



Planning Guide

System Landscape Directory

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Typographic Conventions

Type Style	Represents
Example Text	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options.
	Cross-references to other documentation
Example text	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
Example text	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.
EXAMPLE TEXT	Keys on the keyboard, for example, function keys (such as F2) or the ENTER key.

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Document History



Before you start planning, make sure you have the latest version of this document. You can find the latest version on the SAP Developer Network (SDN) and links to blogs and demos at:

<http://sdn.sap.com/irj/sdn/nw-sld>.

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

Version	Date	Description
3.1	March 2013	<ul style="list-style-type: none"> – 3.4.2.2 Other Synchronization Scenarios of LMDB with the SLD – 3.4.5 How to partly automate of CIM/CR Content Update – Update of visualization of the default topology recommendation
3.01	October 2011	<ul style="list-style-type: none"> – Update on the use of a local SLD in the SAP Solution Manager taking into account Solution Manager 7.1 and LMDB – see sect. 3.2.4
3.0	August 2011	<ul style="list-style-type: none"> – Topology update reflecting the changes caused by SAP Solution Manager 7.1 introducing the Landscape Management Database (LMDB) - see section 3.4.2. – <i>Some minor changes reflecting changes in navigation to documents, etc.</i>
2.06	February 2010	<ul style="list-style-type: none"> – Added recommendation for the use of a virtual IP address for SLD – Amendments regarding the use of full automatic synchronization – Added direction on the uniqueness of business system names
2.05	Sept./Dec. 2008	<ul style="list-style-type: none"> – Adapted general recommendation
2.04	August 2008	<ul style="list-style-type: none"> – Adapted recommendation for SAP Solution Manager to have always a local SLD (see section <i>SAP Solution Manager</i>).
2.03	April 2008	<ul style="list-style-type: none"> – Added recommendation to start an additional gateway service (used as Standalone Gateway for SLD) for the Java SCS instance of a standalone SLD in section <i>Where to Run SLD in Your System Landscape</i>.
2.02	April 2008	<ul style="list-style-type: none"> – Added information and recommendation about SAP Solution Manager.
2.01	March 2008	<ul style="list-style-type: none"> – Added information about restrictions of switching DNS aliases.
2.00	March 2008	<ul style="list-style-type: none"> – Guide restructured (such as in section <i>SLD Landscape Planning</i>), added new general landscape recommendations – Added information about the transport of SLD objects with the enhanced Change and Transport System in section <i>Synchronization Options</i>.
1.51	January 2008	<ul style="list-style-type: none"> – Added further information about how SAP Solution Manager relies on SLD plus some Minor changes
1.50	December 2007	<ul style="list-style-type: none"> – Added information about full automated synchronization provided with SAP NetWeaver 7.1. – Guide restructured plus some minor changes
1.45	July 2007	<ul style="list-style-type: none"> – In sections <i>Automatic Forwarding of Landscape Data</i> and <i>Release</i>

		<p><i>Compatibility</i>, changed statement concerning required CIM data models and SAP CR content versions of SLD instances that synchronize data using automatic forwarding – in contrast to the former statement, automatic forwarding works independent of releases, patch levels, and installed CIM data models and SAP CR content versions of the involved SLD instances, as the SLD bridge forwards data without interpreting or changing it.</p> <ul style="list-style-type: none"> – Added section <i>Central SLD Running on a Production System</i> plus Minor changes
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1 Introduction

This documentation provides you with a central starting point for the planning of your landscape strategy for the System Landscape Directory (SLD) of SAP NetWeaver® in combination with applications and SAP Solution Manager.

1.1 Structure of the Planning Guide

The planning guide consists of the following sections:

1. Introduction

Information about this documentation and related information important for the planning of the SLD.

2. Overview

A short introduction to the SLD.

3. System Landscape Directory Topology

This section introduces a high-level process to define an individual landscape strategy for the SLD based on your requirements. It provides information about landscape scenarios, recommendations on which host you could run the SLD in your system landscape, and recommendations for typical SLD landscapes.

4. Appendix

This section provides additional information, such as network access scenarios and information about all communication paths to and from the SLD.

1.2 More Information

The following list contains links to information about the SLD on the SDN and in the SAP Library:

Content	Location on SDN or in the SAP Library
Information about the SLD and corresponding documentation containing blogs discussing SLD related topics in detail, mostly showing system demos.	http://sdn.sap.com/irj/sdn/nw-sld
Configuring and using the SLD	<i>User Manual – SLD:</i> http://sdn.sap.com/irj/sdn/nw-sld
Platform and Technology Information Center	SAP Service Marketplace at: service.sap.com/platforms
Sizing of SAP NetWeaver	SAP Service Marketplace at: service.sap.com/sizing

Content	Location on SAP Community Network or in the SAP Library
Information about security	<i>SAP Security Guide:</i> Located in the SAP Library [page 7] 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 7] 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

You can access the SAP Library as follows:

5. **SAP Help Portal** at <http://help.sap.com> → *SAP NetWeaver* → *<Release>*

Select the required language. The path to SLD-related information will vary with the release.



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.

6. An **SAP system** if you have installed the online documentation:

Choose *Help* → *SAP Library*.

The browser starts.

7. The **help files on the online documentation CDs or DVDs**

If you want to view the help files in HTML Help format from the online documentation CDs or DVDs, you need a PC running Microsoft Windows on which you can install the HTML Help viewer.

2 Overview

The System Landscape Directory of SAP NetWeaver (abbreviated to SLD in the rest of this documentation) is the central directory of system information that is relevant for the landscape description in the SAP Solution Manager needed as a basis for management of your software's application life-cycle. It contains a description gathered from 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 the system information is updated automatically, the SLD provides reliable and up-to-date information with minimized effort for you. In this way, the 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.



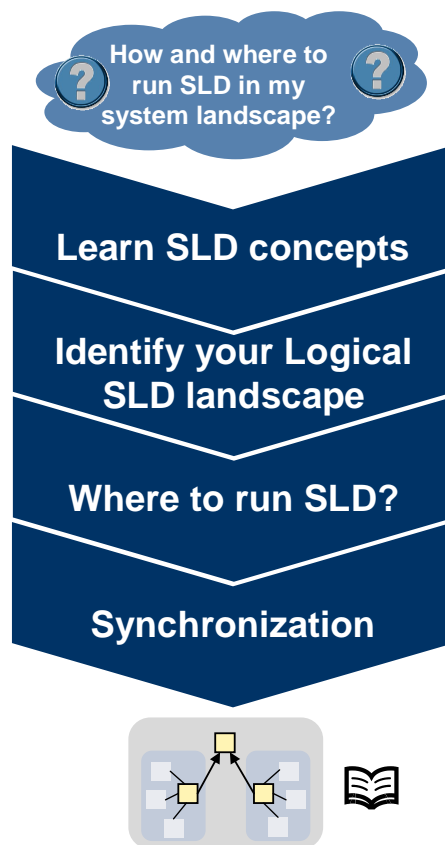
The abbreviation SLD is not intended to define a product, since the SLD is part of SAP NetWeaver. This abbreviation is solely intended to improve readability.

3 SLD Topology

3.1 Process to Define Your SLD Landscape Strategy

You can install and run the SLD in your SAP NetWeaver landscape in many different ways. Each option has different advantages and disadvantages. Therefore, you must plan the installation of the SLD properly according to your landscape requirements.

The following figure shows a possible process to define a strategy about how and where to run SLD in your system landscape:



- Familiarize yourself with how the SLD is used by SAP applications and with fundamental concepts, such as reasons to have more than one SLD, synchronization options of SLD, and release compatibility considerations:
- For more information about how the SLD is used by SAP applications, see section [SLD Clients – How SLD is Used by SAP Applications \[page 12\]](#).
- For more information about fundamental SLD concepts, see the following sections:
 - [Reasons to Have Several SLDs \[page 17\]](#)
 - [Synchronization Options \[page 17\]](#)
 - [Release Compatibility \[page 22\]](#)
 - [How You Can Handle Possible Changes to Your SLD Strategy \[page 25\]](#)

- Decide how your SLD landscape will look like based on the information provided in section [SLD Landscape Planning \[page 26\]](#):
 - a. Firstly, define your logical SLD landscape and define the number of required SLD instances). This is the most important step for defining an individual SLD landscape strategy. Consider the recommendations about how to set up an SLD in your system landscape in section [Recommendations for SLD Landscapes \[page 26\]](#).

Next, get a clear picture of the requirements that your system landscape demands concerning the data stored in the SLD and map those requirements to the SLD landscape recommendations provided in this documentation. The following are example requirements:

- Applications that rely critically on the SLD in your system landscape, required availability of the SLD and the impact on your system landscape if an SLD is temporary not available
- Required performance for accessing the SLD (for example, affected by network lags due to a large physical distance between an SLD client and your SLD itself or insufficient hardware performance of the host on which you run your SLD)
- Technical constraints of your system landscape (such as networks, firewalls, message volumes, hardware, and high availability)
- Required visibility and changeability of certain data stored in the SLD (for example, you might have the requirement to restrict access to the data of production systems for developers)
- Legal constraints (such as sensitivity of data, retention periods, and country-specific laws)
- Company rules, organizational structures or governance models

For more information, see **SAP Note 764393** (*Configuration of the SAP System Landscape Directory*).



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.

- b. Secondly, decide on which system or systems you want to run your SLD instance or instances. You can run an SLD either on a dedicated AS Java system or together with other central shared services or business functions (for example, your SAP NetWeaver Process Integration system) on an existing system. To a certain degree, the corresponding decision 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 sections [Where to Run SLD in Your System Landscape \[page 42\]](#) and [Sizing Requirements of a System for SLD \[page 45\]](#).

As a result of this step, you should get a clear picture of the SLD landscape you want to run.

- If you require more than one SLD, you have to think about synchronizing the SLD data stored in your SLD instances.



For more information about available synchronization options, see section [Synchronization Options \[page 17\]](#). For example, SAP provides a fully automatic synchronization mechanism for all SLD data that could dramatically reduce manual synchronization effort in SAP NetWeaver 7.1 and higher.

To do so, create a model to understand which data is required in which of your planned SLD instances. In addition, you might want to restrict the forwarding of certain data to certain SLD instances in your landscape to generate different views.



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



If manual synchronization is required, we recommend that you create some kind of operation manual that helps to establish a process about when and how synchronization must be performed, and by whom.

