

Planning Guide



System Landscape Directory

Document Version 1.3 – July 2006



© Copyright 2006 SAP AG. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, OS/2, Parallel Sysplex, MVS/ESA, AIX, S/390, AS/400, OS/390, OS/400, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere, Netfinity, Tivoli, and Informix are trademarks or registered trademarks of IBM Corporation in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C[®], World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MaxDB is a trademark of MySQL AB, Sweden.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice. These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

SAP Library document classification: PUBLIC

Disclaimer

Some components of this product are based on Java[™]. Any code change in these components may cause unpredictable and severe malfunctions and is therefore expressly prohibited, as is any decompilation of these components.

Any Java[™] Source Code delivered with this product is only to be used by SAP's Support Services and may not be modified or altered in any way.

Documentation in the SAP Service Marketplace

You can find this documentation at the following Internet address:
service.sap.com/sld

Contents

1	Introduction.....	4
1.1	Structure of the Planning Guide.....	4
1.2	More Information.....	4
1.3	Accessing the SAP Library.....	5
2	Overview.....	6
3	SLD Topology.....	7
3.1	Process to Define Your SLD Landscape Strategy.....	7
3.2	Fundamental SLD Concepts.....	9
3.2.1	Fundamental Landscape Scenarios.....	9
3.2.2	Synchronization Strategies.....	12
3.2.3	Reasons to Have Several SLDs.....	14
3.2.4	How You Can Handle Possible Changes to Your SLD Strategy.....	15
3.3	Best Practices Scenarios.....	16
3.3.1	Central SLD for All Applications.....	16
3.3.2	Separate SLD for Dev/QA and for Production.....	17
3.3.3	Separate SLD for NWDI.....	18
3.3.4	SLD for Distributed SAP NetWeaver Exchange Infrastructure Landscapes.....	19
3.3.5	SLD for Distributed Development.....	20
3.4	Network Access Scenarios.....	21
3.4.1	Intranet Scenario.....	21
3.4.2	Extranet Scenario.....	22
3.5	Where to Run SLD in Your System Landscape.....	23
3.5.1	Overall Recommendations.....	24
3.5.2	No SLD-Critical Application.....	26
3.5.3	One SLD-Critical Application.....	27
3.5.4	Several SLD-Critical Applications.....	28
4	Overview of Connections to and from SLD.....	30
4.1	ABAP Data Supplier (1).....	30
4.2	Java Data Supplier (2).....	30
4.3	External Data Supplier (3).....	31
4.4	Java SLD Client (4).....	31
4.5	ABAP SLD Client (5).....	31
4.6	SLD to SLD Message Forwarding (6).....	31

1 Introduction

This documentation provides you with a central starting point for the planning of your landscape strategy for the System Landscape Directory of SAP NetWeaver®.

1.1 Structure of the Planning Guide

The planning guide consists of the following sections:

- ❑ *Introduction*
Contains information about this documentation and related information important for the planning of System Landscape Directory.
- ❑ *Overview*
Contains a short introduction to System Landscape Directory.
- ❑ *System Landscape Directory Topology*
This section introduces a high-level process to define an individual landscape strategy for System Landscape Directory based on your requirements. You get information about landscape scenarios, best practices and recommendations on which host you could run System Landscape Directory in your system landscape.
- ❑ *Overview of Connections to and from System Landscape Directory*
Contains information about all communication paths to and from the System Landscape Directory.

1.2 More Information

The following list contains links to information about System Landscape Directory on SAP Service Marketplace and in the SAP Library:

Content	Location on SAP Service Marketplace or in the SAP Library
Information about System Landscape Directory and corresponding documentation	service.sap.com/sld
Platform and Technology Information Center	service.sap.com/platforms
Sizing of SAP NetWeaver	service.sap.com/sizing
Information about security	<i>SAP Security Guide:</i> Located in the SAP Library [page 5] at <i>SAP NetWeaver Library</i> → <i>Administrator's Guide</i> → <i>SAP NetWeaver Security Guide</i>
Information about the technical operation of SAP NetWeaver	<i>Technical Operations Manual:</i> Located in the SAP Library [page 5] at <i>SAP NetWeaver Library</i> → <i>Administrator's Guide</i> → <i>Technical Operations Manual for SAP NetWeaver</i>

1.3 Accessing the SAP Library

Access the SAP Library from any of the following:

- ❑ **SAP Help Portal** at help.sap.com → *SAP NetWeaver* → *<Release>*

Select the required language.



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.

2 Overview

System Landscape Directory of SAP NetWeaver (from now on abbreviated as SLD in this documentation) is the central directory of system landscape information that is relevant for the management of your software lifecycle. It contains a description of your system landscape (that is, the 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, SLD provides reliable and up-to-date system landscape information with minimized effort for you. In this way, SLD 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.



Be aware 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.

3 SLD Topology

3.1 Process to Define Your SLD Landscape Strategy

You can introduce and run SLD in your SAP NetWeaver landscape in many different ways. Each of these ways has different advantages and disadvantages. Therefore, you should plan the introduction of SLD properly according to your landscape requirements.

To define an individual strategy how and where to run SLD in your system landscape:

1. You familiarize yourself with fundamental concepts, distribution and synchronization options of SLD (such as the option to have a single central SLD or several distributed SLDs, the concept of a master SLD, synchronization methods, and possible reasons to have more than one central SLD).

For more information about fundamental SLD concepts, see the following sections:

- [Fundamental Landscape Scenarios \[page 9\]](#)
- [Synchronization Strategies \[page 12\]](#)
- [Reasons to Have Several SLDs \[page 14\]](#)
- [How You Can Handle Possible Changes to Your SLD Strategy \[page 15\]](#)

In addition, see **SAP Note 954820** (*Compatibility of SLD in the system landscape*) that gives information about released combinations of SLD server and SLD client releases.



Make sure that you have up-to-date versions of SAP Notes, which you can find on SAP Service Marketplace at service.sap.com/notes.

2. You get a clear picture of the requirements that your system landscape/environment demands concerning the data stored in SLD, for example in terms of:
 - Applications that rely critically on SLD in your system landscape, required availability of SLD and impact on your system landscape if SLD would temporary not be available
 - Required performance for accessing SLD (for example, affected by network lags due to a large physical distance between an SLD client and your SLD itself or improper hardware performance of the host on which you run your SLD)
 - Technical constraints of your system landscape (such as networks, firewalls, message volumes, hardware, high availability)
 - Visibility and changeability of certain data stored in SLD (for example, you might have the requirement to restrict access to data of production systems for development systems/administrators)
 - Legal constraints (such as sensitivity of data, retention periods, country specific laws)
 - Company rules, organizational structures or governance models

For more information about some of these aspects, see the following sections:

- [Best Practices Scenarios \[page 16\]](#)
- [Network Access Scenarios \[page 21\]](#)

In addition, see **SAP Note 764393** (*Configuration of the SAP System Landscape Directory*) that contains further information about the required number of SLD instances in a landscape.

As a result of this step, you should get an idea if a central SLD fits your requirements or how many distributed SLDs you require.

3. If you require more than one SLD, you have to think about synchronizing the SLD data stored in your SLDs. For this, create a model to understand which data is required in which of your planned SLDs. In addition, you might want to restrict the forwarding of certain data to certain SLDs in your landscape to generate different views.



For example, you maybe do not want to forward data of your production systems into a development SLD.

In addition, see *SAP Note 764393 (Configuration of the SAP System Landscape Directory)* that contains further information about synchronizing SLD instances in a landscape.

As a result of this step, you should receive a synchronization strategy for your SLDs.

4. You decide on which system(s) you want to run your SLD(s).

You could either run SLD on a separate AS Java system or run it together with other central shared services or business functions (for example, your SAP NetWeaver Exchange Infrastructure system) on an existing system.

To a certain degree, this also results from the requirements you are facing in your landscape concerning SLD (for example, high availability features, planned/unplanned downtime, load of the corresponding host, network connection). For more information, see section [Where to Run SLD in Your System Landscape \[page 23\]](#).

3.2 Fundamental SLD Concepts

3.2.1 Fundamental Landscape Scenarios

The most straightforward scenario is the use of a single SLD. However, depending on organizational, operational, or security reasons, it is also possible to have more than one SLD distributed over the system landscape.

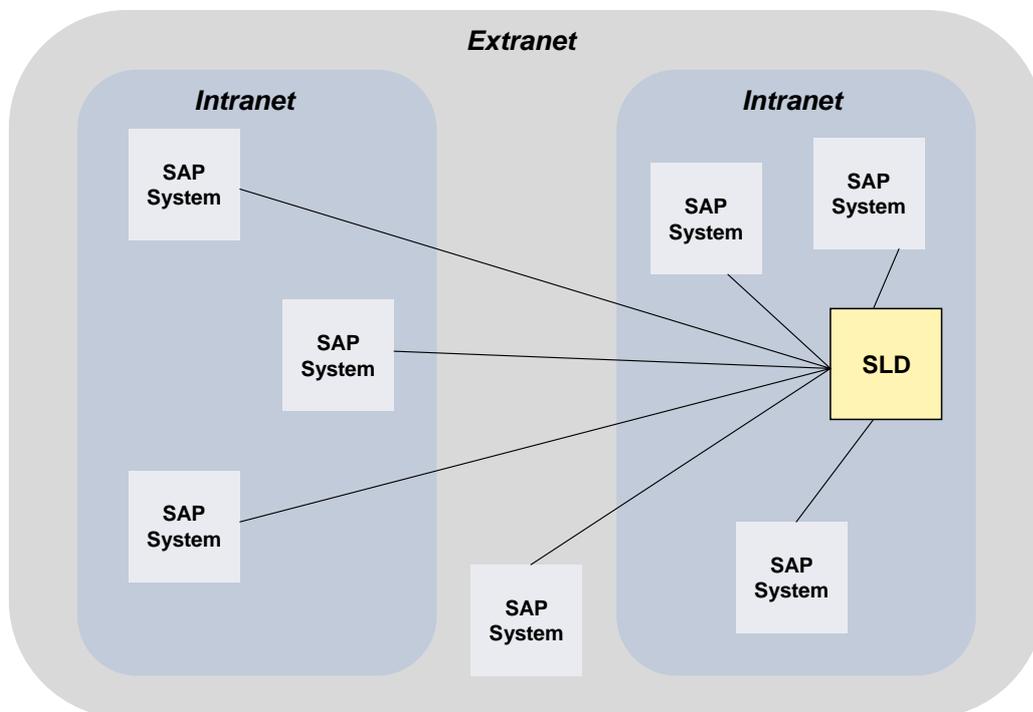
For all landscape scenarios, the use of DNS aliases to address SLD makes it possible to switch SLD hosts very easily. This may be necessary for maintenance (updates) and upgrades. For example, you could install a new AS Java system with a higher release, configure SLD on this new system, import the data of your actual SLD into the new SLD and switch to this new SLD. This way, you have “upgraded” to a higher release with minimal SLD downtime.

