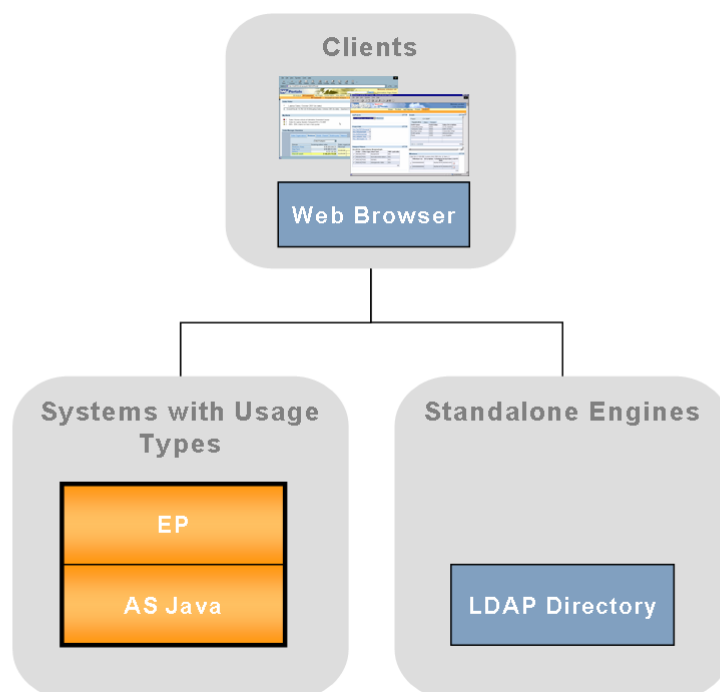
After logging on to the portal where authentication takes place, all systems in the landscape (whether they are based on AS ABAP, AS Java or both) can be accessed.

5.16.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table

Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Install a system with usage type EP (includes the installation of AS Java) [*Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*]	Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide – SAP Netweaver 2004s <Technology> on <Operating System>: <Database>*.
3	Installation of third-party tools: If not yet done, install an LDAP directory.	

5.17 Integrated User and Access Management

5.17.1 Overview

The *Integrated User and Access Management* IT scenario provides two of the recommended ways to implement integrated user and access management. It addresses companies' needs to store and manage user information and to control user access to data, while at the same time reducing redundancy. SAP's mature, fine-grained authorization concept allows detailed control of access rights. Consolidating user and authorization information reduces complexity and increases transparency, which is helpful both in terms of security and from a governance perspective. Integrated user and access management enables customers to leverage existing investments where appropriate, for example, by using data already available in an SAP system or in an LDAP-based directory server.

This scenario features central user administration, a user management engine (UME), and an LDAP-based directory server (optional; third party).

This scenario includes the following variants:

■ *Integrated User and Access Management that Includes a Third-Party Directory Server*
Organizations can take an integrated approach to user and access management by using the central
user administration features and the SAP NetWeaver user management engine along with a third-party
directory server based on lightweight directory access protocol (LDAP).

■ *Integrating User Management and Access Management*
Organizations can take an integrated approach to user and access management with the central user
administration features and the SAP NetWeaver user management engine.

> 💡 Note
>
> ■ For more information about this IT scenario, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ®
> *IT Scenarios at a Glance.*
>
> ■ Note that the variant described for this IT scenario is only an example. For information about options
> on how to integrate user management across a system landscape and for recommendations on when
> to use which option, see the *SAP Library* [page 4] at *SAP NetWeaver Library* ® *Administrator's Guide* ® *SAP*
> *NetWeaver Security Guide* ® *User Administration and Authentication* ® *Integration of User Management in Your*
> *System Landscape.*

5.17.2 System Landscape

The following figure shows the system landscape for this IT scenario.