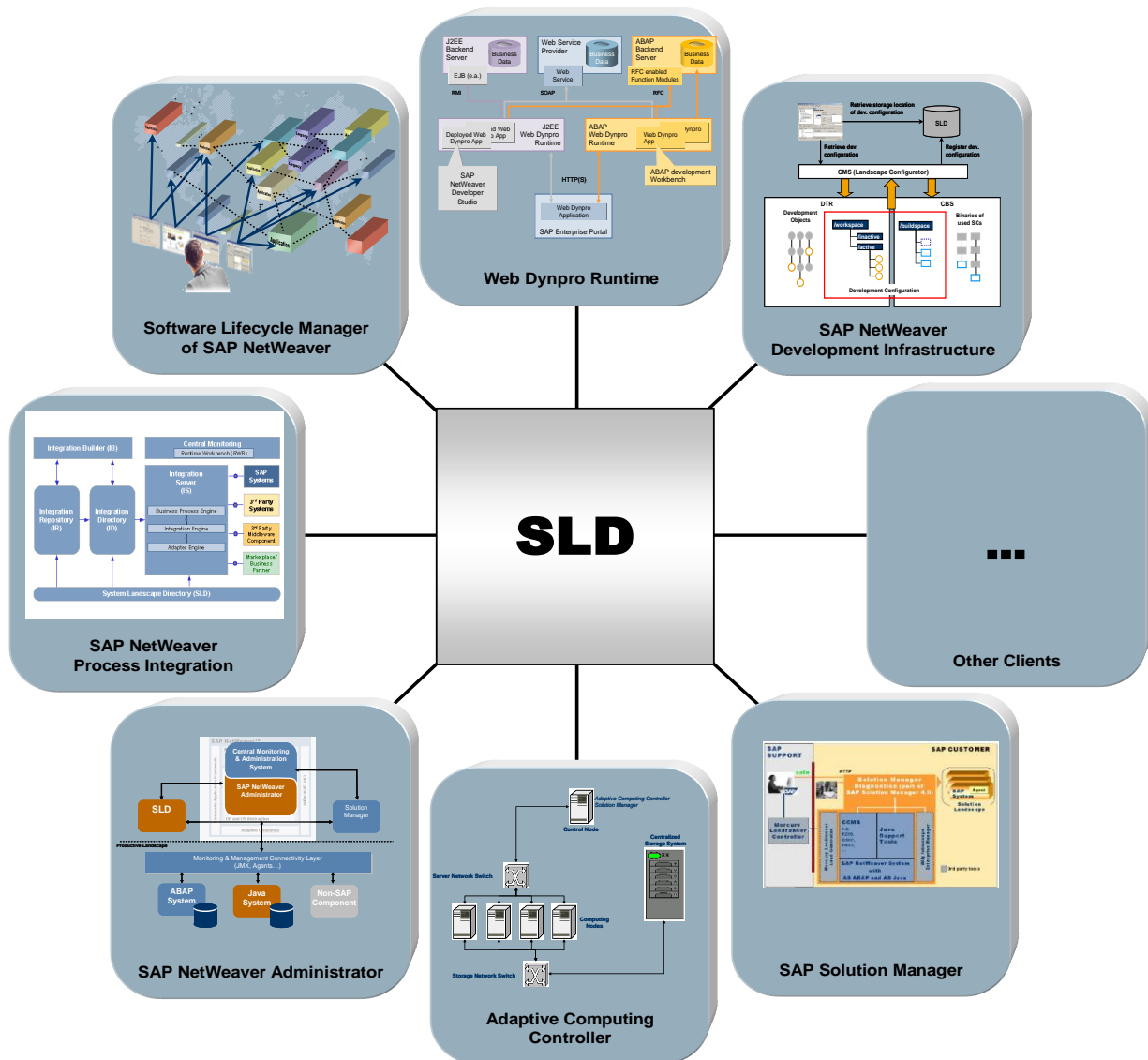
For further information about synchronizing SLD instances in a landscape, see **SAP Note 764393** (*Configuration of the SAP System Landscape Directory*).

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

3.2 SLD Clients – How the SLD is Used by SAP Applications

This section provides information how the SLD is used by different applications.

The following figure shows applications and tools - known as SLD clients - that use the data stored in the SLD to provide service. To do so, the SLD clients read data from and write data to the SLD:



The following sections provide information about how the most important applications shown above use and rely on data stored in the SLD.

3.2.1 SAP NetWeaver Process Integration

SAP NetWeaver Process Integration (SAP NetWeaver PI) is SAP's platform for process integration using the exchange of XML messages.

How Does SAP NetWeaver PI Use the SLD?

SAP NetWeaver PI has several SLD use cases:

- ❑ The SLD acts as a server where you create and store *business system* names (these have to be associated with the corresponding technical systems received from their data suppliers). It is used:
 - For receiver determination in the *Integration Directory* of SAP NetWeaver PI
 - By application systems to get their own business system name (Java Proxy Framework and SAP systems)



In landscapes, where more than one PI installation is used, you must make sure that business system names are unique in the whole landscape if they could be aggregate in one SLD system.

- ❑ Therefore, you must make sure that all business systems (and the corresponding technical systems) that an SAP NetWeaver PI system communicates with are available in the SLD that is used by this SAP NetWeaver PI system.
- ❑ In the SLD, you create transport targets for *Integration Directory* content transports. These transport targets define which system in one environment (DEV, TEST, QA, PROD) corresponds to which system in another environment.



For example, you define that the business system BSD in your development environment corresponds to a business system BSQ in your quality assurance environment and that the SAP NetWeaver PI system PID in your development environment corresponds to PIQ in your quality assurance environment.

If you now transport configuration objects from one environment to the other, the corresponding systems from the source environment will be mapped to the target environment during the import.



For example, if you have configured that a message is sent from PID to BSD in your development environment, this configuration will be changed to PIQ → BSQ in your quality assurance environment.

As a result, if your SAP NetWeaver PI systems use more than one SLD, also propagate business systems (and the corresponding technical systems) from DEV to TEST, from TEST to QA, and from QA to PROD so that each SLD contains the business systems from its own environment and from the environment of the predecessor SLD:

- DEV SLD only requires information about DEV business systems, because business systems are not imported from other environments.

- QA SLD requires information about the business systems from both DEV and QA environments, because business systems from DEV are imported and mapped to business systems from QA.
- PROD SLD requires information about the business systems from both QA and PROD environment, because business systems from QA are imported and mapped to business systems from PROD.



For example, all business systems and corresponding technical systems from the SLD that is used by PID must also be available in the SLD that is used by PIQ, so that the mapping mentioned above can be defined in the SLD of the QA environment.

- ❑ The Integration Repository of SAP NetWeaver PI requires information about products and software component versions. This information is stored in the SLD. You have to make sure that this component repository data is available in every SLD that is used by SAP NetWeaver PI. To do so, we recommend that you transport this data (either by using the full automatic synchronization mechanism available in SAP NetWeaver 7.1 and higher or by using the manual export/import mechanism).



Note, that the full automatic synchronization transports all changes immediately, so only choose this option where this is acceptable.



You could also create products and software component versions directly in the target SLD instead of transporting them from a source SLD. Nevertheless, the GUIDs (globally unique identifier) of the software component versions have to be identical in both the source and the target SLD, which is assured by transporting this data.

- ❑ The SLD provides all systems and Adapter Engines for end-to-end monitoring in the Runtime Workbench of SAP NetWeaver PI.
- ❑ The SLD provides the address for the transfer of adapter configuration data from the Integration Directory to the adapter cache.

How Does SAP NetWeaver PI Rely on SLD?

SAP NetWeaver PI relies on SLD in the following way:

- ❑ During SLD downtime, you cannot create or change PI development objects (such as business systems and software component versions) in the SLD.
- ❑ ABAP application systems try to contact the SLD daily to update their business system names. If an SLD is down during this refresh, the application systems will continue to use their old business system names.
- ❑ PI caches might have to be refreshed during runtime (either initiated by Enterprise Services Builder tools after released changes or initiated manually to update the content). However, you can plan these cache refreshes in a normal production environment.
- ❑ During SLD downtime, no end-to-end monitoring can be performed in the Runtime Workbench.
- ❑ Availability of the SLD is required at every restart of SAP NetWeaver PI so that the latter can load its caches. Since unexpected restarts of an SAP NetWeaver PI system or parts of it might be required, the availability of the SLD is considered critical during runtime for SAP NetWeaver PI.

3.2.2 Web Dynpro for Java based Applications

The SLD stores destination information for ABAP systems and Web services centrally. This information is required by Web Dynpro for Java-based applications to resolve adaptive RFC calls.

For Web Dynpro applications that use adaptive RFC calls, access to the SLD is critical during startup and runtime.

3.2.3 SAP NetWeaver Development Infrastructure

SAP NetWeaver Development Infrastructure provides the environment for all processes of Java-based development and Java-based software life-cycle management.

SAP NetWeaver Development Infrastructure uses the SLD:

- ❑ As name server for the reservation of development object names
- ❑ For a central definition of software, products, software components, and versions to be developed, including interdependencies
- ❑ As central storage of development configurations required for development

During downtime of the SLD, you cannot log on to the SAP NetWeaver Development Infrastructure, nor can you register any names.

3.2.4 SAP Solution Manager

You can use SAP Solution Manager to implement, train, test, maintain, monitor, control change, root-cause analyze and manage incidents of your SAP solution system landscape (open end-to-end application management). To provide these features, SAP Solution Manager requires a system data repository, for instance an SLD.

During SLD downtime, no data updates for J2EE components within your landscape are available in the SAP Solution Manager. In addition, end-to-end root cause analysis functions might be limited, which might be critical in the case of issues with production systems in your landscape that you want to analyze (especially if you want to perform root cause analysis for issues on your SLD system).



Note, that the end-to-end root cause analysis scenario in SAP Solution Manager in particular stores connection data (Web Dynpro JCo destinations such as E2E_SMD_SM_DATA and E2E_SMD_SM_METADATA) in the SLD.

Therefore, **we strongly recommend that you run a local SLD in SAP Solution Manager in any SAP Solution Manager system older than SAP Solution Manager 7.1**. With SAP Solution Manager 7.1 Landscape Management Database has been introduced, which in most scenarios replaces the local SLD as supplier of system data.



Note: Optionally, the local SLD in SAP Solution Manager 7.1 can be used as a target for data suppliers and source of technical system information for the LMDB if no SLD data is used productively during runtime. Examples for such a productive use are *SAP NetWeaver PI* or *Web Dynpro Java based applications*.

Since SAP Solution Manager also comprises AS Java, you can run this local SLD inside the SAP Solution Manager system itself. In addition, set up the SLD data suppliers of your SAP Solution Manager to send data to the central runtime SLD and configure automatic bridge forwarding from your central runtime SLD to the local SLD running inside SAP Solution Manager. For more information, see **SAP Note 1148028** and [SLD Landscape Planning \[page 26\]](#).

To ensure that the maintenance of SAP Solution Manager does not interfere with productive operations, we strongly recommend that you do not use this local SLD in SAP Solution Manager as central runtime SLD, if you are using SAP NetWeaver PI or Web Dynpro Java applications in your system landscape. Moreover, there are different release strategies for SAP Solution Manager and SAP NetWeaver (and therefore the SLD). Therefore, a conflict might occur if you choose not to follow these recommendations and decide to use the local SLD running inside SAP Solution Manager 7.0 also as a central runtime SLD. For SAP Solution Manager 7.1 see section 3.4.2.



For example, the upgrade of an SAP application to SAP NetWeaver 7.1 could also require a release upgrade of SLD to 7.1. Since the highest release of SAP Solution Manager is currently based on SAP NetWeaver 7.0, the SLD client (and not the SLD data supplier) of the upgraded application system would in this example no longer be able to use the SLD inside SAP Solution Manager. You would then require a (separate) central runtime SLD 7.1 for this application.

If you are not using SAP NetWeaver PI or Web Dynpro Java applications and also do not plan to do so in the near future, you can use the SLD running on the SAP Solution Manager system as central SLD, as no runtime dependencies to this SLD exist.

This enables you to clearly separate your management system (SAP Solution Manager) from the managed systems in your landscape because:

- SAP Solution Manager would not rely on an SLD running in the production environment (apart from the updates of technical systems data, which are recommended to be gathered in the SLD of the productive systems and forwarded to SLD systems in development and SAP Solution Manager – see SLD topology.)
- No managed system would have runtime dependencies to SAP Solution Manager.

3.2.5 SAP NetWeaver Administrator

SAP NetWeaver Administrator offers a central entry point to administration and monitoring tasks for your whole SAP NetWeaver system landscape.

SAP NetWeaver Administrator retrieves landscape data from the SLD. It requires this information for central remote monitoring functions.

During SLD downtime, no central administration of systems is possible.

In SAP Solution Manager 7.0 SP Stack 15 and higher, the central services of SAP NetWeaver Administrator have been moved to a work center in SAP Solution Manager.



SAP has decided to merge the central mode of SAP NetWeaver Administrator with the new work centers available in SAP Solution Manager 7.0 SP Stack 15 and higher. Thus, it can be used in an administrative context together with non-Java based administration tools. Although the central mode of SAP NetWeaver Administrator will be still available for some time, SAP will not develop this tool any further. SAP will focus on optimizing the administrative work centers of SAP Solution Manager instead.

The local mode of SAP NetWeaver Administrator will not be modified: It is available for current and future releases of SAP NetWeaver. Nevertheless, local SAP NetWeaver Administrator services do not require landscape data.

As a result, the SLD is no longer required for SAP NetWeaver Administrator if you use the new work centers of SAP Solution Manager.

3.2.6 Adaptive Computing Controller

Adaptive Computing Controller enables users to control an adaptive computing landscape from a single point through observation, operation, and dynamic resource distribution.

Adaptive Computing Controller retrieves landscape data from the SLD. It requires this information for its operation (that is, starting, stopping and changing resources).

During SLD downtime, only the monitoring functions of Adaptive Computing Controller are available.