3.2.1.1 Central Organization (One Single Central SLD)

The easiest scenario is to 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 that contains information about the whole system landscape.

The advantages of using a single System Landscape Directory server for the entire system landscape are consistent data, easier administration, and lower operating expense.

The following figure shows a corresponding example:



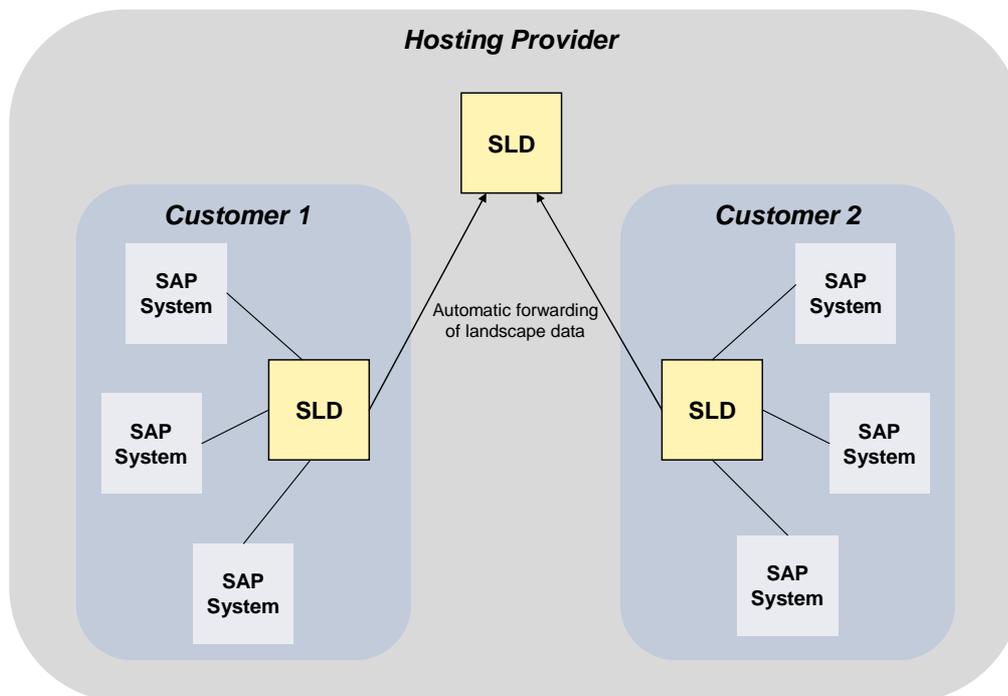
3.2.1.2 Distributed Organization (Several Distributed SLDs)

A more flexible approach is the use of several distributed SLDs. However, the effort and cost to operate your SLD landscape increases due to required manual model and content updates in all SLDs and possible regular synchronization activities.

Hierarchical Organizations (One Central SLD with Decentralized Sub-SLDs)

This organizational form incorporates several fully separated divisions headed by the headquarters. The local division's SLD serves all local needs. Automatic forwarding of landscape data from all divisions accumulates as the complete system landscape in the headquarters' SLD.

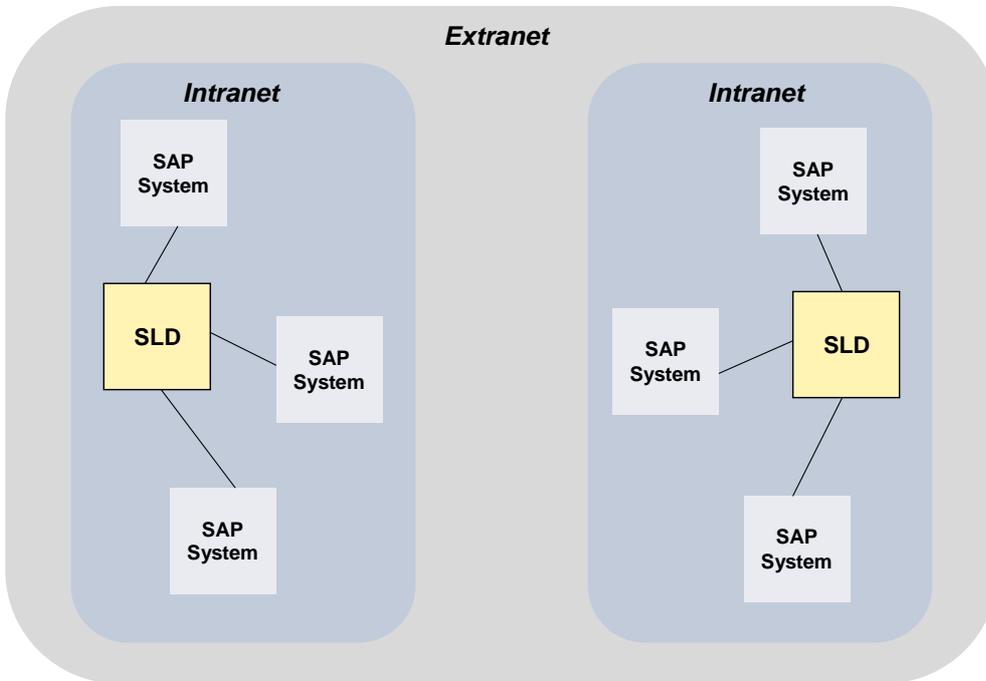
The following figure shows a hosting scenario with separate customer system landscapes. Each customer landscape incorporates its own SLD containing data about this customer's landscape only. The hosting provider itself must have access to the system landscape of all customers. To achieve this, you configure the sub-SLDs to forward automatically all landscape data to a master SLD for the hosting provider. So, you can use a hierarchical organization of several SLDs to create different views of your landscape.



Another use case is an application development landscape comprising development, test, and production systems. The data is forwarded from the development system to the test system and then to the production system.

Fully Separated Organizations (Several Standalone SLDs)

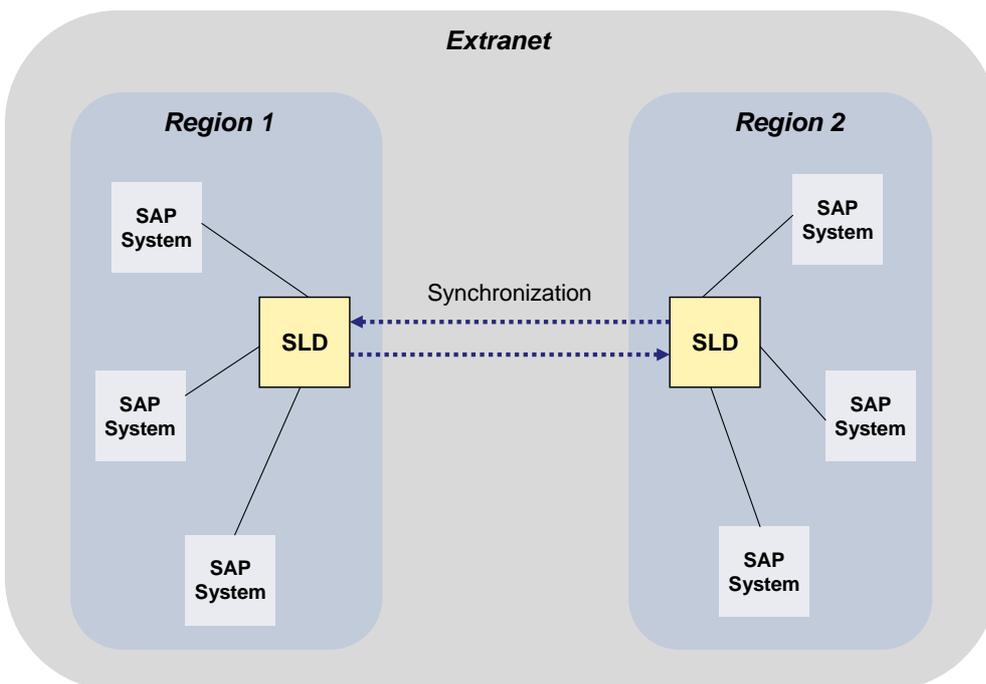
You can use several SLDs for fully separated management of data independent of each other, as shown in the following figure:



Distributed Organization (Several Coupled SLDs)

Global or widely distributed IT landscapes may require more than a central SLD. It is then expected that an SLD is locally available but that it provides a more than local view. You can achieve this by coupling several distributed SLDs that exchange all or only certain of their SLD data.

The following figure shows a corresponding example:



3.2.2 Synchronization Strategies

To support the operation of several SLDs, we provide automatic message forwarding as well as sophisticated data export and import functions.

3.2.2.1 Automatic Forwarding of Landscape Data

To keep separate SLDs informed about changes of specific landscape data, you can configure the SLD bridge to forward data to other SLD instances. You can even set up a mutual exchange of data between two instances – circular references with more than two SLD instances are not possible. With automatic forwarding, the SLD allows direct server-to-server synchronization.