Figure 47: Integrated User and Access Management
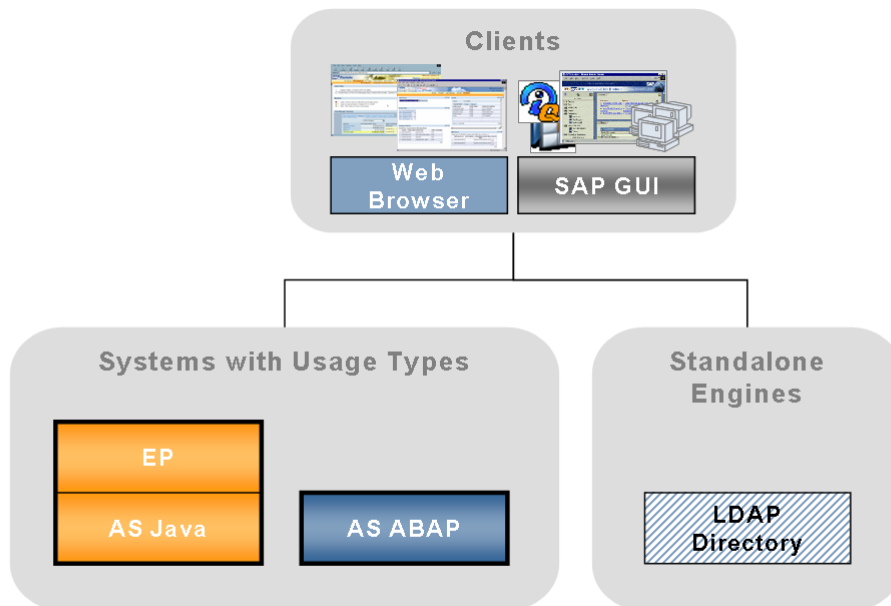
- You operate user management for systems with usage type AS Java (including systems with both AS ABAP and AS Java that use AS Java's user management engine) in the EP system of your system landscape.
- A system with AS ABAP is required for central user administration. There, you operate the user management for all users in those systems of your landscape where you configured AS ABAP user management (that is, all systems with AS ABAP and all systems with both AS ABAP and AS Java that use AS ABAP user management).
- We recommend that you use a non-production system for central user administration. For example, you could use the SAP Solution Manager system or the central administration and monitoring system.
- A third-party directory server based on LDAP is only required for IT scenario variant *Integrated User and Access Management that Includes a Third-Party Directory Server*.

5.17.3 Implementation Sequence

Process

To install this IT scenario, perform the steps listed in the following table:

| Step	Action [Corresponding Documentation]	Remarks
1	Make sure that you have performed the preparation steps: ■ You have planned your *system landscape* [page 25] (that is, you have decided how many systems you require, how you want to use each of these systems, and which standalone engines and clients you require). ■ With the help of your hardware partner, you have mapped your systems and standalone engines to properly sized hosts. ■ You have planned and installed *shared services* [page 30].	
2	Install a system with usage type EP (includes the installation of AS Java). [*Installation Guide − SAP NetWeaver*]	■ If you already have an EP system in your landscape, skip this step. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP NetWeaver*.
3	Install a system with usage type AS ABAP. [*Installation Guide − SAP NetWeaver*]	■ If you want to use an existing system, skip this step. ■ Make sure that you perform the configuration steps as described in the installation guide. For certain usage types, configuration templates exist that can be applied by the Template Installer. In addition, all required configuration steps for your IT scenario are listed in SAP Solution Manager and in the *Technology Consultant´s Guide*. For more information, see the *Installation Guide − SAP NetWeaver*.
4	Install the SAP GUI. [*Installation Guide − SAP Front End*]	
5	Install third-party tools: If not yet done, install an LDAP directory.	

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A Reference

A.1 The Main SAP Documentation Types

The following is an overview of the **most important** documentation types that you need in the various phases in the life cycle of an SAP solution.