For more information about SAP NetWeaver Process Integration, SAP Solution Manager, SAP NetWeaver Administrator, SAP NetWeaver Development Infrastructure, or Adaptive Computing Controller, see the *Master Guide – SAP NetWeaver* on SAP Service Marketplace at service.sap.com/instguides → *SAP NetWeaver* → *<Release>* - from there, navigate to the Master Guide for your SAP NetWeaver release.

3.3 Fundamental SLD Concepts

3.3.1 Reasons to Have Several SLD instances

There may be several reasons to have more than one SLD. For example, if you have geographically distributed locations with local administration groups that want to see only their local systems in the SLD, you require a dedicated SLD to be able to provide different views on SLD data.

In addition, several system landscape directories might be required if you want to isolate your production environment. By having an SLD dedicated for your production systems, you can make sure that only administrators access your runtime SLD, whereas developers can use a design-time SLD.

Having more than one SLD also gives you the possibility to test content imports, CIM data model updates, and patches first before performing them in the SLD used for your production environment.

A very important reason to have several SLD instances is to provide improved availability of the information stored there. This information could be essential for applications running in your production landscape. For more information, see [SLD Clients \[page 12\]](#).

3.3.2 Data Distribution Options

If you have several SLD instances in your landscape, you will have to distribute SLD data. Distribution means the interchange or forwarding of SLD data. To support the operation of several SLD instances, we provide the following mechanisms to distribute SLD data:

- Full automatic synchronization
- Automatic forwarding of data suppliers (Bridge Forwarding)
- Manual data export and import functions, which can be combined with the transport of SLD objects with the enhanced Change and Transport System (CTS+)

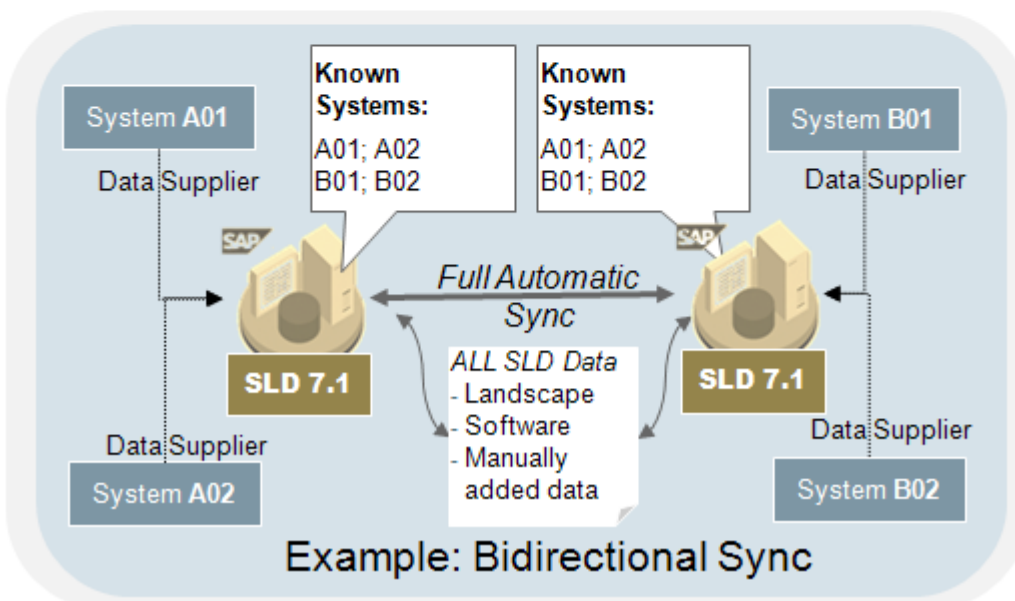
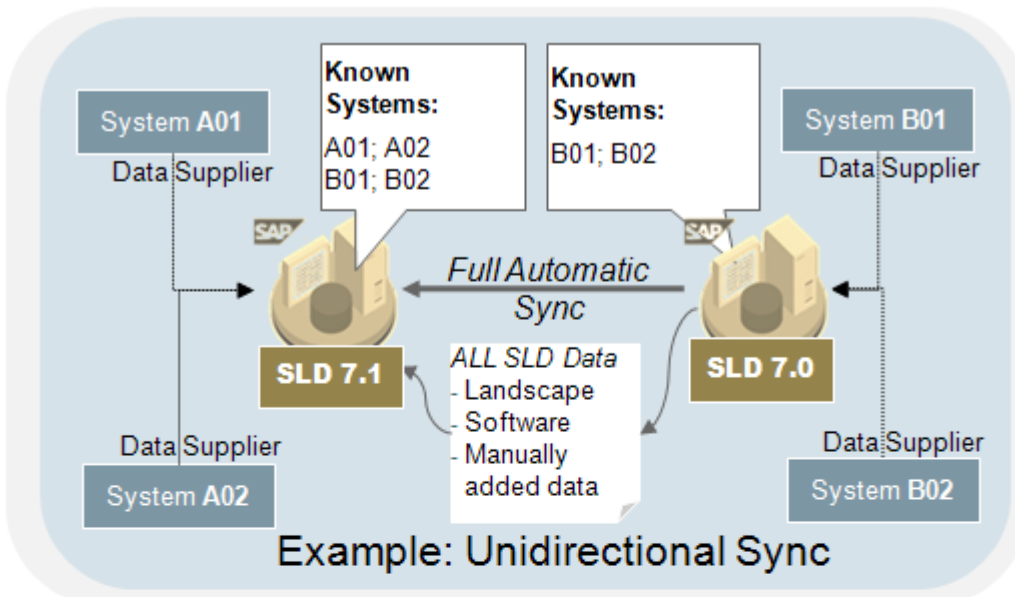
3.3.2.1 Full Automatic Synchronization

In SAP NetWeaver 7.1 and higher, we provide a full automatic synchronization mechanism for all SLD data. This means that data delivered by data suppliers **and** data entered or changed manually in SLD can be propagated to another SLD automatically. Therefore, it is now possible to define the required transport topology and perform automated synchronization of all content changes without regular manual operations. Depending on your use case, this dramatically reduces manual synchronization effort.



Note, that the full automatic synchronization transports all changes immediately, so only choose this option where this is acceptable.

The following figure shows a full automatic synchronization set up for two SLD instances and the effect on their content. In the upper example, an SLD running on SAP NetWeaver 7.0 (SP12 or higher) acts as a source for unidirectional sync (this is the only full automatic sync option with 7.0 SLD systems); in the lower example two SLDs running on SAP NetWeaver 7.1 are in bi-directional full automatic sync:



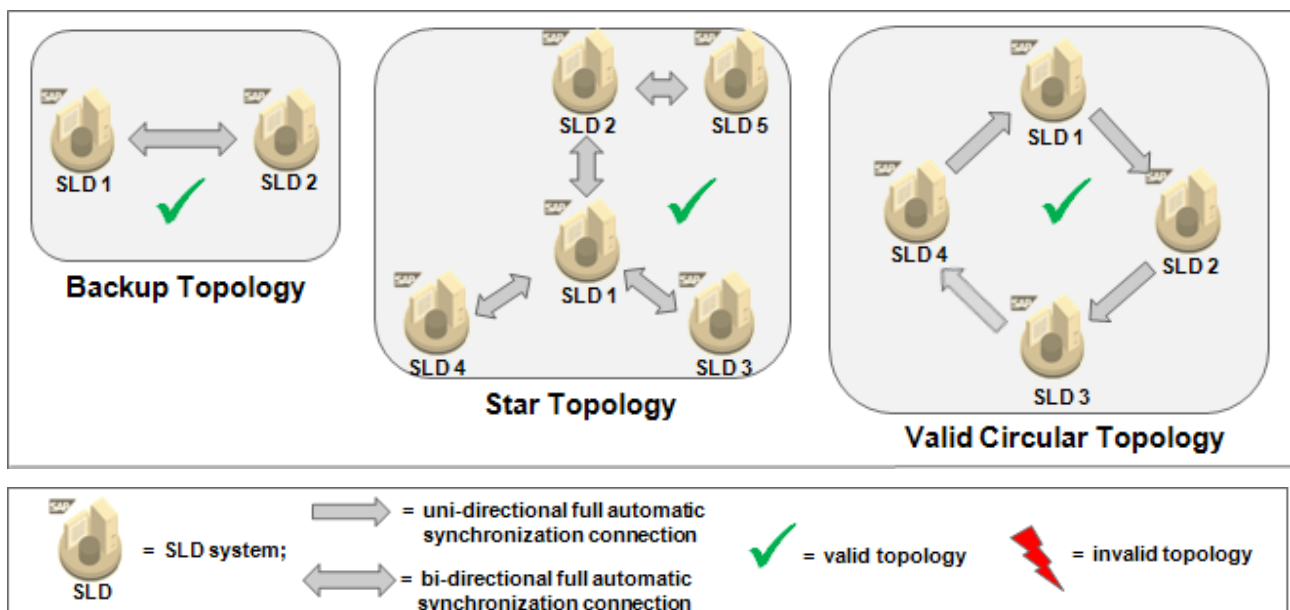
The following list shows important properties and features of the fully automatic synchronization of SLD content:

- ❑ You are able to set up this synchronization as either uni- or bi-directional.
- ❑ Synchronization takes place asynchronously, so that a system can be temporarily unreachable (for example, due to network or system downtime) and synchronizes itself afterwards.
- ❑ Reconciliation of conflicts (due to conflicting parallel changes) is done automatically: no user interaction is required.
- ❑ The communication for this synchronization takes place by using the HTTP protocol.
- ❑ At present, content synchronization is only possible for the whole content of participating namespaces; filtering of namespace content to be synchronized is not supported.
- ❑ The fully automatic SLD content synchronization is fully supported by AS Java 7.1 SP Stack 1 and higher. Additionally, an SLD based on 7.0 SP Stack 12 and above can be used as the source system for unidirectional synchronization only. That is, an SLD running on AS Java 7.0 SP Stack 12 or higher could automatically forward all its content to an SLD running on AS Java 7.1, but not the other way around.
- ❑ You can even use the full content synchronization to improve SLD availability for software life-cycle tasks (such as applying patches, performing upgrades, and relocating hardware). To do so, you can install a new SLD system (if required, on a higher release) in parallel to an SLD with a lower release version and use content synchronization and host name virtualization (for example, by means of DNS aliasing) to switch (temporary or permanently) to this new SLD.



Depending on the configuration and the number of DNS servers, switching a DNS alias may take some time (hours or days). In addition, further caches are often implemented for the IP addresses in the application systems. Therefore, DNS aliases cannot be used for an immediate, synchronous conversion of the links.

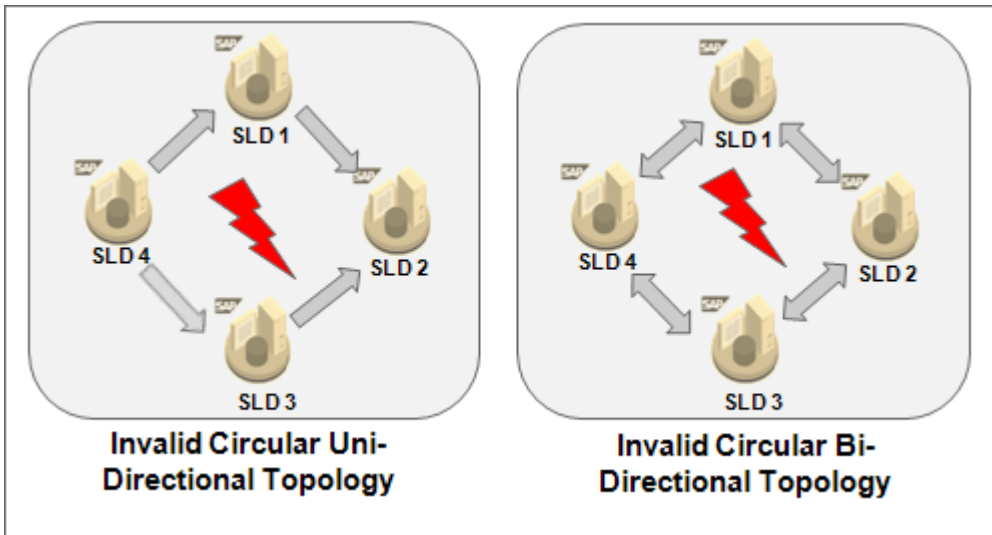
The most important use case for full automatic synchronization is the creation of a backup SLD (since *all* changes are transported *immediately* once a full automatic sync connection is active. In use cases such as providing SLD data from production SLD to development SLD or vice versa using full automatic sync cannot be recommended). In very big landscapes however, there might be the need to have more than 2 SLDs in full automatic sync. Here are some valid topologies:





Note, that in all valid topologies, the **unique path principle** is guaranteed: This means only one way is possible on which data flows from one SLD to another.