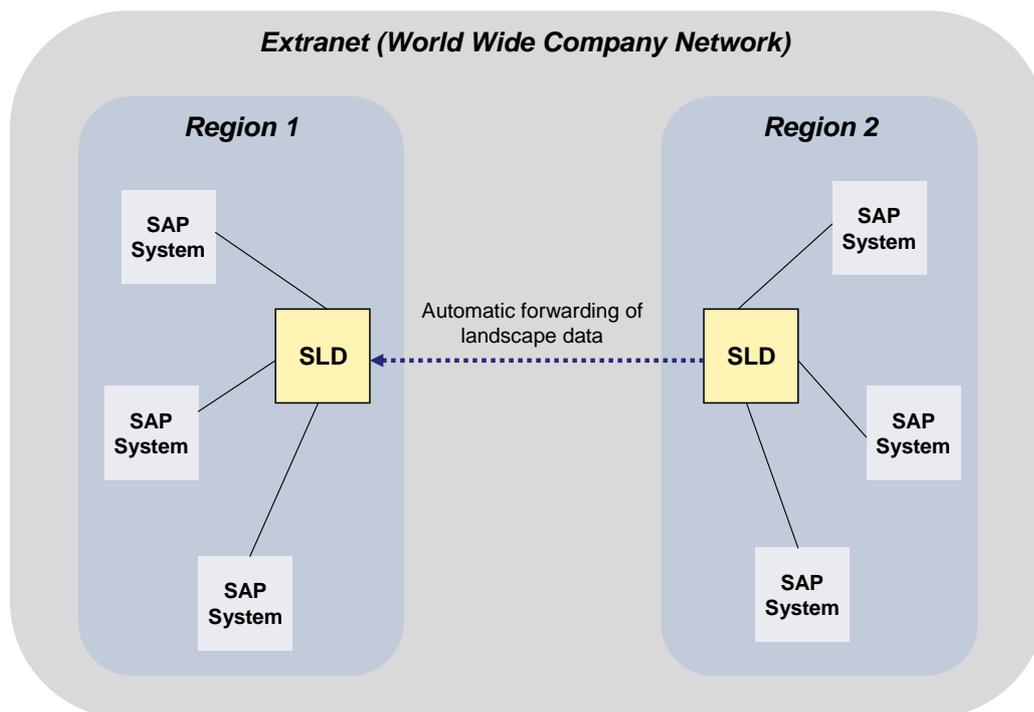
The following landscape data can be synchronized:

- ABAP system data (transaction RZ70)
- Java system data (SLD data supplier service)
- Host data (SAPOSCOL)
- Other system data (`sldreg`)

Any changes and entries that you entered manually into SLD (for example, business systems required for SAP NetWeaver Exchange Infrastructure or name reservation data) cannot be forwarded automatically and stays within the local SLD only. The same restriction applies for data written by other applications such as SAP NetWeaver Exchange Infrastructure or SAP Solution Manager.

Therefore, with automatic forwarding, you get the flexibility to run several SLDs in your system landscape with little manual effort. As only landscape data received from the SLD data suppliers is forwarded automatically, this approach will not fit for all requirements and you maybe have to complement the automatic forwarding with manual synchronization effort. In addition, you will have to perform the manual update of the component information and of the CIM model available from SAP Service Marketplace for every single SLD (for more information, see **SAP Note 669669**).

The following figure shows automatic forwarding set up for two SLDs:



If you have SLDs with different releases or patch levels in your system landscape, automatic forwarding will still work as long as you have imported the same CIM data model and SAP CR content versions (downloaded from SAP Service Marketplace – for more information, see **SAP Note 669669**) in each of these SLDs.

3.2.2.2 The Export and Import Functions of SLD

If several SLDs have to contain a consistent view of data not delivered by data suppliers, you can use the export/import function offered by SLD to manually synchronize them. Simple export and import functions allow you to export landscape data from one SLD and import it into another SLD manually. To ensure proper distribution of data, you should designate one SLD as the master SLD. You can then use this master SLD to update the other SLDs.

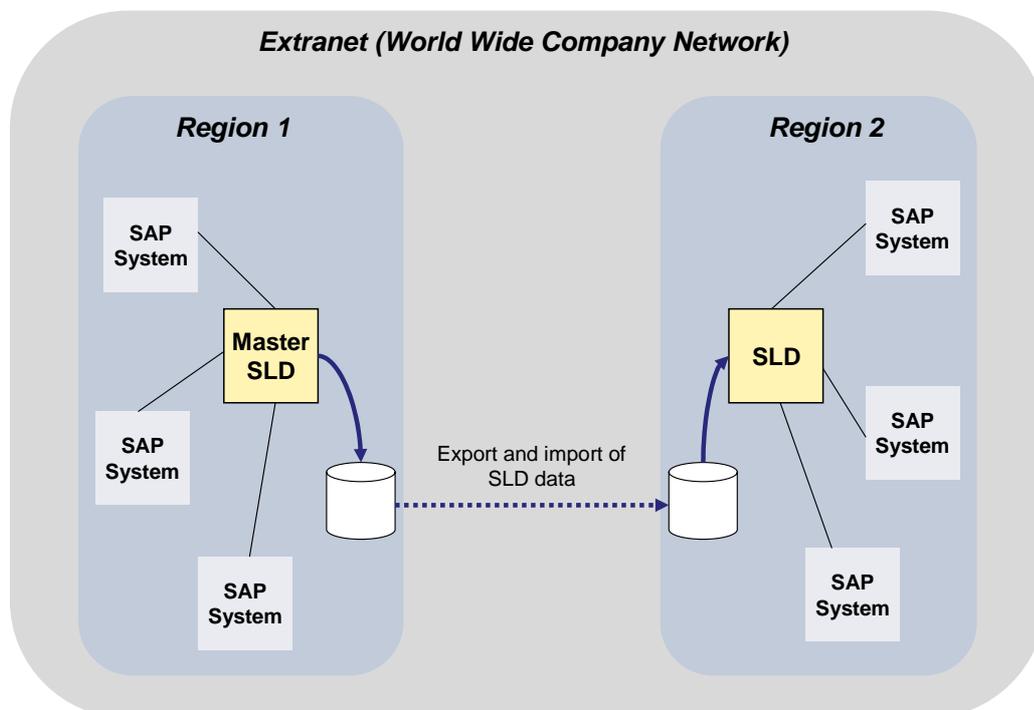
The SLD content is divided into the following three categories:

- ❑ Landscape data (LD)
- ❑ Component data (CR)
- ❑ Name reservation data (NR)

The export and import functions of SLD support the transport of SLD content for each sub-category as well as for all data. After an initial “full export”, only changes are exported. These are called “delta exports”. We recommend that you transport all three categories together (select *export line*: “ALL” in SLD administration).

Export and import 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 SLD data that has to be transported manually.

The following figure shows export and import of SLD data from one SLD to another:





When you transport all SLD data from one SLD instance to another, you also update the component data delivered by SAP. Thus, you have to import the SAP CR delta archives into the master SLD only.

If you have SLDs with different releases or patch levels in your system landscape, export/import will still work as long as you have imported the same CIM data model and SAP CR content versions (downloaded from SAP Service Marketplace – for more information, see **SAP Note 669669**) in each of these SLDs.

3.2.2.3 Outlook to Future Versions of SAP NetWeaver

With the upcoming release of SAP NetWeaver, we plan to provide an automatic synchronization mechanism for all SLD data, that is, data delivered by data suppliers and data entered or changed manually in SLD. You only have to update the CIM data model manually in each SLD, as the synchronization mechanism will not synchronize this data automatically.

Depending on your use case, this could dramatically reduce manual synchronization effort. As a result, you should consider this planned feature – although it is not confirmed yet – for your mid- and long-term SLD strategy.



Note that this statement is subject to change and may be changed by SAP at any time without notice. This document is not intended to be binding upon SAP to any particular course of business, product strategy and/or development.

3.2.3 Reasons to Have Several SLDs

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.

In addition, 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 Exchange Infrastructure, availability of System Landscape Directory is at least required at restart of SAP NetWeaver Exchange Infrastructure. As used System Landscape Directory caches may be invalidated manually, System Landscape Directory is critical for SAP NetWeaver Exchange Infrastructure.
- ❑ For Web Dynpro of 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, start, stop and change of resources). If System Landscape Directory is unavailable, only monitoring functions of Adaptive Computing Controller are available.



For more information about SAP NetWeaver Exchange Infrastructure, SAP NetWeaver Administrator, and Adaptive Computing Controller, see the *Master Guide – SAP NetWeaver* available in SAP Service Marketplace at service.sap.com/instguides → *SAP NetWeaver* → <Release>.

3.2.4 How You Can Handle Possible Changes to Your SLD Strategy

If you have to change your strategy in the future for any reason, the following SAP Notes (and related SAP Notes) provide information how to split or merge SLDs:



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.

SAP Note Number	Title	Description
935474	Grouping SLD instances	This SAP Note describes how you can merge two SLDs by importing the content of one SLD into another SLD.
936318	Splitting an SLD instance	This SAP Note describes how you can split an SLD into two or more instances.
935245	Importance of “Object Server” SLD parameter	This SAP Note describes the consequences of changing the object server, which could be required to split or merge SLDs.
720717	Reduce the number of System Landscape Directories (SLD)	This SAP Note describes manual actions you have to perform for SAP NetWeaver Exchange Infrastructure / Process Integration if you merge multiple SLDs.