Figure 48: Documentation types in the software life cycle
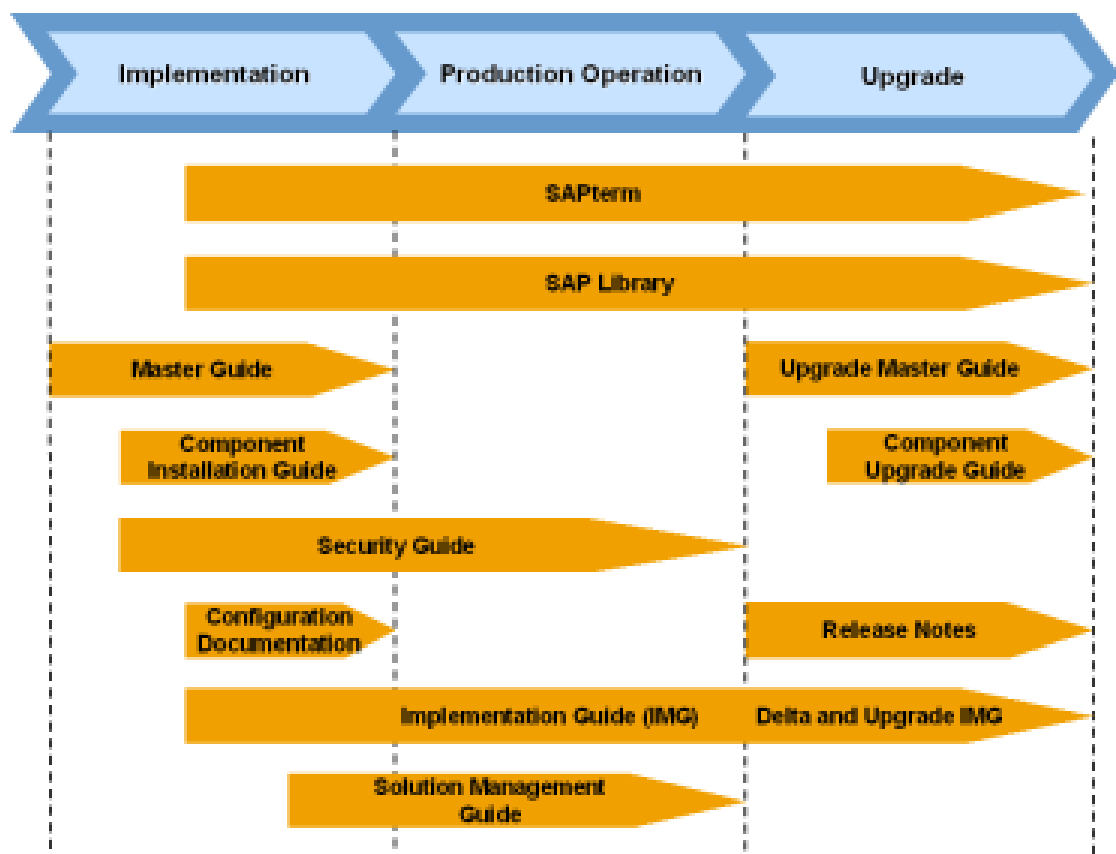
Cross-Phase Documentation

SAPterm—SAPterm is SAP's terminology database. It contains SAP-specific vocabulary in over 30 languages, as well as many glossary entries in English and German.

- Target group:
  - Relevant for all target groups
- Current version:
  - Located in the SAP Help Portal at `help.sap.com` ® *Additional Information* ® *Glossary* or *Terminology* (also available as terminology CD)

- In the SAP-System in transaction `STERM`

SAP Library—The SAP Library is a collection of function- and process-oriented documentation for SAP components. The SAP Library also contains the Business Scenario Descriptions.

- ■ Target group:
  - Consultants
  - System administrators
  - Project teams for implementations or upgrades
- ■ Current version:
  - Located in the SAP Help Portal at `help.sap.com` (also available as documentation CD)
  - Located in the SAP Service Marketplace at `service.sap.com/ibc` (only the Business Scenario Descriptions)

Implementation Guide (IMG)—The Implementation Guide is a tool for configuring the SAP system to meet customer requirements. Its structure and documentation are component-oriented.