The following picture shows invalid topologies of SLD systems in full automatic sync, where the **unique path principle** is violated:



Other SLD systems from the landscape can be added with different connection types, but you must make sure that each type of information is only transported by one connection. For example, do not define a bridge forwarding between two SLDs, which are in full auto synchronization already.

3.3.2.2 Automatic Forwarding of Landscape Data

To keep different SLD instances informed about changes to data reported by SLD data suppliers, you can configure the SLD bridge to forward data to other SLD instances (hence, also the term “*Bridge Forwarding*” is in use). With automatic forwarding, the SLD allows direct server-to-server synchronization.

The following landscape data can be synchronized by automatic forwarding:

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



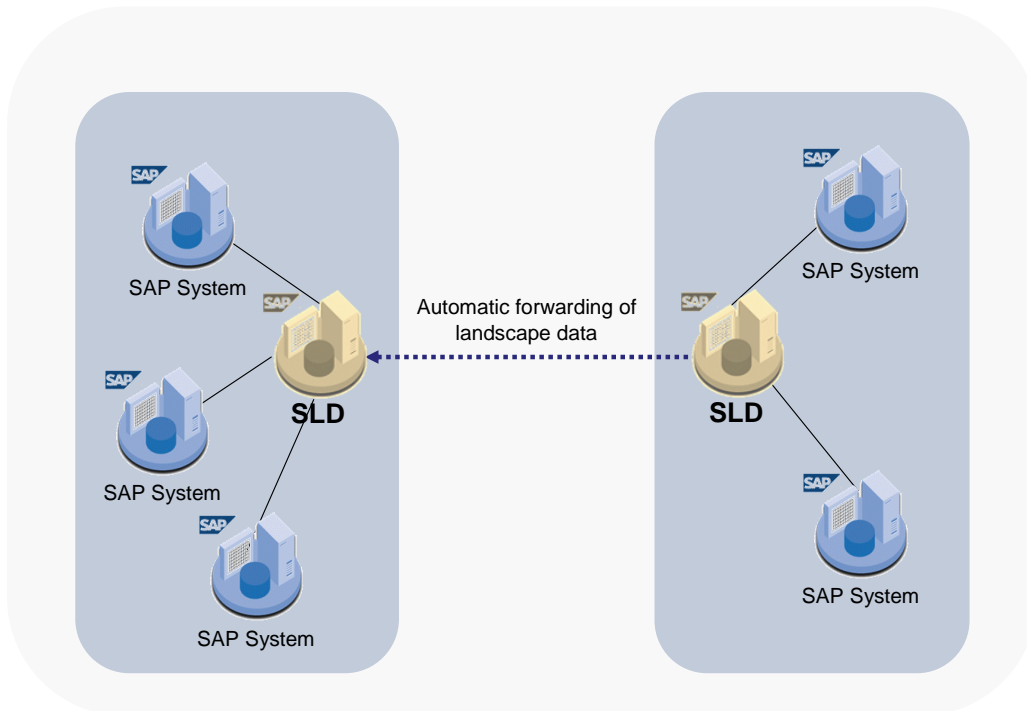
In SAP NetWeaver 7.0 SP Stack 11 and higher, circular forwarding is fully supported. If your SLD instances run on SAP NetWeaver 7.0 SP Stack 10 or a lower release/SP Stack version, we do not recommend that you set up a circular exchange of data between two or more SLD instances with automatic forwarding. Although the original sender does not forward data again (after the original sender received the data from the other SLD), the original sender will write an error message in its log file that the data received by automatic forwarding is already contained in its local SLD.

Any changes and entries that you entered manually in the SLD (for example, business systems required for SAP NetWeaver PI, component repository extensions, or name reservation data) cannot be forwarded

automatically with this mechanism and stays within the local SLD only. The same restriction applies for data written by other applications such as SAP NetWeaver PI or SAP Solution Manager.

Therefore, with automatic forwarding, you get the flexibility to run several SLD instances in your system landscape with little manual effort if fully automatic synchronization can not be used. Since only landscape data received from SLD data suppliers is forwarded automatically, this approach will not be suitable for all requirements and you may have to complement the automatic forwarding with other synchronization mechanisms (such as manual export/import). In addition, you will have to manually update the component information and the CIM model 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 SLD instances:



Since the SLD bridge forwards data without interpreting or changing it, automatic forwarding works independently of releases, patch levels, and installed CIM data models and SAP Component Repository content versions of the involved SLD instances.

3.3.2.3 SLD Export and Import Functions

If several SLD instances have to contain a consistent view of data not delivered by data suppliers, and fully automatic synchronization can not be used (because your SLD instances do not run on SAP NetWeaver 7.1 or because you do not want to synchronize all SLD data), you can use the export/import function in the SLD to manually synchronize them. Simple export and import functions allow you to export data from one SLD and import it to another SLD manually. To ensure proper distribution of data, you must designate one SLD as the master SLD. You can then use this master SLD to update the other SLD instances.

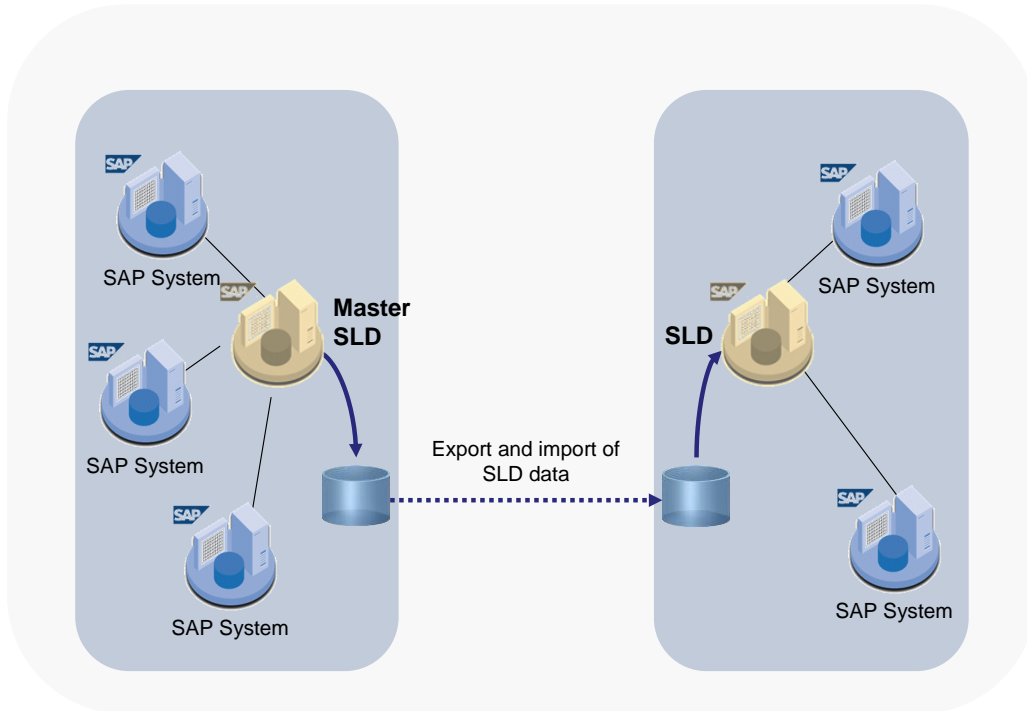
SLD content is divided into the following three categories:

- ❑ Landscape data (LD)
- ❑ Component repository 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 known as 'delta exports'. We recommend that you transport all three categories together (select *export line: ALL* in SLD administration).

Export and import provides the best flexibility while it may require considerable operational effort. Therefore, it is only recommended if you have corresponding requirements (for example, concerning availability) or if you only have a small number of manual changes to your SLD data that have to be transported manually.

The following figure shows the 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 SLD instances with different release versions 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 SLD instances.

3.3.2.4 Transport of SLD Objects with the Enhanced CTS

In SAP NetWeaver 7.0 SP Stack 12 and higher, the existing Change and Transport System (CTS+) in SAP NetWeaver Application Server ABAP has been enhanced so that you can now use the transport functions in Transport Organizer and Transport Management System to also transport non-ABAP objects, such as:

- ❑ Objects from the SAP NetWeaver usage type EP (Enterprise Portal Archives)
- ❑ Objects from the SAP NetWeaver usage type PI (PI transport files)
- ❑ Objects from the SAP NetWeaver usage type DI (such as software component archives and development component archives)

In SAP NetWeaver 7.0 SP Stack 14 and higher, you can also transport the following SLD objects with the enhanced CTS: technical systems, business systems, software components, and products.

The objects are transported in transport requests along the transport routes defined between systems in CTS. This enables you to manage transports between both ABAP and non-ABAP SAP systems in a central CTS. By synchronizing different updates (such as the changes performed as part of PI development comprising ABAP, Java, and SLD objects), you simplify your transport management and avoid inconsistent system states as objects that belong together get transported together as one unit.

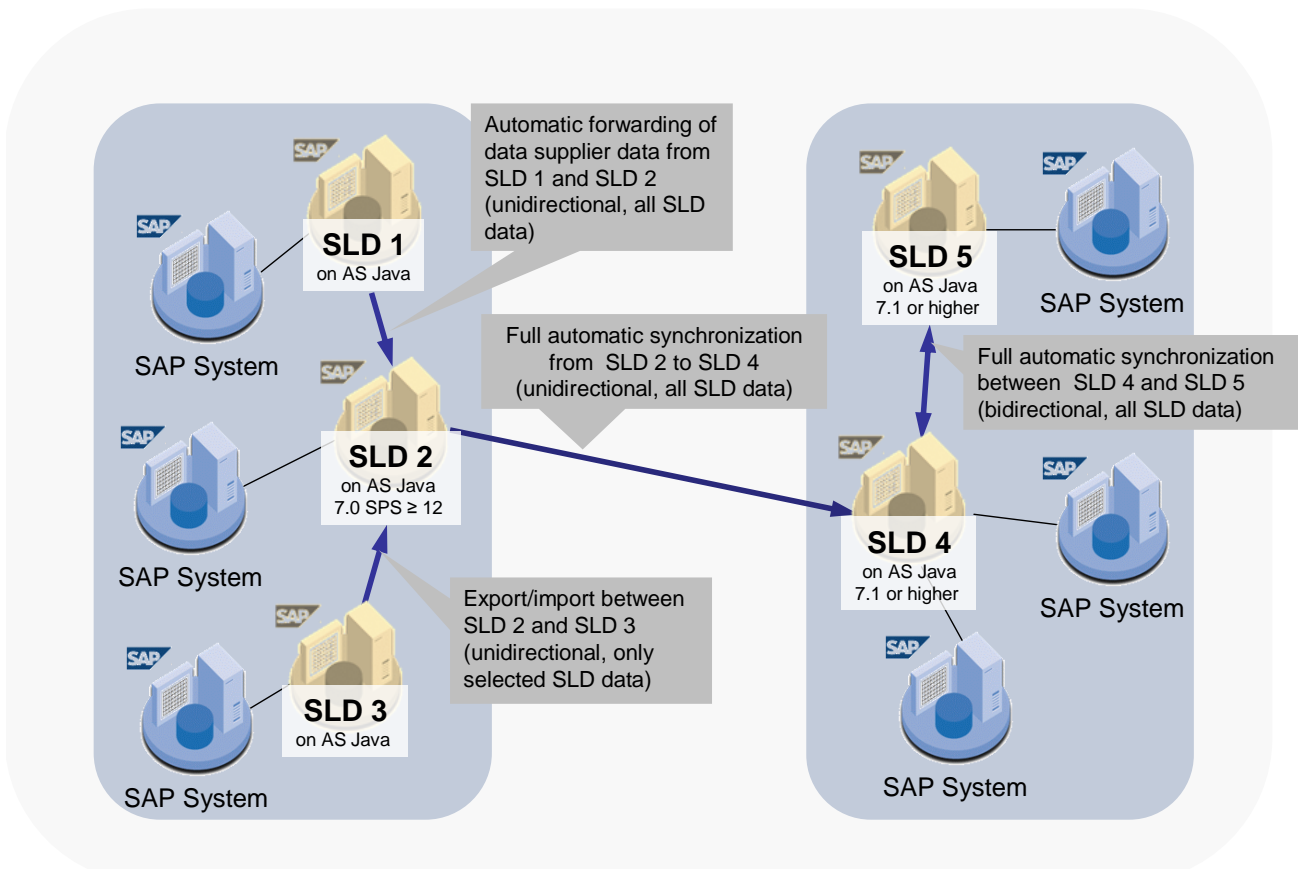
Since you can use enhanced CTS to transport selected SLD objects on request, this could be a valid alternative for the export/import functions of SLD – especially if you already use enhanced CTS already for other transports in your landscape which contain SLD objects (such as transports occurring in the context of SAP NetWeaver PI development).