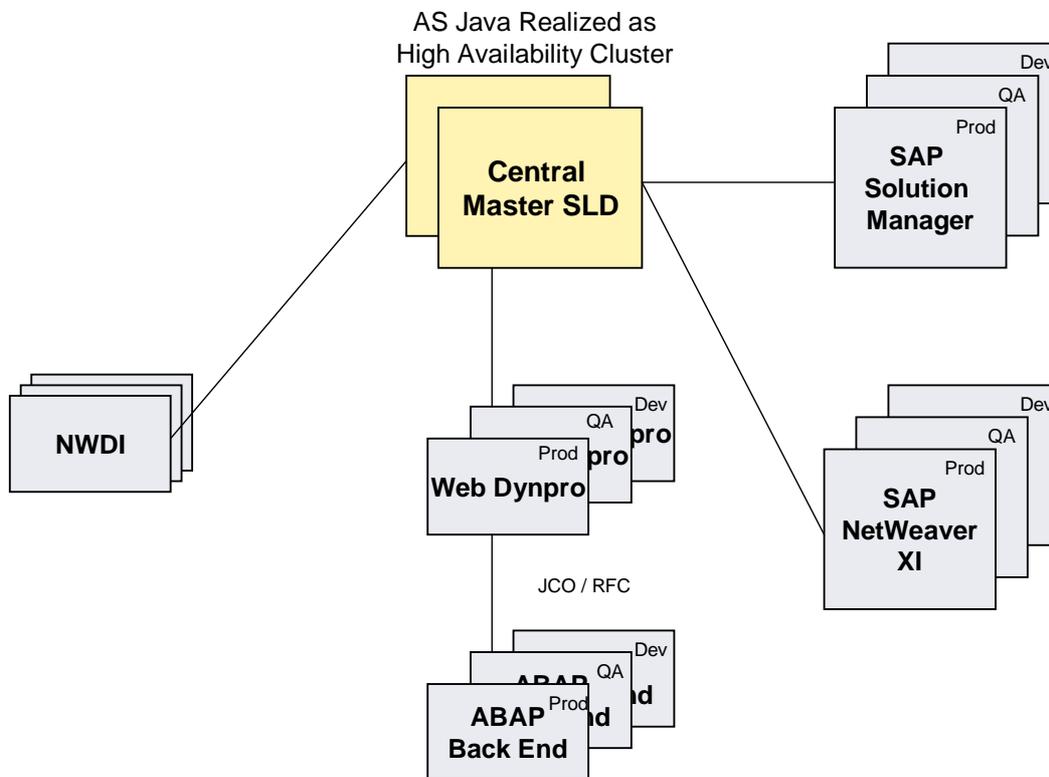
3.3 Best Practices Scenarios

The following sections outline some typical use cases for the System Landscape Directory.

3.3.1 Central SLD for All Applications

Simplicity is often key for robust and easy system landscape handling. The use of only one central SLD for an entire system landscape is shown below. Possible SLD clients are the SAP NetWeaver Exchange Infrastructure, SAP Solution Manager, Web Dynpro applications, and the SAP NetWeaver Development Infrastructure (NWDI). These systems may consist of several instances for development (Dev), quality assurance (QA), and production (Prod). Nevertheless, all instances are bound to one central SLD. This imposes high demand on the SLD regarding stability and availability (concerning operation, maintenance, and upgrade). To fulfill this demand, we recommend that you run your SLD as production system, for example, by running the AS Java system on which you operate SLD in a high availability cluster.

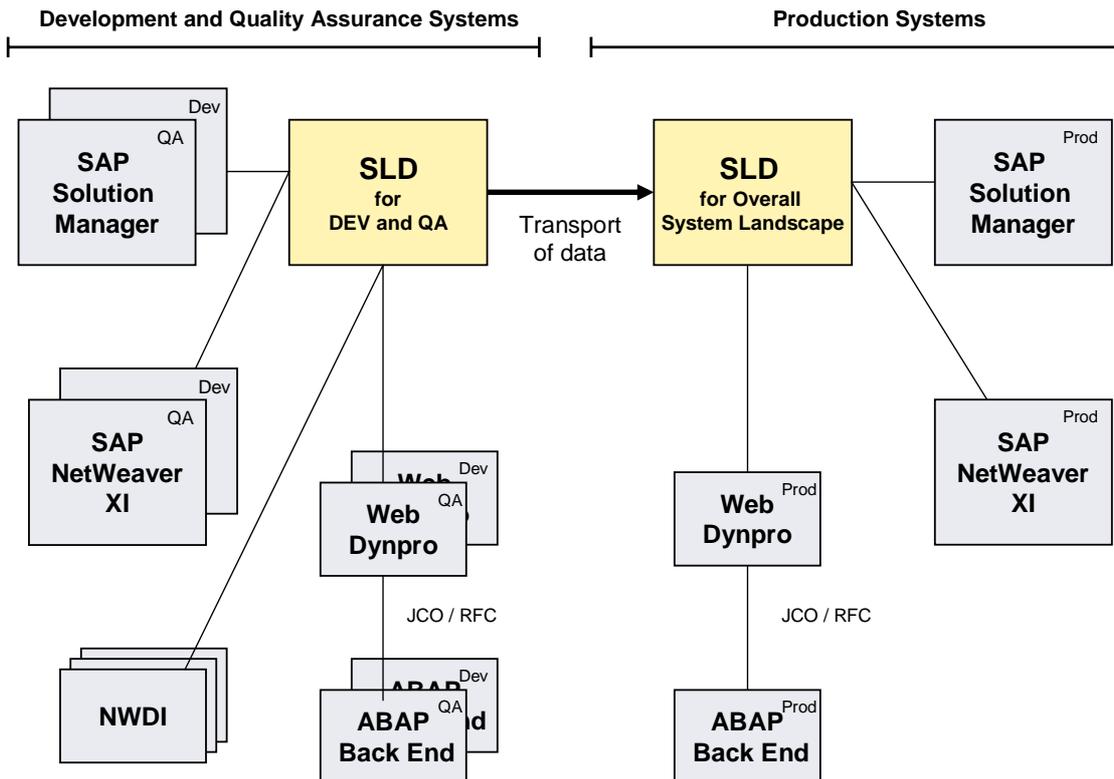
The following figure shows a central SLD running on an AS Java system realized as high availability cluster:



3.3.2 Separate SLD for Dev/QA and for Production

To separate and safeguard the production systems, you can introduce an additional SLD system. This SLD is used for the development and QA systems. Access to the production systems can be restricted to technical administration users running the production systems. Development and QA systems, as well as the respective staff for development and QA, are only allowed to access the SLD for development and QA. So, the SLD for development and QA does not contain any information about production systems. Therefore, it is not possible to access production systems during development or testing mistakenly.

The following figure shows a DEV/QA SLD that forwards data to a PROD SLD:



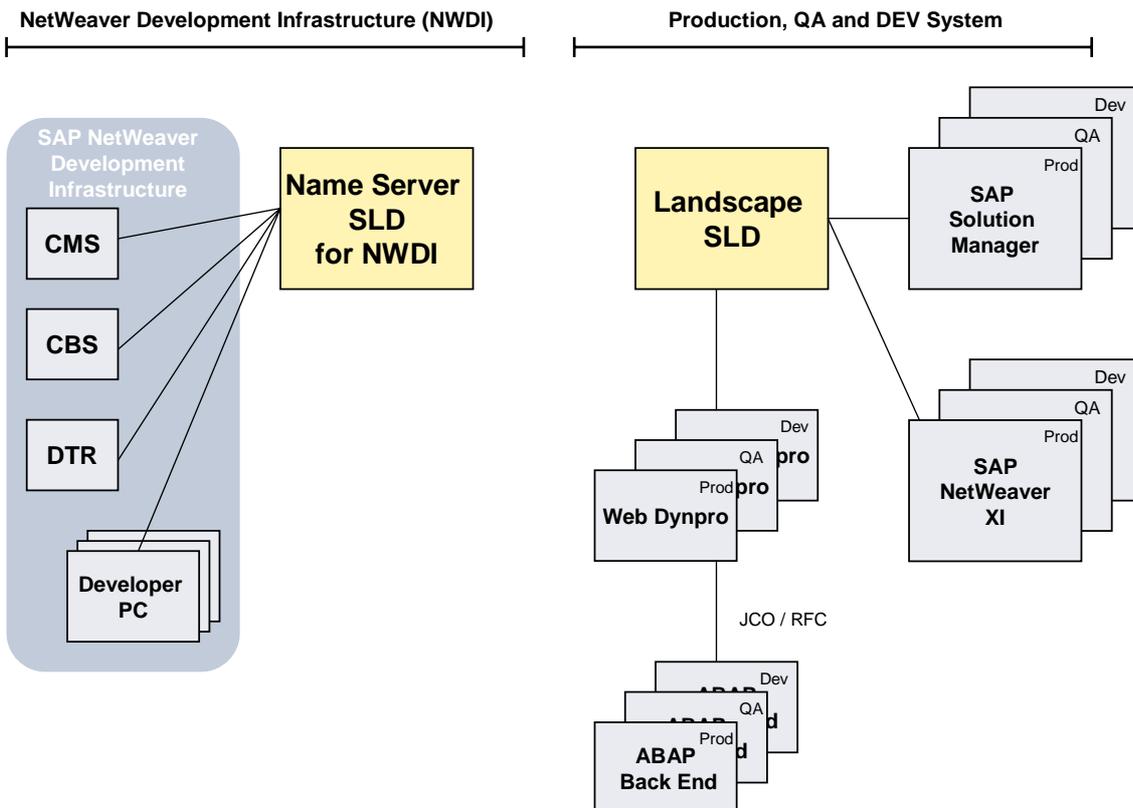
3.3.3 Separate SLD for NWDI

The SAP NetWeaver Development Infrastructure makes use of SLD as a name server during design time. Nevertheless, development normally requires a high level of changes and updates of SLD data. These development requirements conflict with the requirements of the production systems.

In addition, developers require access to the name server (for example, to create new software components), whereas you do not want to grant them access to the landscape SLD. A clear separation of name server and landscape SLD will ease the fulfillment of this security requirement.

This is why a separate SLD name server for NWDI makes sense for large development divisions.