- ■ Target group:
  - Solution consultants
  - Project teams for implementations or upgrades
- ■ Current version:
  - In the SAP menu of the SAP system under *Tools* ® *Customizing* ® *IMG*

Security Guide—The Security Guide describes the settings for a medium security level and offers suggestions for raising security levels. A collective security guide is available for the SAP NetWeaver technologies, such as the SAP Web Application Server (SAP Web AS). This document contains general guidelines and suggestions about system security. Other technologies and individual applications have a Security Guide of their own.

- ■ Target group:
  - Technology consultants
  - Solution consultants
  - Project teams for implementations or upgrades
- ■ Current version:
  - Located in the SAP Service Marketplace at `service.sap.com/securityguide`

Implementation

Master Guide—The Master Guide is the starting point for implementing an SAP solution. It lists the required SAP components, and third-party applications that are required for each Business Scenario. It provides scenario-specific descriptions of preparation, execution, and follow-up of an implementation. It also offers references to other documents, such as Component Installation Guides and SAP Notes.

- ■ Target group:
  - Technology consultants
  - System administrators
  - Project teams for implementations
- ■ Current version:
  - Located in the SAP Service Marketplace at `service.sap.com/instguides`

Component Installation Guide—The Component Installation Guide describes the technical implementation of an SAP component, taking into account the combinations of operating systems and databases. It does not describe any business-related configuration.

■ Target group:
  ● Technology consultants
  ● Project teams for implementations
■ Current version:
  ● Located in the SAP Service Marketplace at `service.sap.com/instguides`

Configuration Documentation in SAP Solution Manager—SAP Solution Manager is a tool with various functions, one of its main functions being the configuration of SAP solutions and Business Scenarios. It contains IMG activities, transactions, and so on, as well as documentation. Instead of the configuration documentation in SAP Solution Manager, there may be separate Business Scenario Configuration Guides in the SAP Service Marketplace for previous shipments of the Business Scenarios.

■ Target group:
  ● Solution consultants
  ● Project teams for implementations
■ Current version:
  ● In SAP Solution Manager
  ● Located in the SAP Service Marketplace at `service.sap.com/ibc`

Production Operation

Solution Management Guide—The Solution Management Guide is the starting point for operating an SAP solution. The guide refers users to the tools and documentation that are needed to carry out various tasks, such as monitoring, backup / restore, master data maintenance, transports, and tests. It also refers users to other documents, for example the SAP Library, the Master Guide, and the Component Management Guides.

■ Target group:
  ● System administrators
  ● Technology consultants
  ● Solution consultants
  ● Project teams for implementations or upgrades
■ Current version:
  ● Located in the SAP Service Marketplace at `service.sap.com/instguides`

Upgrade

Upgrade Master Guide—The Upgrade Master Guide is the starting point for upgrading the Business Scenarios of an SAP solution. It provides scenario-specific descriptions of preparation, execution, and follow-up of an upgrade. It also refers to other documents, such as the Component Upgrade Guides and SAP Notes. Instead of an Upgrade Master Guide, there may be several Business Scenario Upgrade Guides or a Solution Upgrade Guide for previous shipments of the Business Scenarios of an SAP solution.

■ Target group:
  ● Technology consultants
  ● Project teams for upgrades

■ Current version:
  ● Located in the SAP Service Marketplace at `service.sap.com/instguides`

Component Upgrade Guide—The Component Upgrade Guide describes the technical upgrade of an SAP component, taking into account the combinations of operating systems and databases. It does not describe any business-related configuration.

■ Target group:
  ● Technology consultants
  ● Project teams for upgrades
■ Current version:
  ● Located in the SAP Service Marketplace at `service.sap.com/instguides`

Release Notes—Release Notes are documents that contain short descriptions of new features or changes in an SAP component since the previous release. Release Notes about ABAP developments enable the SAP system to generate delta and upgrade IMGs

■ Target group:
  ● Consultants
  ● Project teams for upgrades
■ Current version:
  ● Located in the SAP Service Marketplace at `service.sap.com/releasenotes`
  ● In the SAP menu of the SAP system under *Help* ® *Release Notes* (only ABAP developments)