3.3.2.5 Interplay of the SLD Data Distribution Mechanisms

The mechanisms of SLD data distribution described above have different characteristics. If required, you can also use several of these mechanisms to synchronize your SLD landscape (that is, use different synchronization mechanisms for different synchronization paths or for different SLD data in your SLD landscape).

Nevertheless, you must not use several synchronization mechanisms for the same SLD data on the same synchronization path (for example, you do not set up fully automatic synchronization from SLD A to SLD B **and** configure automatic forwarding from SLD A to SLD B because both mechanisms would synchronize landscape data. However, you could supplement automatic forwarding with regular export/import of manually entered data from SLD A to SLD B).

The following figure shows a system landscape where different synchronization mechanisms are used in parallel:



The following table provides an overview of the different synchronization mechanisms in the SLD:

Synchronization Mechanism	What is synchronized?	How?	When to use this mechanism?
Full automatic synchronization	Always all SLD data in an SLD namespace (data reported by SLD data suppliers, data entered manually, SAP CR content updates, CIM model), uni- or bi-directional	Automatic propagation of all changes in the source system	If your SLD instances run on AS Java 7.1 or higher (source SLD can also run on AS Java 7.0 SP Stack 12 or higher)
Automatic forwarding	Specific landscape data (that is, only data reported by SLD data suppliers), uni- or bi-directional	Automatic forwarding (whenever the SLD bridge receives data from an SLD data supplier, this data is forwarded to other SLD instances)	<ul style="list-style-type: none"> – If your SLD instances do not run on AS Java 7.1 or higher – If only landscape data reported by SLD data suppliers has to be synchronized (e.g. for SAP Solution Manager and any SLD used by development)
Manual export/import	You can choose the SLD content of each sub-category (LD, CR, NR), such as single business systems or software components. You can also export all SLD data (including SAP CR delta archives).	Manual procedure - either incremental or selective	<ul style="list-style-type: none"> – If your SLD instances do not run on AS Java 7.1 or higher and more data has to be synchronized than just the data covered by automatic forwarding – If only a small amount of SLD data has to be synchronized on an irregular basis – Provides best flexibility but may require considerable operational effort
Enhanced Change and Transport System (CTS+), used to handle manual exports in transport requests	Transportable SLD objects: Technical systems, business systems, software components, and products, CIM Model (Note that the CIM data needs to be added to a transport request manually – there is not dedicated export button in the SLD UI).	Manual procedure using the enhanced CTS	<ul style="list-style-type: none"> – If you want to be in control when specific SLD objects are transported. – If enhanced CTS is already used for other transports in your landscape which also include SLD objects (such as in the context of SAP NetWeaver PI development).



Note: Mechanisms of data distribution between SLD systems can be combined in the landscape, but in all valid topologies, the **unique path principle** is guaranteed: This means only one way is possible on which data flows from one SLD to another. For example, **do not** send data from one SLD to another by full automatic sync, if there is already the forwarding of data active between them.

3.3.3 Release Compatibility of Data Distribution Mechanisms

You have to consider three kinds of interdependencies concerning releases:

- ❑ Between SLD instances with regard to synchronization (if you run several SLD instances in your landscape)
 - ❑ **Full automatic synchronization**
Full automatic synchronization for SLD content is available in AS Java 7.1 SP Stack 1 and higher. Additionally, an SLD instance based on 7.0 SP Stack 12 and above can be used as the source system for unidirectional synchronization only. That means that an SLD running on AS Java 7.0 SP Stack 12 or higher could automatically forward all its content to an SLD running on AS Java 7.1, but not the other way around.
 - ❑ **Automatic forwarding:**
Since the SLD bridge forwards data without interpreting or changing it, automatic forwarding works independently of releases, patch levels, and installed CIM data models and SAP CR content versions of the involved SLD instances.
 - ❑ **Export/import:**
If you have SLD instances with different release versions 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 SLD instances.
- ❑ Between the SLD and SLD data suppliers
An SLD data supplier is used by a system to report landscape data to the SLD (write access only). For example, the data supplier of an SAP system sends landscape data to the SLD.
- ❑ Between the SLD and SLD clients
An SLD client is a system that uses data that is stored in the SLD (read/write access). For example, a Web Dynpro application is an SLD client that reads data from the SLD for adaptive RFC calls.

3.3.3.1 Release Compatibility between the SLD and SLD Data Suppliers

It is possible to connect an SLD data supplier of a system with a higher release to an SLD running on a system with a lower release, however, we do not recommend that you do so.



For example, you can configure the data supplier of an SAP NetWeaver 7.0 system to send data to an SLD running on SAP NetWeaver 2004, however, we do not recommend that you do so.

Instead, we recommend that the SLD runs on a system with the highest SAP NetWeaver release in your landscape. The reason for this recommendation is that it might be that SLD data that was introduced with a new release is ignored if received by an SLD running on a system with an older release (that is, new SLD parameters sent by a new data supplier might not get stored in an SLD running on a system with an older release).

If you nevertheless want to connect an SLD data supplier with a higher release to an SLD with a lower release, make sure that you have imported a new CIM data model version to the SLD with the lower release and check the SLD content regularly.

Within a release, different SP Stacks of SLD client and server are supported. Therefore, you can use any patch sequence within a release for the systems in your landscape on which your SLD server and your SLD data suppliers run.

3.3.3.2 Release Compatibility between the SLD and SLD Clients

It is not generally supported that an SLD client with a higher release use an SLD running on a lower release (for example, using an SLD running on SAP NetWeaver 2004 for SAP Solution Manager 7.0 based on SAP NetWeaver 7.0). Whether this is supported or not depends on the actual client application. For more information about released combinations of SLD server and SLD client releases, see **SAP Note 954820** (*Compatibility of SLD in the system landscape*).



For example, an SAP NetWeaver 7.0 Process Integration system can be the SLD client of an SLD running on SAP NetWeaver 2004 because this is listed in the SAP Note mentioned above.

We recommend that SLD instances run on a system with the highest SAP NetWeaver release in your landscape. Within a release, different SP Stacks of SLD clients and SLD instances are supported. Therefore, you can use any patch sequence for your landscape with SLD and SLD client applications within a release.

3.3.4 How You Can Handle Possible Changes to Your SLD Strategy

If you have to change your strategy in the future for any reason (for example, you started with one central SLD and now want to extend this approach by adding a second central SLD for your non-productive environment), the following SAP Notes (and related SAP Notes) provide information about how to split or merge SLD instances:



Make sure that you have the most 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 SLD instances 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 an SLD.
720717	Reduce the number of System Landscape Directories (SLD)	This SAP Note describes manual actions you have to perform for SAP NetWeaver PI if you merge multiple SLD instances.

To make changes in your SLD topology easier we recommend that you use a virtual IP address (VIP) to access SLD data. There are two important use cases:

- If you install a new SLD for example, you can assign the VIP to the new SLD once the data in it is complete. On clients and client systems using the VIP no changes will be necessary.
- If you use the bi-directional full automatic synchronization feature to create a backup SLD, you could switch between the two SLD systems assigning the VIP to the backup system if the other SLD is in maintenance.

3.4 SLD Landscape Planning

This section provides you with recommendations about how to setup an SLD landscape. It will help you to make the following decisions:

1. How many SLD instances to run in your landscape (your logical SLD landscape)
2. Where to run your SLD instances (either as dedicated SLD systems, on a management system, or on an application system) – including information about the sizing requirements of an SLD.

When planning the landscape topology of SLD systems, the version of the SAP Solution Manager must be taken into account. All examples given below are compliant with SAP Solution Manager requirements. With SAP Solution Manager 7.1, the SLD topology is not changed in the productive and non-productive landscape area, but the type of connection to the SAP Solution Manager is: With the SAP Solution Manager 7.1 the Landscape Management Database (LMDB) is introduced, getting its data from the SLD by full automatic sync. For details, see 3.4.2 Recommendations: SLD and SAP Solution Manager 7.1 [page 45]

3.4.1 Recommendations for SLD Landscapes

This section provides recommendations about how to set up an SLD in your system landscape:

❑ [SLD Landscape: General Recommendation \[page 26\]](#)

This landscape is our general recommendation. It is the best choice for the majority of typical SLD landscape use cases and is accepted by a wide base of customers.

❑ [SLD Landscape: Reasonable Alternative \[page 36\]](#)

This landscape is an extension of the general recommendation SLD landscape for specific use cases or customer scenarios.

❑ [SLD Landscape: Possible Exceptions \[page 37\]](#)

This section contains information about further SLD landscape approaches that are only applicable for specific use cases.

Most of the SLDs discussed in this section are logical systems until you decide where to physically run them as discussed in section [Where to Run SLD in Your System Landscape \[page 42\]](#) (only exception is the SLD running locally in the SAP Solution Manager system).

In all cases, we recommend that you use DNS aliases to address the SLD. By doing so, it is possible to switch SLD hosts easily, which might be required for maintenance (updates), upgrades, or in case of technical problems.



For example, you could install a new AS Java system with a higher release, configure an SLD on this new system, import the data of your current SLD to the new SLD and switch to this new SLD. This way, you have upgraded to a higher release with minimal SLD downtime.

With the new fully automatic synchronization option available in SAP NetWeaver 7.1 and higher, the synchronization of your new SLD with the existing one is also very easy to perform, if your existing SLD runs on SAP NetWeaver 7.0 Support Package Stack 12 or higher.



Depending on the configuration and the number of the DNS servers, switching a DNS alias may take some time (hours or days). In addition, further caches are often implemented for the IP addresses in the application systems. Therefore, DNS aliases cannot be used for an immediate, synchronous conversion of the links.

To enable an easy switch between SLD instances using DNS alias do as follows:

- HTTP(s) ports need to be identical (this can be changed later)
- Instance ID needs to be identical

For details see SAP Note **764393**.

3.4.1.1 SLD Landscape: General Recommendation

This section provides general recommendations for SLD landscapes based on the SLD clients you use in your landscape:

- One recommendation if you **are not** using SAP NetWeaver Process Integration and/or Web Dynpro Java applications today and also do not plan to do so in the near future.
- One recommendation if you **are** using SAP NetWeaver PI and/or Web Dynpro Java applications or plan to do so in the near future.