The following figure shows a landscape with a dedicated name server SLD for NWDI and a landscape SLD:



3.3.4 SLD for Distributed SAP NetWeaver Exchange Infrastructure Landscapes

The SAP NetWeaver Exchange Infrastructure makes use of SLD in several ways:

- ❑ As a server for business system names (these have to be associated with the corresponding technical systems received from their data suppliers)
- ❑ Transport targets for directory content transports
- ❑ Management of software component versions
- ❑ End-to-end monitoring of Runtime Workbench
- ❑ Transfer of adapter configuration data from the SAP NetWeaver Exchange Infrastructure directory to the adapter CPACache

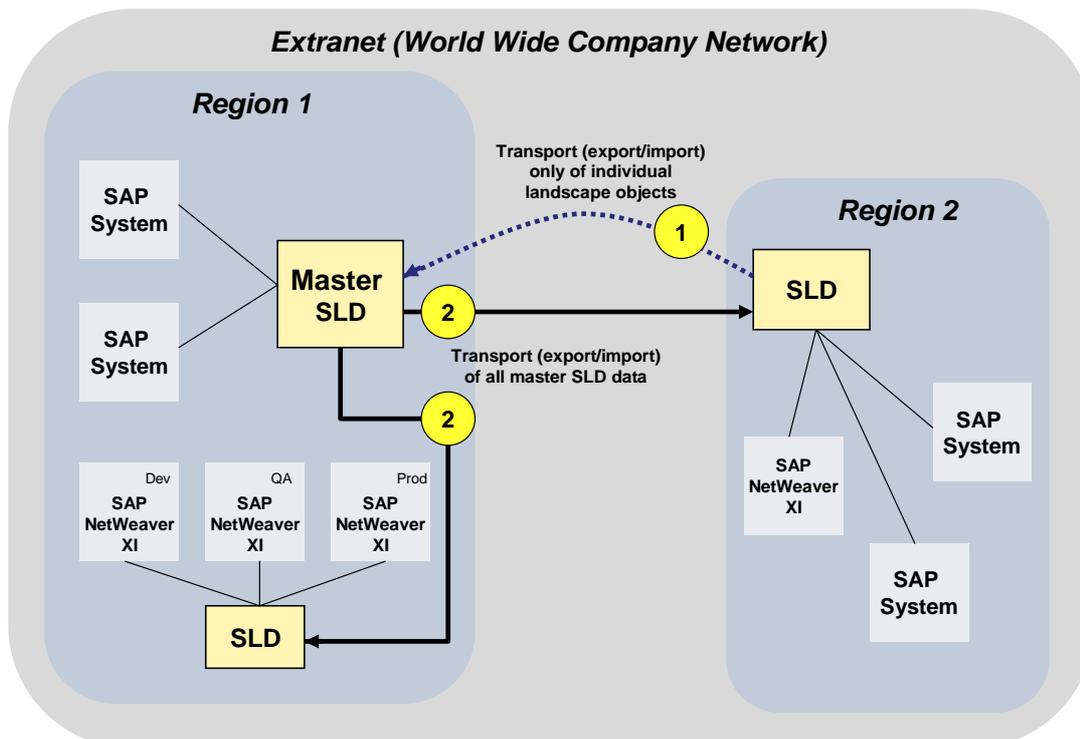
The best solution is to have a single SLD (see also sections [Central Organization \(One Single Central SLD\) \[page 9\]](#) and [Central SLD for all Applications \[page 16\]](#)).

If you require a distributed landscape, you should designate one master SLD that contains the data required in all landscapes. The handling of distributed SLDs is explained in section [Distributed Organization \(Several Coupled SLDs\) \[page 11\]](#).

The key principles of distributed SLD operations are:

1. You must transport (export/import) all system data that is crucial for global operation to the master SLD. That means that you consolidate all necessary landscape data in the master SLD.
2. If you want to synchronize this master SLD's data to all other SLDs, transport it on a regular basis. This manual step includes the export of master data and the decentralized import of this data.

The following figure shows the corresponding synchronization mechanism. You transport only individual landscape objects (technical systems and corresponding business systems) manually from the slave SLDs to the master SLD, before you transport all master SLD data to the slave SLDs.





- Always transport in one direction to prevent mismatches.
- Transport targets of SLD system information must have the same CIM data model version as the source SLD system or a higher version.



Another use case for a master SLD in the context of SAP NetWeaver Exchange Infrastructure could be to provide different views in slave SLDs while having a master SLD that contains all data.

For example, if you have all business systems (and corresponding technical systems) in a master SLD to which a central SAP NetWeaver Exchange Infrastructure system is connected, you can send messages from a business system in segment/region A to a receiver system in segment/region B, although the SLDs of regions A and B only contain information of their local segments.

For more information, see the documentation *How-to Guide SAP NetWeaver – How To... Handle the SLD for SAP XI* in SAP Service Marketplace at:

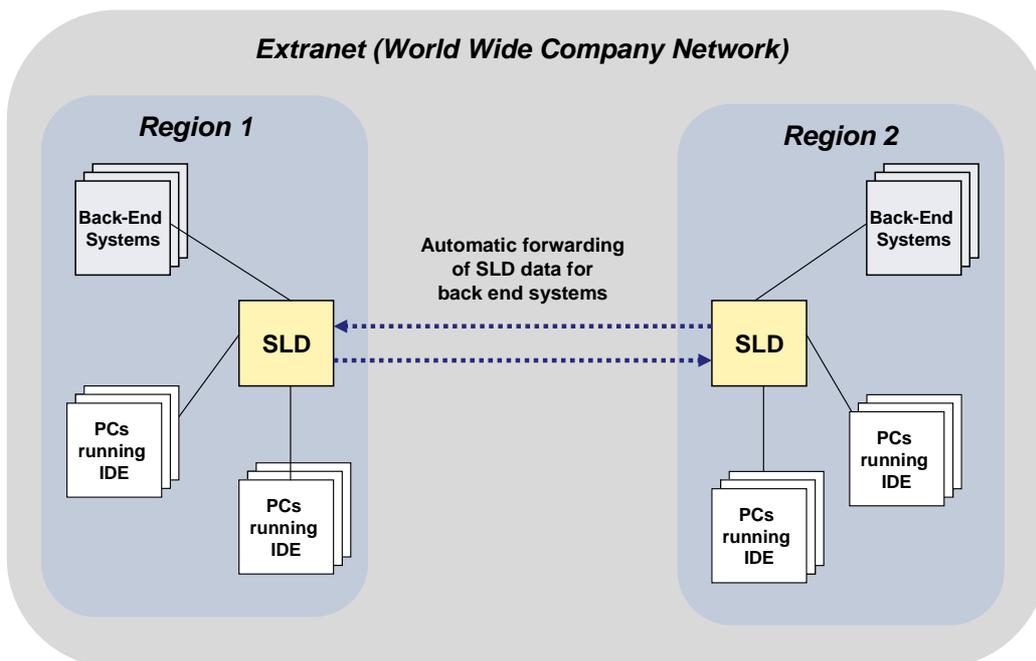
service.sap.com/nw04doc → *How-to Guides* → *Exchange Infrastructure*.

3.3.5 SLD for Distributed Development

Large and multinational companies tend to spread development departments all over the world. This may be due to cost effectiveness (offshoring) or organizational reasons. Nevertheless, it is essential for each regional development department to have SLD data locally available. The availability of a local SLD in each region enables quick responses and saves network traffic.

Forwarding of landscape data can be used to provide global back-end access in distributed Web Dynpro development landscapes.

The following figure shows a mutual automatic forwarding of landscape data:



3.4 Network Access Scenarios

This section shows SLD scenarios with special respect to networking aspects.

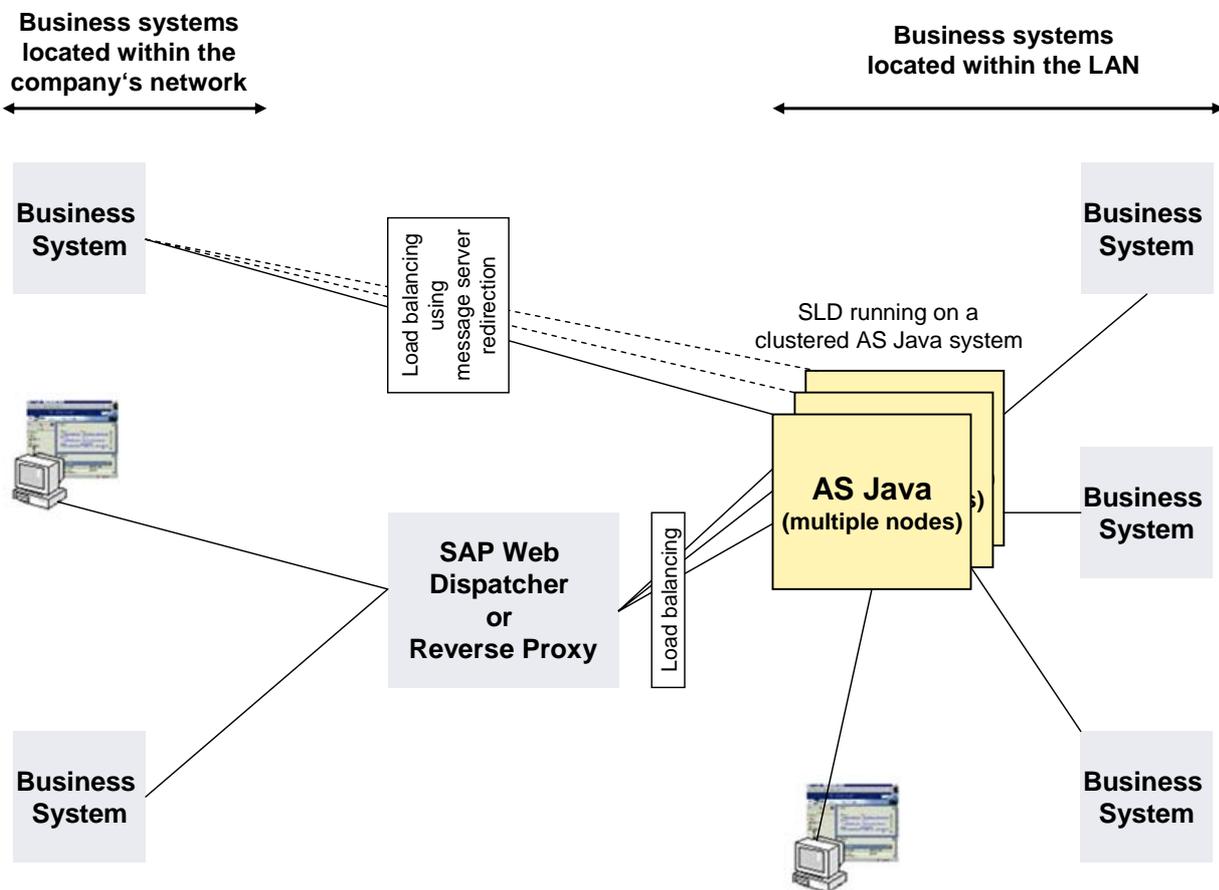
3.4.1 Intranet Scenario

Intranet means the use of Internet techniques within a corporate network. Although corporate networks incorporate different kinds of networks, such as LAN, WAN, VPN, or leased lines, the existence of company wide naming and addressing rules ensures direct addressing and communication between all servers.

The non-existence of barriers like firewalls and NAT (Network Address Translation) allows you to use both SAP load balancing solutions, the SAP Message Server redirect mechanism as well as the new SAP Web Dispatcher.