A.2 List of Documentation

Title	Location
Master Guide / Technical Infrastructure Guide	
Master Guide SAP NetWeaver 2004s	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Technical Infrastructure Guide — SAP NetWeaver	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Master Guide — SAP Solution Manager	See SAP Service Marketplace at `service.sap.com/instguides` ® *SAP Components* ® *SAP Solution Manager* ® *Installation Guides*
Master Guide — SAP NetWeaver MDM (Release 5.5)	See SAP Service Marketplace at `service.sap.com/instguidesnw04` ® *Planning* ® *SAP MDM*
Installation Guides	
Installation Guide — SAP Netweaver 2004s <Technology> on <Operating System>: <Database>	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Installation Guide — SAP Front End	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Installation Guide — SAP NetWeaver 2004s TREX Single Host	See SAP Service Marketplace at `service.sap.com/installNW2004s`

Title	Location
Installation Guide — SAP NetWeaver 2004s TREX Multiple Hosts	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Installation Guide SAP NetWeaver Developer Studio	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Installation Guide — SAP NetWeaver Visual Composer	See SAP Service Marketplace at `service.sap.com/installNW2004s`
Installation Guide KW 6.0	See SAP Service Marketplace at `service.sap.com/instguides` ® *SAP Knowledge Warehouse* ® *<Release>*
Supportability Setup Guide — Solution Manager Diagnostics	See SAP Service Marketplace at `service.sap.com/instguidesnw2004s`
Planning Guide — System Landscape Directory	See SAP Service Marketplace at `service.sap.com/sld`
Post-Installation Guide — System Landscape Directory	See SAP Service Marketplace at `service.sap.com/sld`
Installation Guide — Adapter Engines for SAP NetWeaver	See SAP Service Marketplace at `service.sap.com/instguidesnw2004s`
Installation Guide — SAP NetWeaver '04	See SAP Service Marketplace at `service.sap.com/instguidesnw04` ® *Installation*
Installation Guide — Adaptive Computing Controller	See SAP Service Marketplace at `service.sap.com/adaptive` ® *Guides*
Installation Guide — Partner Connectivity Kit	See SAP Service Marketplace at `service.sap.com/instguidesnw2004s`
SAP NetWeaver Rapid Installer Installation Guide	You can find this document on the SAP NetWeaver Rapid Installer DVD in the folder `Documentation`
Configuration Guides	
Configuration Guide — SAP Knowledge Warehouse Business Scenarios	SAP Service Marketplace at `service.sap.com/ibc`
Technology Consultant´s Guide	SAP Help Portal at `help.sap.com/nw2004s` ® *SAP NetWeaver Library* ® *Technology Consultant´s Guide*
Upgrade Guides	
Upgrade Guide — SAP NetWeaver 2004s Application Server ABAP	See SAP Service Marketplace at `service.sap.com/upgradeNW2004s`
Upgrade Guide — SAP NetWeaver 2004s Business Intelligence	See SAP Service Marketplace at `service.sap.com/upgradeNW2004s`
Upgrade Guide — SAP NetWeaver 2004s Java	See SAP Service Marketplace at `service.sap.com/upgradeNW2004s`
Upgrade Guide — TREX 6.1 to SAP NetWeaver 2004s TREX (TREX 7.0)	See SAP Service Marketplace at `service.sap.com/upgradeNW2004s`
Upgrade Guide - SAP Mobile Infrastructure 2.5	See SAP Service Marketplace at `service.sap.com/upgradeNW2004s`
Maintenance	

Title	Location
SAP Web Application Server Support Package Guide 630SP2 to 640SP4	See SAP Service Marketplace at `service.sap.com/instguides` ® *SAP Components* ® *SAP Web Application Server* ® *Release 6.30*
Support Package Stack Guide – SAP NetWeaver ´04: Stack <xx>	See SAP Service Marketplace at `service.sap.com/instguidesNW04` ® *Operations*
Support Package Stack Guide – SAP NetWeaver 2004s: Stack <xx>	See SAP Service Marketplace at `service.sap.com/instguidesNW2004s` ® *Operations*

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