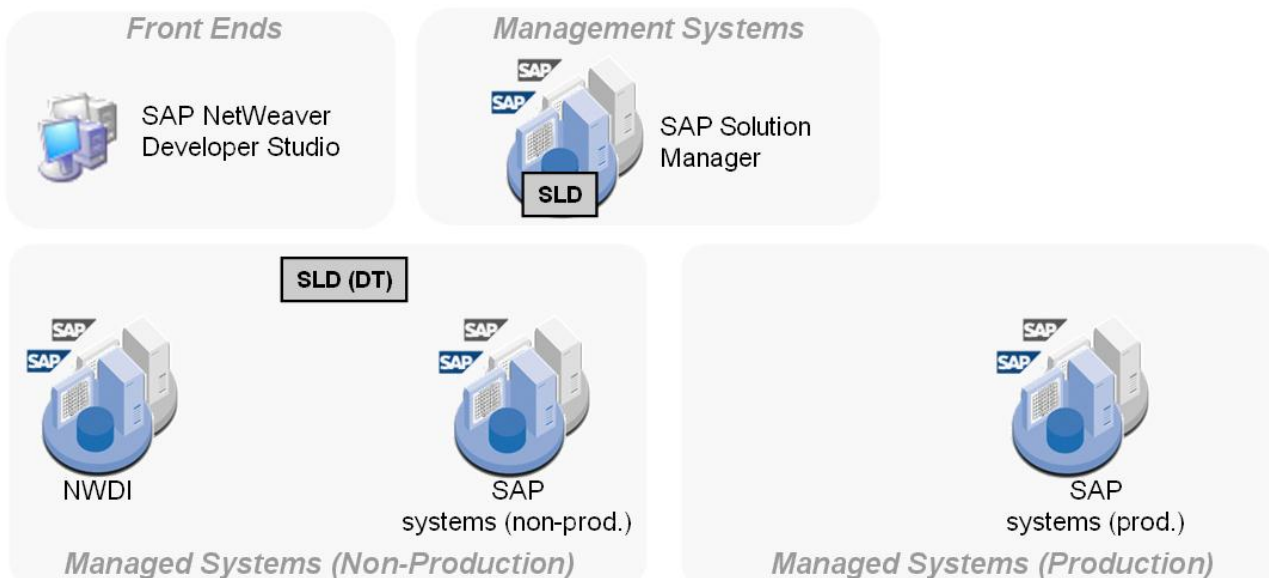
Starting from a picture of the overall landscape, you will learn about different SLD-relevant aspects of the recommended landscape, such as to which SLD the SLD clients connect, how the SLD data suppliers must be set up, how the different SLD instances synchronize data, and finally how you could extend the landscape according to your specific needs. You should treat the recommended landscape as proposal that we consider as a general approach for most SLD use cases – and even in those cases, you should use this landscape only as a starting point for your SLD landscape discussion.



Pay attention that most of the SLDs discussed in this section are “logical systems” in a meaning that they might be technical systems of their own or run together with other applications on the same technical system of type AS Java (such as an SP NetWeaver PI system) until you decide where to physically run them as discussed in section [Where to Run SLD in Your System Landscape \[page42\]](#) (only exception is the SLD running locally in the SAP Solution Manager system).

3.4.1.1.1 SLD Landscape: General Recommendation – Landscapes without SAP NetWeaver PI and without Web Dynpro Java Applications

If neither SAP NetWeaver usage type PI nor Web Dynpro Java is used and you do not plan to use them in the near future either, run your production systems against the SLD running on SAP Solution Manager:



In a system landscape, landscape areas of non-productive and productive managed systems (such as development and quality assurance), and the one of managing systems are found.



Note: Especially the non-productive area can be separated into areas such as development (DEV) and quality and assurance (QA) with one or more SLD systems of their own.

In this landscape, there are non-productive systems in a non-productive environment on the left including one or several SAP NetWeaver Development Infrastructure (NWDI) systems. For these non-production systems, you use a central design-time SLD.

In the upper part, there are management systems, such as SAP Solution Manager. There, you run your central SLD on the SAP Solution Manager system.

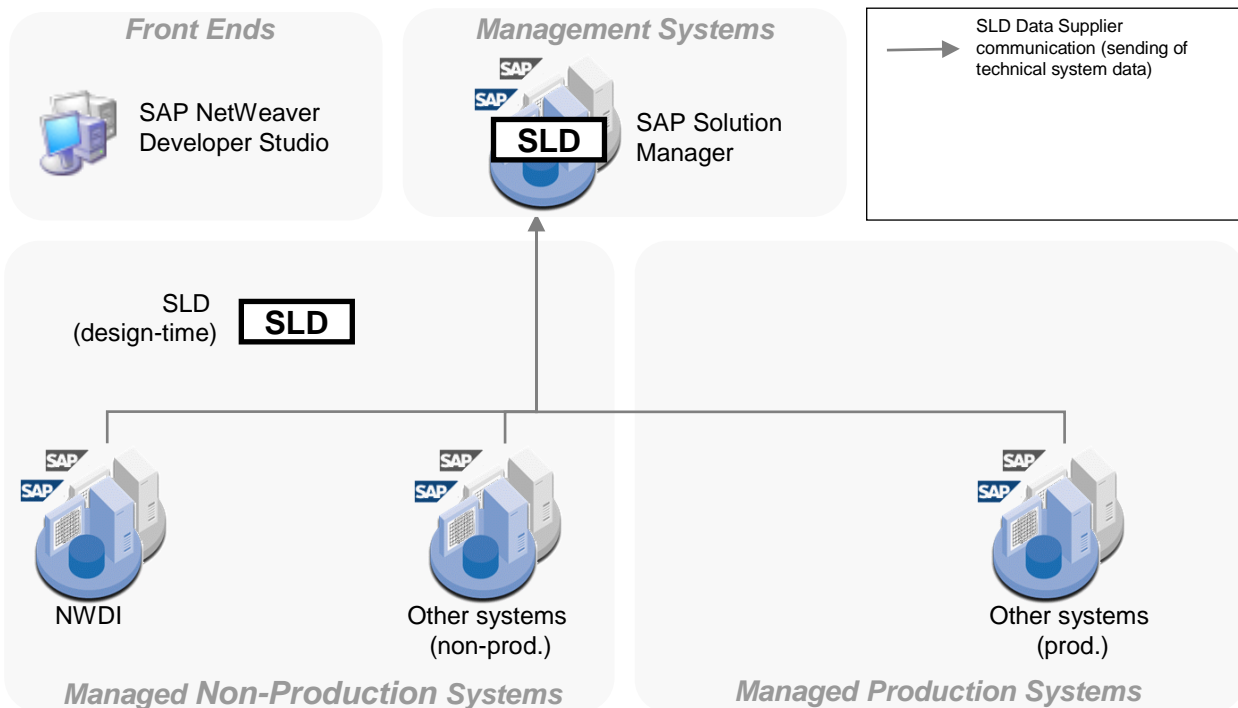
On the right, there is a environment comprising production systems (without SAP NetWeaver PI and without Web Dynpro Java applications). For these production systems, you use the central SLD on the SAP Solution Manager system.

In addition, front-end applications (such as SAP NetWeaver Developer Studio) complete the landscape.

This landscape also corresponds to our long-term SLD landscape recommendation.

SLD Data Suppliers in Landscapes with neither Process Integration nor Web Dynpro (Java)

The following explains how to set up the SLD data suppliers in this recommended landscape. As shown in the following figure, the SLD data suppliers of **all SAP systems** register with the SAP Solution Manager’s SLD:



Pay attention that all SLD data suppliers are configured against the SLD of the SAP Solution Manager system.

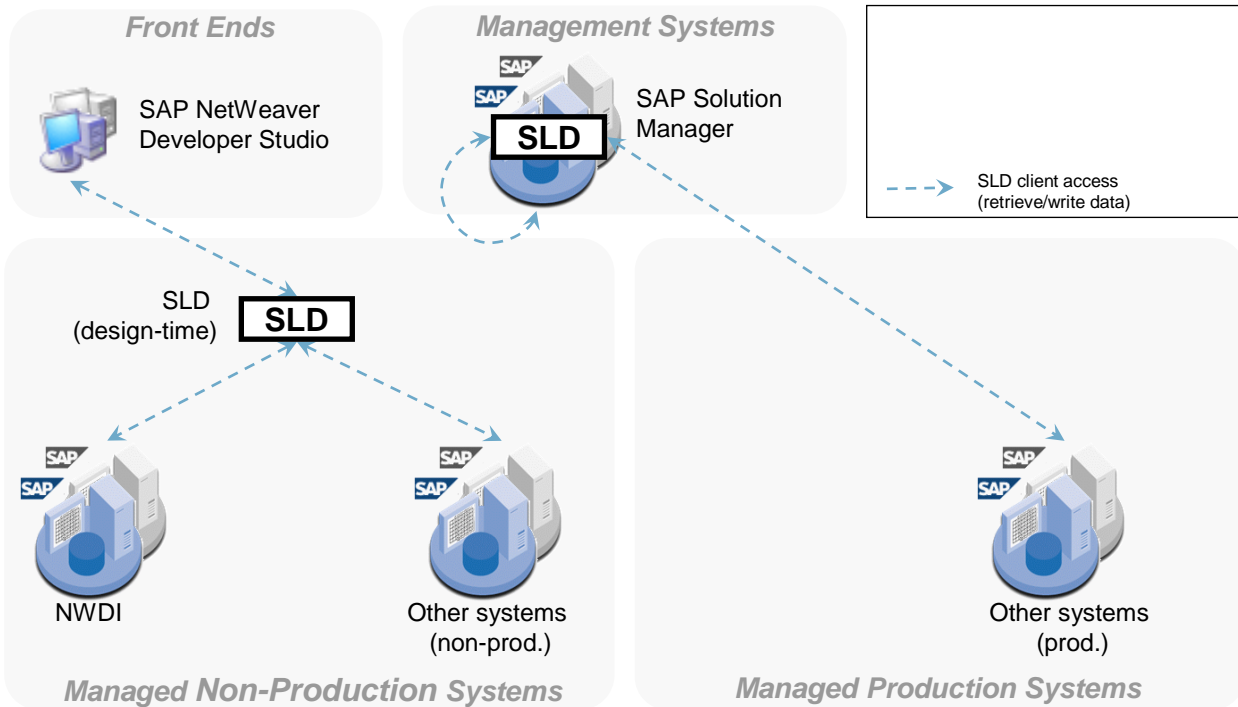
Altogether, this has the advantage that you can use one unified system configuration for all SAP systems in your landscape. In addition, you can create and administrate all SLD data supplier users in the user management of one SLD (because each SLD data supplier must have a dedicated user in the SLD).

SLD Clients in Landscapes with neither Process Integration nor Web Dynpro (Java)

The following explains how the SLD instances are used. SAP Solution Manager and all production systems use the central SLD on the SAP Solution Manager system.

The design-time SLD is used for all other SLD client systems (such as all DEV and QA systems including all NWDI systems and all SAP NetWeaver Developer Studio instances) and for the definition of software, products, and software components in the Java development context.

The following figure shows the corresponding SLD client connections that provide the information about which SLD is used by which application as described above:



In this way, you have separated and safeguarded the production systems. Access to the production systems can be restricted to technical administration users running the production systems. On the other hand, development and QA systems, as well as the respective staff for development and QA are only allowed to access the design-time SLD. In addition, NWDI only uses the design-time SLD.

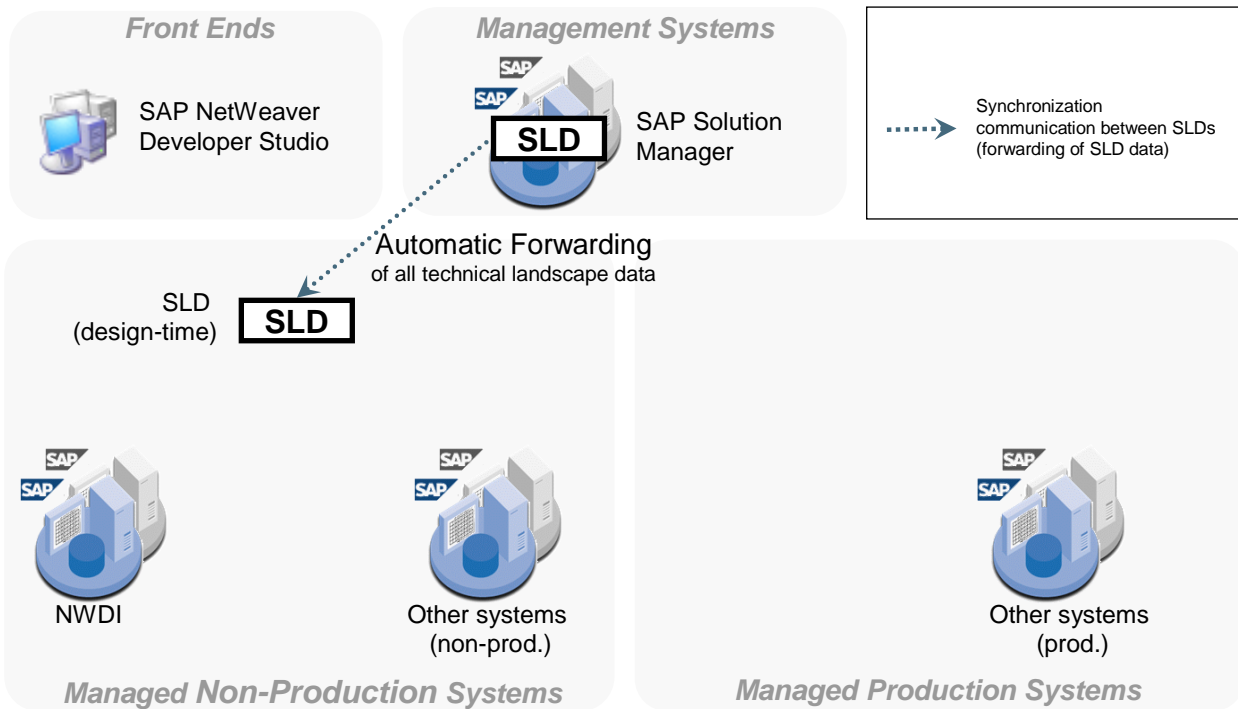
As you are not using SAP NetWeaver PI or Web Dynpro Java applications and also do not plan to do so in the near future, no runtime dependencies exist to the central SLD running on the SAP Solution Manager system.