The load balancing solution will distribute requests to a clustered AS Java system on which SLD is running.

The following figure shows the intranet scenario:

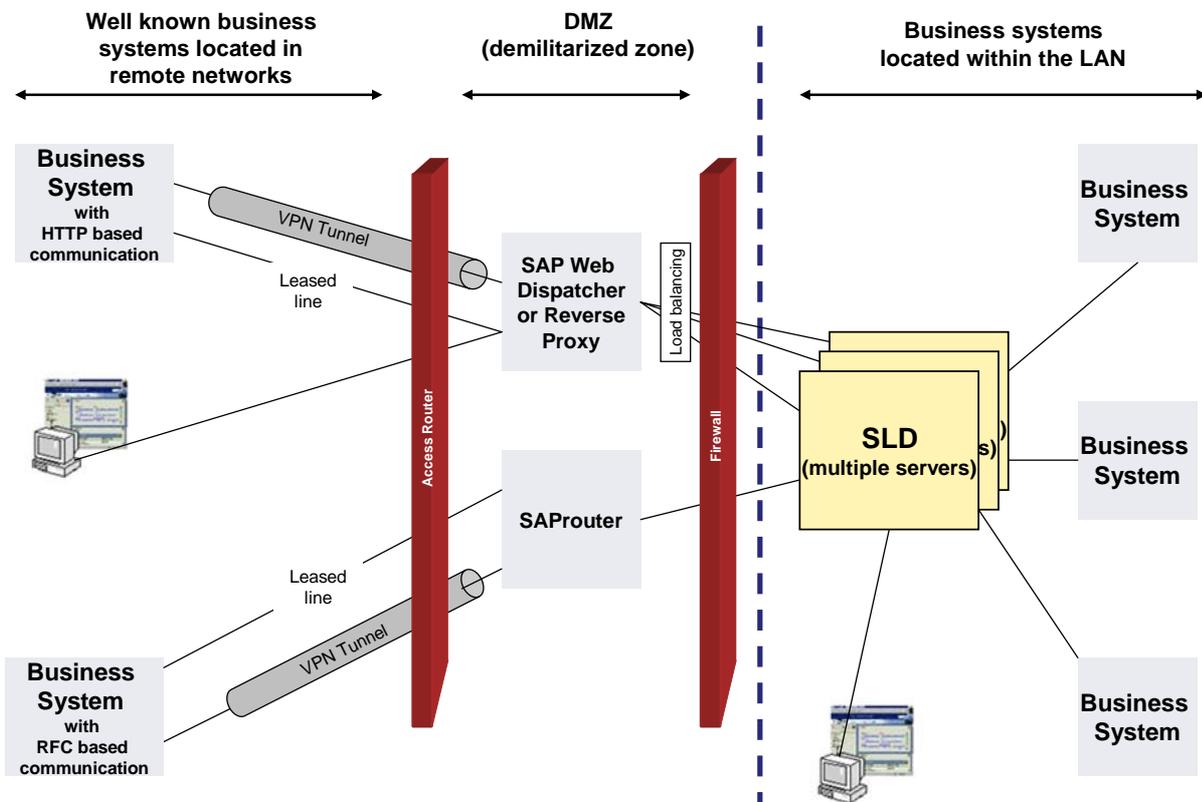


3.4.2 Extranet Scenario

Extranets extend the range of the Intranet. Well-known systems – for example, systems of business partners – get access to certain servers within the Intranet. These business systems are normally connected over point-to-point access through VPN or leased lines but not over public networks. Nevertheless, these systems are not allowed to access the whole corporate network but only a few dedicated servers. This restriction is normally accomplished by employing some kind of reverse proxy within the DMZ (Demilitarized Zone). This proxy forwards the requests to permissible servers.

SAP provides the SAP Web Dispatcher for use as HTTP reverse proxy and load balancer. SAProuter can be used to check and forward RFC connections.

The following figure shows the extranet scenario:



3.5 Where to Run SLD in Your System Landscape

There are different options where to run your SLD in your SAP NetWeaver landscape. Each option has different advantages and disadvantages. You can use the following points as a basis for your decision-making:

- ❑ SLD standalone system:

This is the most flexible way to run SLD.

Factor	Explanation
+ Release independency	Applications are not affected by the upgrade of your SLD system, as SLD is backward-compatible.
+ Flexibility	As there are no direct interdependencies between the SLD system and an application system, it is easier to plan and perform changes – for example, it is easier to plan the downtime of an application system, as you do not have to consider SLD availability requirements.
– Cost	You have to operate and maintain an additional system.

- ❑ Running SLD integrated with an SAP application (for example, SAP NetWeaver Exchange Infrastructure):

This is the easiest and cheapest way to run SLD.

Factor	Explanation
+ Cost	You do not have to operate and maintain an additional system.
+ Availability	Availability is the same as of the application – if the application system is up, SLD is also available. If the system is down, SLD is not available, but this should not be critical, as the application is down as well.
– Release dependency	Applications are affected by the upgrade of your SLD and vice versa.
– Flexibility	SLD depends on the application and vice versa – for example, if you plan the downtime of an application system, you have to consider SLD availability requirements as well.

- ❑ Running SLD on a shared services system:

The long-term goal is to centralize all administration and monitoring functions (for example, SAP NetWeaver Administrator) on a separate system.

Factor	Explanation
+ Centralization of administrative tasks	SLD is running on the central administration and monitoring system as well
+ Cost	You do not have to operate and maintain an additional system for SLD only.
+ Availability	Availability is the same as of the shared services – if the central administration and monitoring system is up, SLD is also available. If the system is down, SLD is not available, but the shared services that rely on SLD are down as well.
– Release dependencies	Shared services are affected by the upgrade of your SLD and vice versa.
– Flexibility	SLD depends on the shared services and vice versa – for example, if you plan the downtime of the central administration and monitoring system, you have to consider SLD availability requirements as well.
– Continuous availability	If SLD is critical for your landscape, the central administration and monitoring system needs to be continuously available (that is, specific runtime and maintenance procedures may be required to ensure continuous operation).



For more information about shared services (such as SAP Solution Manager and SAP NetWeaver Administrator) and examples how to run these shared services in an SAP NetWeaver landscape together with SLD, also see the *Master Guide – SAP NetWeaver* available in SAP Service Marketplace at service.sap.com/instguides → *SAP NetWeaver* → <Release>.

3.5.1 Overall Recommendations

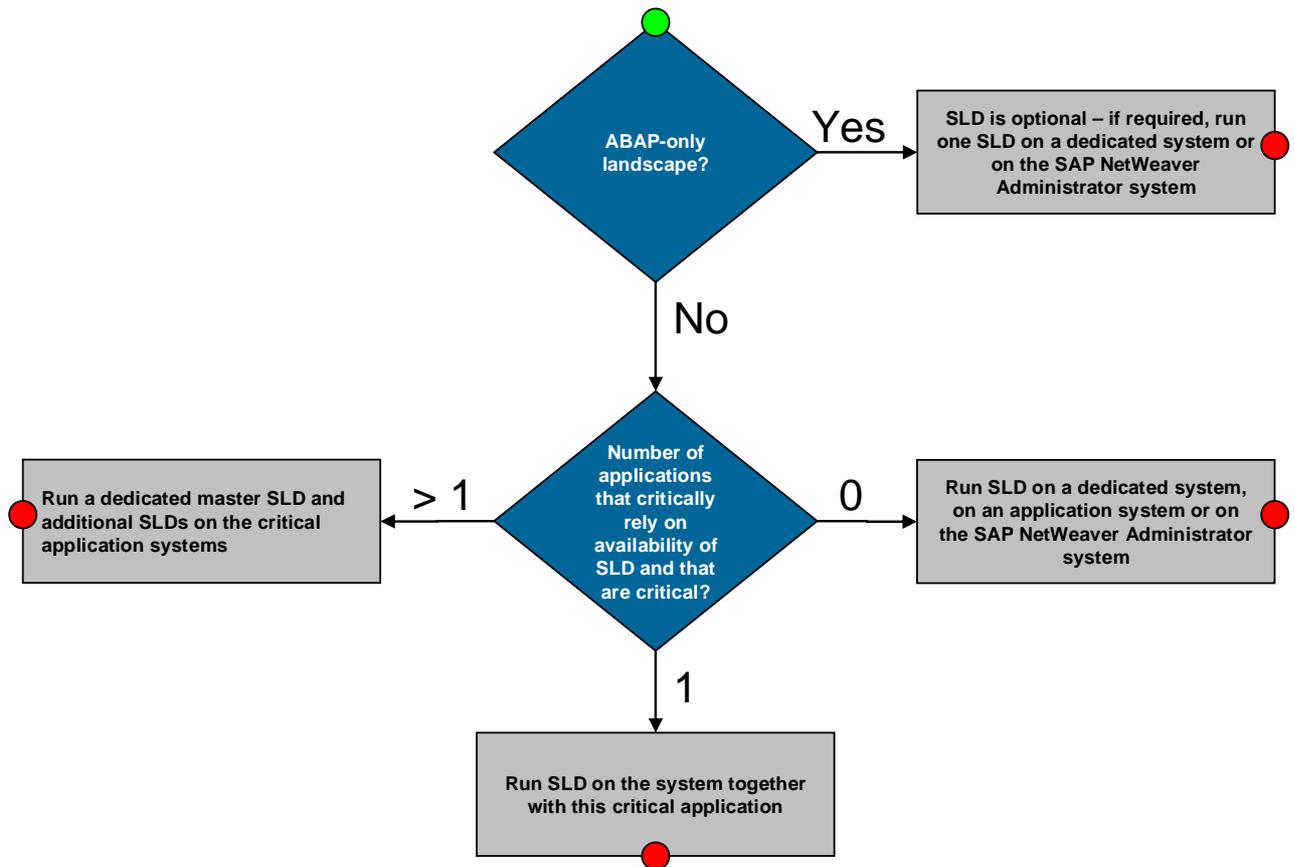


If you have separate environments (for example, as you separated your production environment from your development and test environment), be aware that the following recommendations should be considered for every separate environment.