If you should change your strategy in the future and decide to use SAP NetWeaver PI or Web Dynpro Java applications, you have to use local SLDs for these use cases or an additional runtime SLD as outlined in the next session, as there must be no runtime dependency to the SAP Solution Manager system.

SLD Synchronization in Landscapes with neither Process Integration nor Web Dynpro (Java)

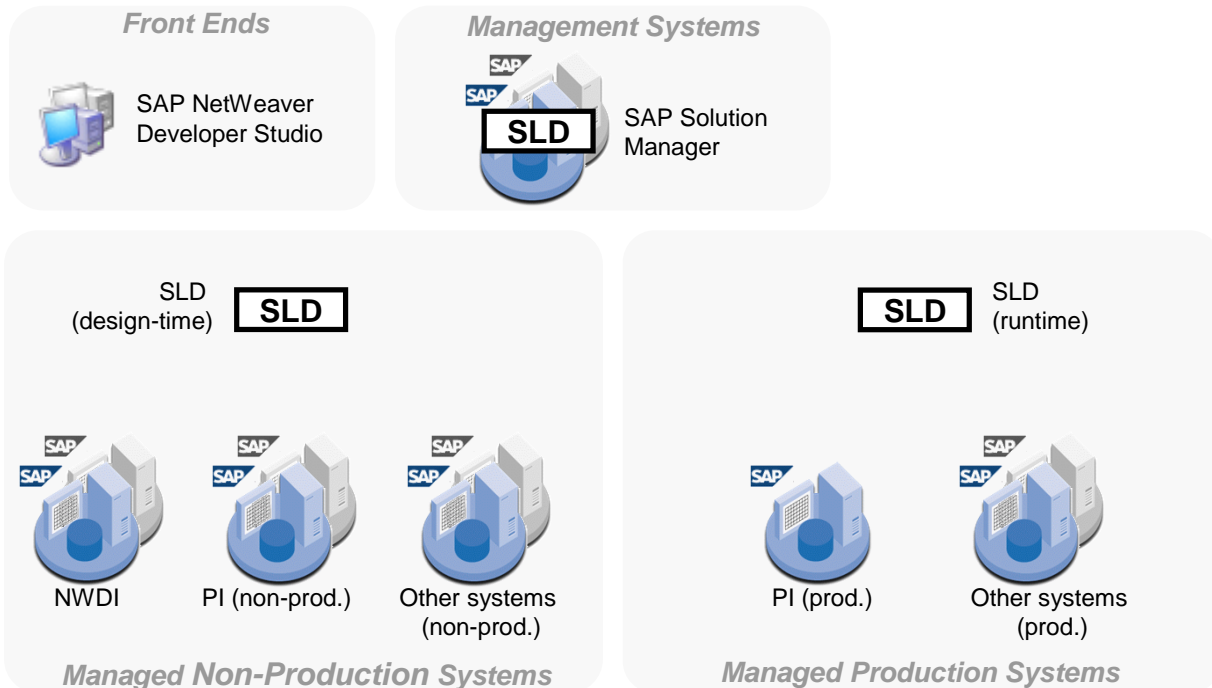
To enable the interplay between the two SLD instances, the SAP Solution Manager's SLD automatically forwards all technical landscape data to the design-time SLD as shown in the following figure:



No synchronization would be required from the design-time SLD to the central SLD.

3.4.1.1.2 SLD Landscape: General Recommendation – Landscapes with SAP NetWeaver PI and/or Web Dynpro Java Applications

The following figure shows our general recommendation for an SLD landscape. In this case, we assume that in the landscape SAP NetWeaver usage type PI is present and/or that Web Dynpro Java is in use as an SLD client:



In this landscape, there are non-productive systems (both SAP NetWeaver Process Integration and other application systems) in a non-productive environment on the left including one or several SAP NetWeaver Development Infrastructure (NWDI) systems. For these non-production systems, you use a central design-time SLD.

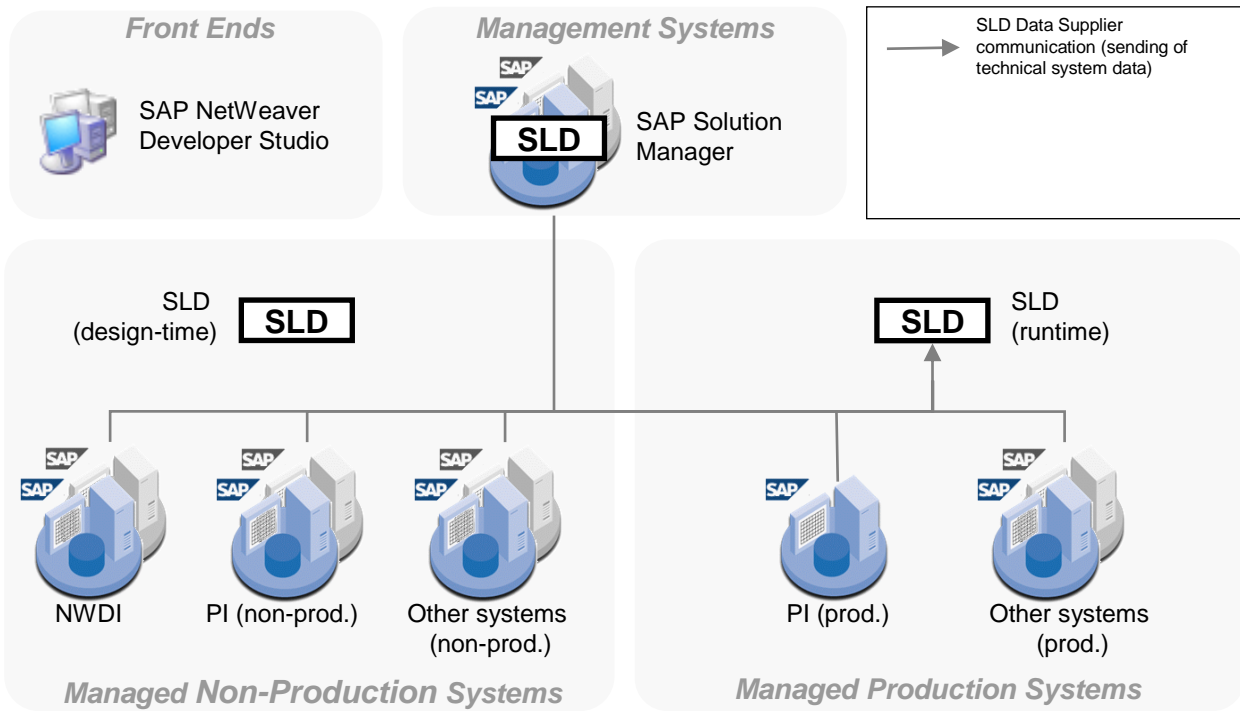
On the right, there is a second environment comprising production systems. For these production systems, you use a central runtime SLD.

In the upper part, there are management systems, such as SAP Solution Manager. There, you run a third SLD locally for SAP Solution Manager.

In addition, front-end applications (such as SAP NetWeaver Developer Studio) complete the landscape.

SLD Data Suppliers

The following explains how to set up the SLD data suppliers in this recommended landscape. As shown in the following figure, the SLD data suppliers of **all SAP systems** register with the runtime SLD:



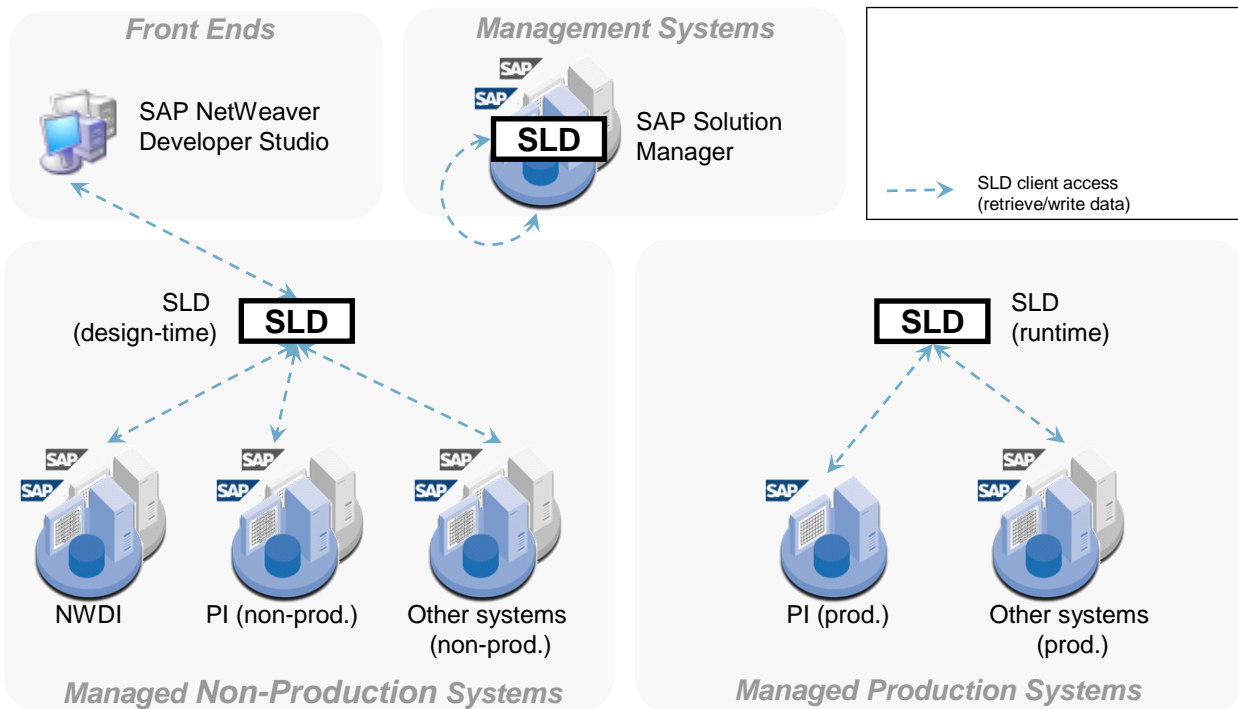
Pay attention that also the SLD data suppliers of the SAP Solution Manager system are configured against the runtime SLD.

Altogether, this has the advantage that you can use one unified system configuration for all SAP systems in your landscape. In addition, you can create and administrate all SLD data supplier users in the user management of one SLD (because each SLD data supplier must have a dedicated user in the SLD).

SLD Clients

The following explains how the SLD instances are used. SAP Solution Manager uses its local SLD. The runtime SLD is used for production purposes, whereas the design-time SLD is used for all other SLD client systems (such as all DEV and QA systems including all NWDI systems and all SAP NetWeaver Developer Studio instances) and for the definition of software, products, and software components in the Java development context.