- If possible, we recommend that you use one System Landscape Directory server.
 - If you do not run applications that critically rely on the availability of System Landscape Directory and that are critical for you, we recommend that you use one System Landscape Directory. You could run this System Landscape Directory on the central administration and monitoring system (that is, the SAP NetWeaver Administrator system), on an application system or standalone on a dedicated system.
 - If you use exactly one application that critically relies on the availability of System Landscape Directory and that is critical for you, we recommend that you run at least your production SLD on the system together with this critical application.
- If you use more than one application that critically relies on the availability of System Landscape Directory and that is critical for your business, we recommend that you have one dedicated master SLD and additional System Landscape Directories running on these application systems.

To keep your System Landscape Directories synchronized, you may have to perform manual exports/imports. This approach provides good availability while it may require considerable operation effort. Therefore, it is only recommended if you have high requirements 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.

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



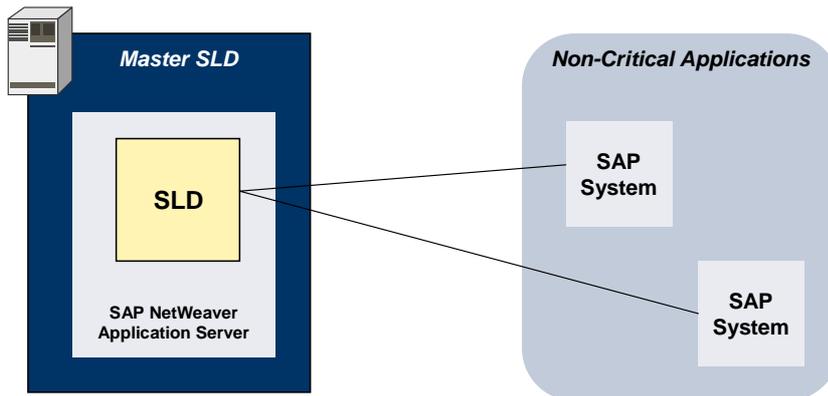
The following sections give more information about each of these cases.

3.5.2 No SLD-Critical Application

If no SLD critical application exists in your landscape, you may choose between flexibility and TCO. Running SLD integrated with the application that requires SLD is easy and causes minimum TCO. Running SLD standalone or in the central administration system ensures maximum flexibility.

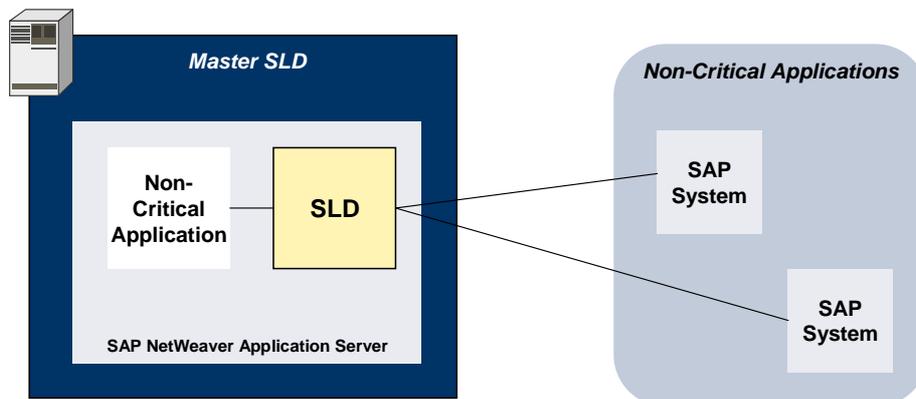
3.5.2.1 Standalone SLD System

The following figure shows a standalone SLD system:



3.5.2.2 SLD Integrated with the Application

The following figure shows an SLD running on an application system:

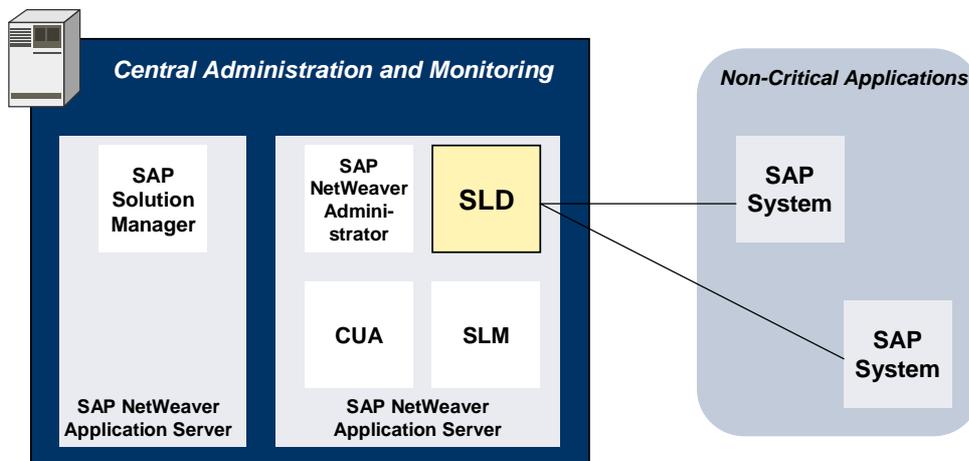


3.5.2.3 SLD on a Centralized Administration Server

For SAP NetWeaver, we recommend that you group administration and monitoring components and functions of SAP NetWeaver, like SAP NetWeaver Administrator and central user administration, on one host. You can optionally run SAP Solution Manager on this host as well, but in a separate system. For more information about this centralized administration and monitoring, see the *Master Guide – SAP NetWeaver* available in SAP Service Marketplace at service.sap.com/instguides → *SAP NetWeaver* → *<Release>*.

On this centralized administration server, you can optionally run a central SLD.

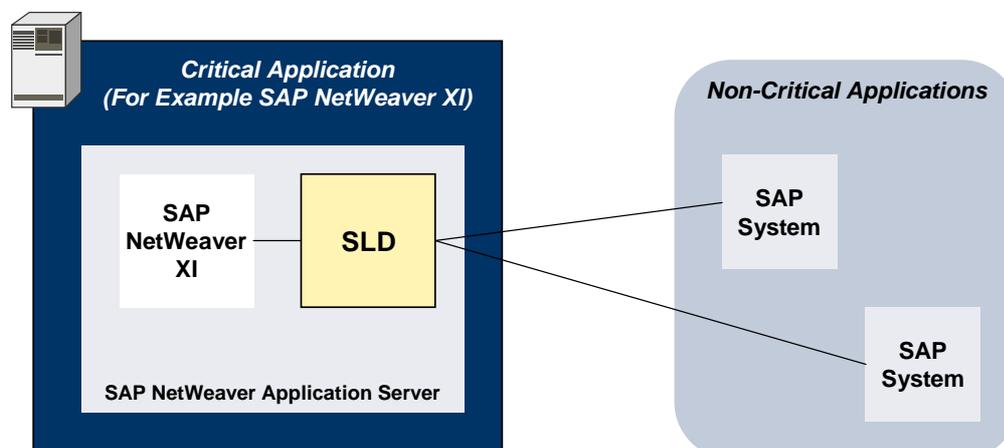
The following figure shows an SLD running on a central administration and monitoring system with SAP NetWeaver Administrator, central user administration (CUA), and software lifecycle manager of SAP NetWeaver:



3.5.3 One SLD-Critical Application

The best way to ensure SLD availability to the critical application is to run SLD integrated with the critical application. If the critical application is up and running, SLD is up and running as well. This is a good way in a small landscape regarding TCO. Nevertheless, with respect to flexibility in a growing landscape, you should have a look to next section using several SLDs.

The following figure shows an SLD running on an application system:



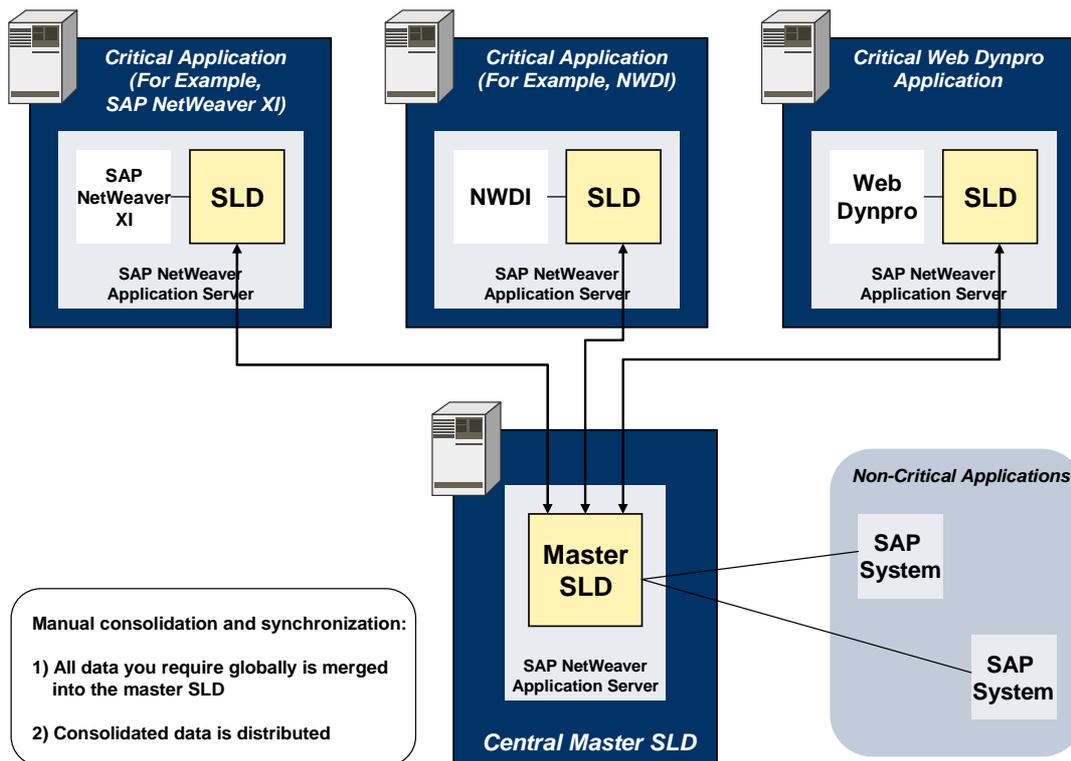
3.5.4 Several SLD-Critical Applications

If several applications critically depend on SLD information, you can run several SLDs integrated with each critical application. This will ensure SLD availability to these applications.

Nevertheless, with several SLDs, you require a synchronization concept for your SLD data.

3.5.4.1 Standalone Master SLD System

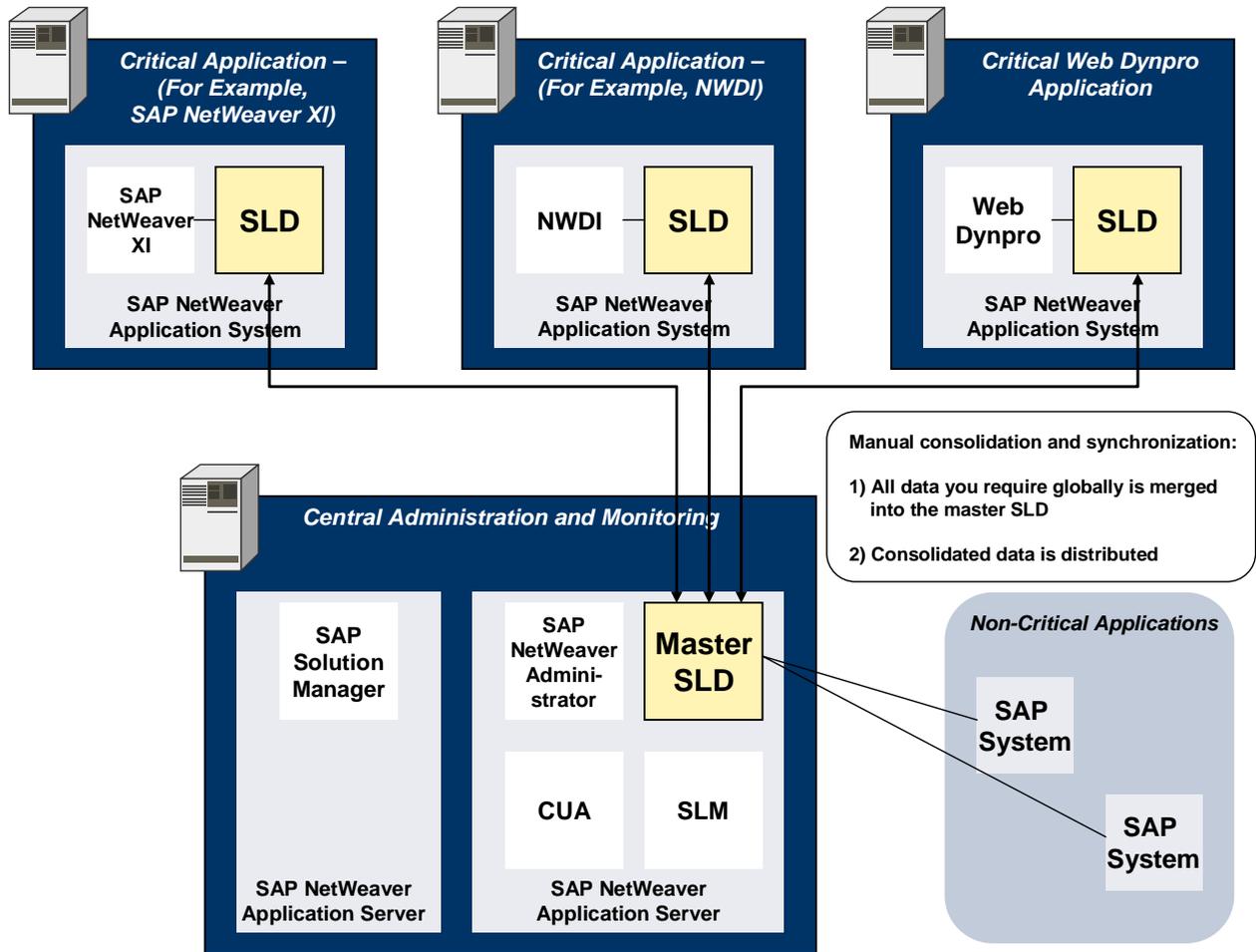
The following figure shows a standalone master SLD and several slave SLDs running on application systems:



With several SLDs, you require a synchronization concept for your SLD data. For more information, see section [Synchronization Strategies \[page 12\]](#).

3.5.4.2 Central Administration System

The following figure shows a master SLD running on a central administration and monitoring system and several slave SLDs running on application systems:

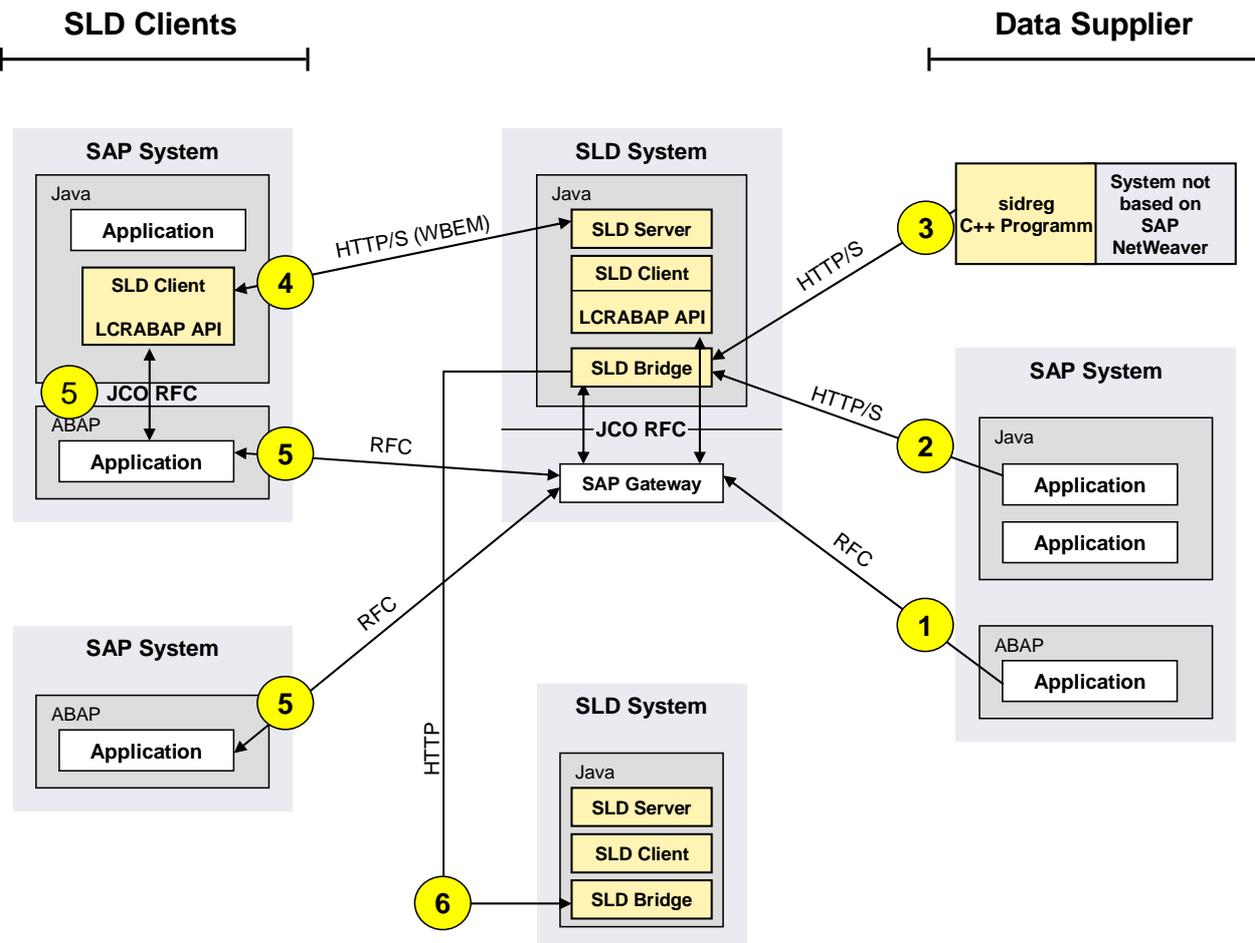


With several SLDs, you require a synchronization concept for your SLD data. For more information, see section [Synchronization Strategies \[page 12\]](#).

4 Overview of Connections to and from SLD

The following figure gives you an overview of all communication paths to and from the SLD. On the right side (bullets 1 to 3), the figure shows the SLD data suppliers. They send actual system landscape data to SLD. SLD clients on the left side are capable of interacting with the SLD. This means they can retrieve, send, and update system landscape data with SLD.

The following figure shows all communication paths that the following sections explain:



4.1 ABAP Data Supplier (1)

ABAP data suppliers must send their data to the SLD bridge by using RFC. The destination is a Java Connector (JCo), which is registered with the gateway and provides the connection to the SLD bridge running in the Java environment.

4.2 Java Data Supplier (2)

Java data suppliers send their data directly to the SLD bridge using the HTTP / HTTPS protocol.

4.3 External Data Supplier (3)

Applications not running on the SAP NetWeaver Application Server may use `sldreg` to send their landscape data. `sldreg` can be used as an interface to send the data to the SLD bridge using the HTTP / HTTPS protocol.

4.4 Java SLD Client (4)

The SLD Java client is able to interact directly with the SLD server using the HTTP / HTTPS protocol.

4.5 ABAP SLD Client (5)

An SLD ABAP client cannot communicate with the SAP server directly. The first communication step is with an RFC server (RFC destination `LCRABAP-API`) registered with a gateway. The `LCRABAP` server interfaces with the SLD client, which communicates with SLD using the HTTP / HTTPS protocol.

4.6 SLD to SLD Message Forwarding (6)

Data suppliers send their messages only to the SLD bridge to which they are connected. Nevertheless, you can configure each SLD bridge to forward all incoming data supplier messages to other SLD bridges as well. You can use this forwarding mechanism to update or synchronize several SLDs in large IT landscapes. For more information, see section [Automatic Forwarding of Landscape Data \[page 12\]](#).