The following figure shows the corresponding SLD client connections that provide the information about which SLD is used by which application as described above:

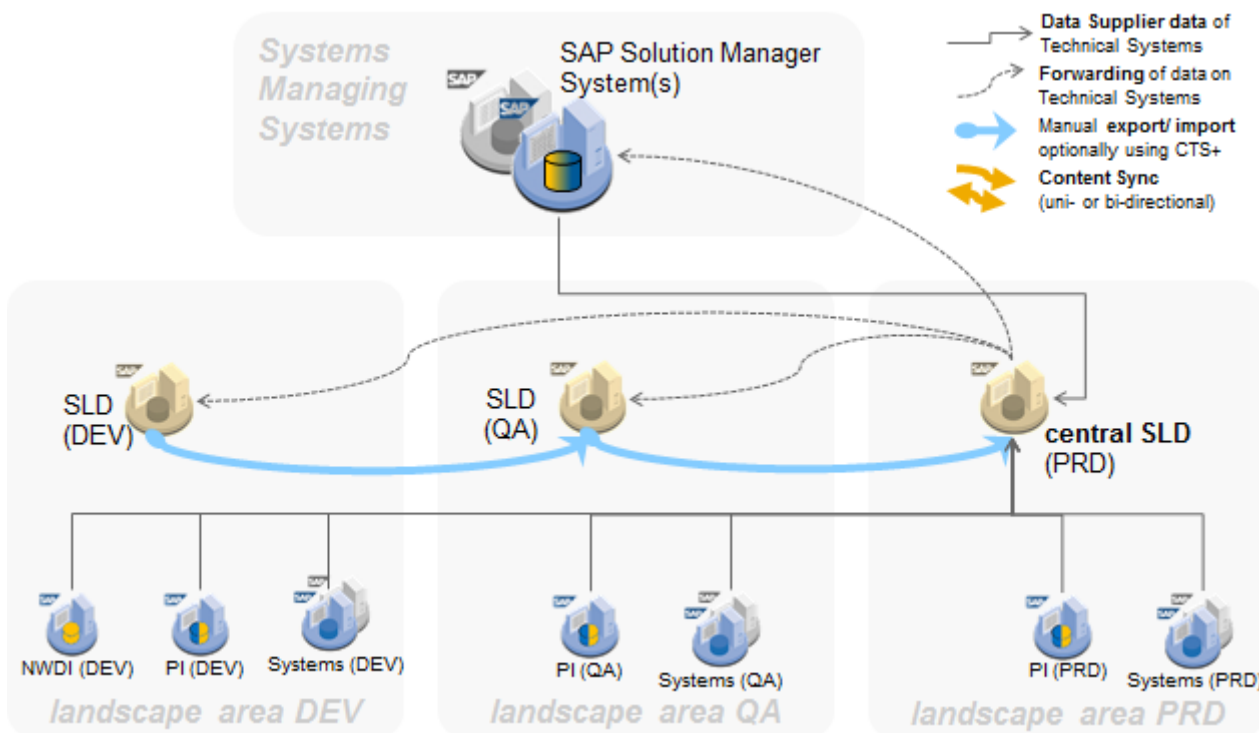


In this way, you have separated and safeguarded the production systems. Access to the production systems can be restricted to technical administration users running the production systems. On the other hand, development and QA systems, as well as the respective staff for development and QA are only allowed to access the design-time SLD. In addition, NWDI only uses the design-time SLD.

3.4.1.1.3 Data Distribution in a Default Landscape with SAP Solution Manager 7.0

For a default recommendation for SAP Solution Manager 7.1 see chapter 3.4.2.

To enable the interplay between the three SLD systems, the (central) runtime SLD automatically forwards all technical landscape data to the design-time SLD and to the SLD of SAP Solution Manager 7.0 as shown in the following figure (for SAP Solution Manager 7.1 see section 3.4.2):



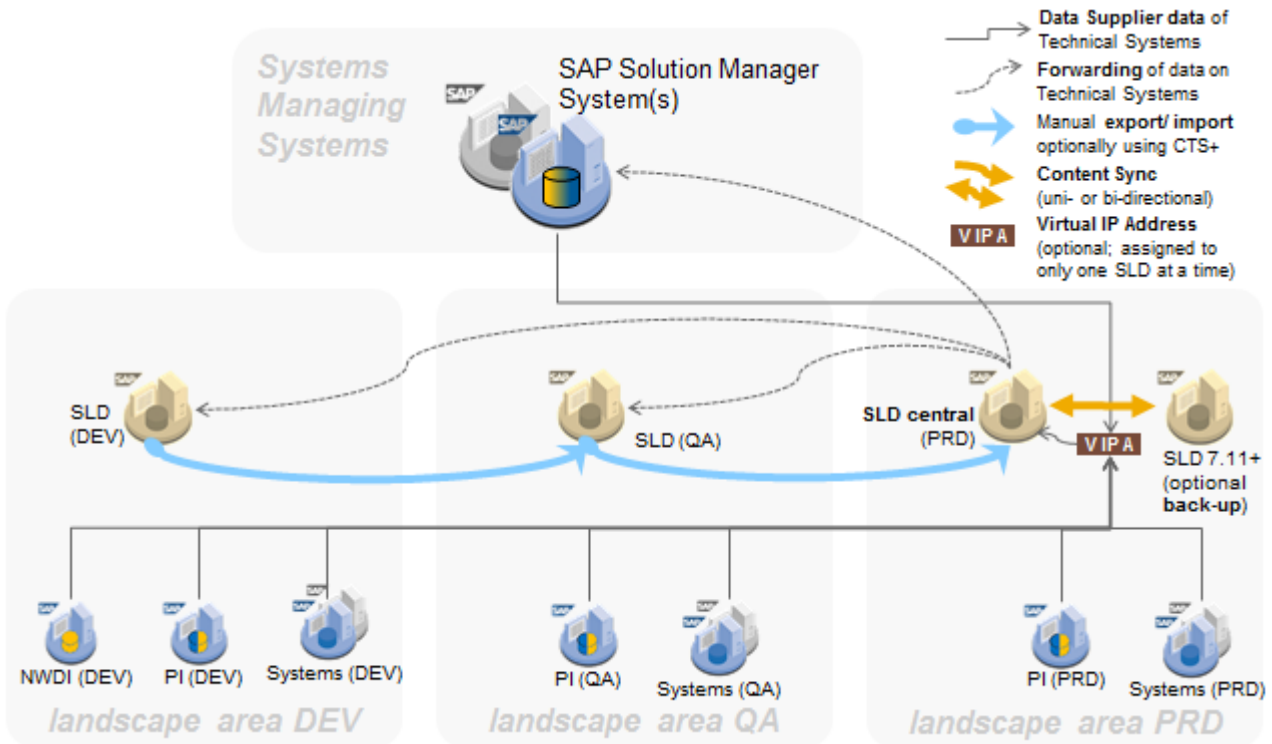
In addition, you transport individual objects (such as business systems, products, and software component versions required by SAP NetWeaver PI) from the design-time SLD to the runtime SLD on demand. To do so, either export/import or transport SLD objects with the enhanced Change and Transport System.

For more information about the single synchronization mechanisms in the SLD, see [Synchronization Options \[page 17\]](#).



The SLD systems shown in non-productive or *design-time* areas (DEV and QA) and in the productive or *runtime* area can be used as standalone installations or be run together with other applications such as Process Integration. Note that having the SLD running together with another application on the one hand reduces the number of systems to maintain but on the other hand leads to dependencies in system updates, upgrades, and maintenance.

Optionally, you can enhance the proposed setup to improve the availability of SLD data by installing a back-up-SLD connected to the central SLD by *full automatic synchronization* and using a virtual IP address (VIPA) for all communication with the central SLD, allowing you to switch the VIPA to the back-up SLD in case of maintenance of the central SLD system.



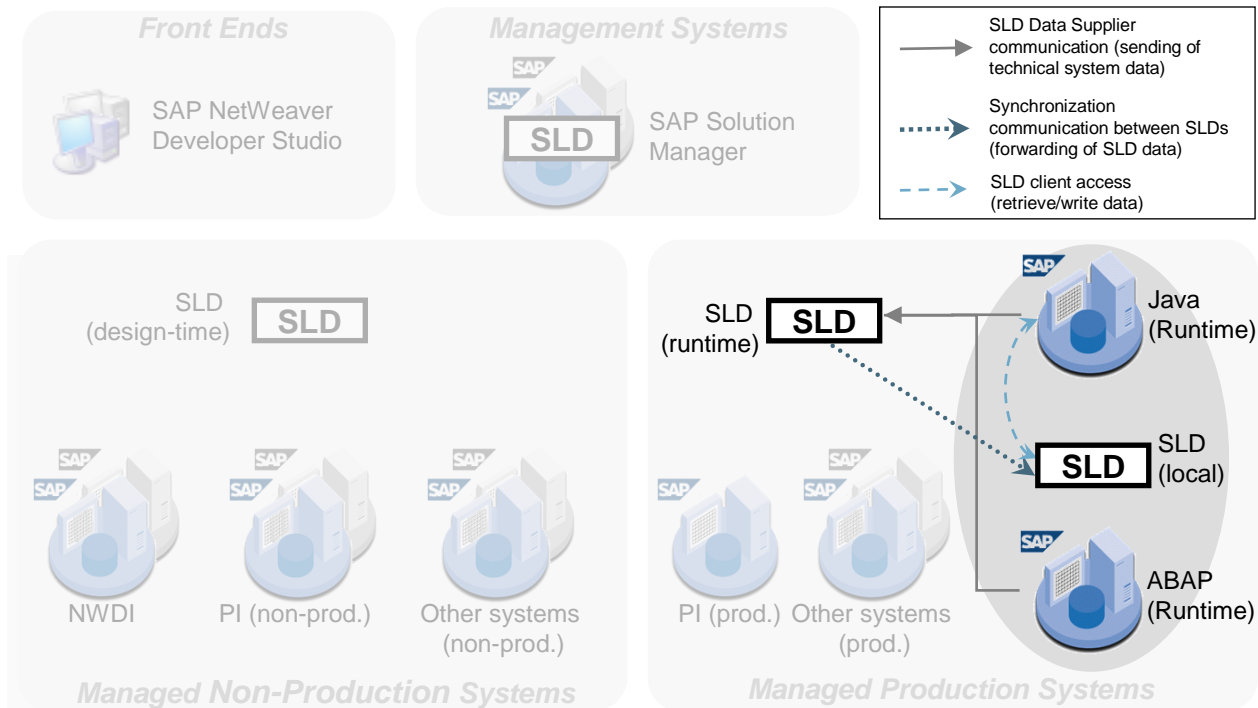
3.4.1.2 SLD Landscape: Reasonable Alternative

The recommendation provided in the previous section offers a generic approach because you can extend it further according to your requirements. This means that you can set up additional local SLD instances, for example to improve the availability of SLD data for certain use cases (such as for Web Dynpro Java applications using adaptive RFC calls or for SAP NetWeaver PI). Another use case could be to further separate your environments by running separate SLD instances for your development environment and for your test environment in addition to the runtime SLD.



Pay attention that most of the SLDs discussed in this section are logical systems until you decide where to physically run them as discussed in section [Where to Run SLD in Your System Landscape \[page 42\]](#) (only exception is the SLD running locally in the SAP Solution Manager system).

The following figure shows the recommended SLD landscape enhanced by a local SLD for a Web Dynpro application:



For this additional local SLD, you would set up the following connections:

- ❑ Just like all other SAP systems in your landscape, you also configure the SLD data suppliers of the ABAP backend runtime system and of the Java Web Dynpro runtime systems to register with the central runtime SLD.
- ❑ You configure the central runtime SLD to automatically forward all technical landscape data to all other SLD systems in your landscape (including the additional local SLD used for the Web Dynpro application).
- ❑ The Web Dynpro application then uses the local SLD to operate.

3.4.1.3 SLD Landscape: Possible Exceptions

Since the general recommendation for an SLD landscape in the previous sections cannot cover all requirements, you may have to consider different SLD landscape approaches that are only useful for specific use cases.



Pay attention that the SLDs discussed in this section are logical systems until you decide where to physically run them as discussed in section [Where to Run SLD in Your System Landscape \[page 42\]](#).

One Single Central SLD

The easiest setup is to have a single SLD 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 SLD that contains information about the whole system landscape.

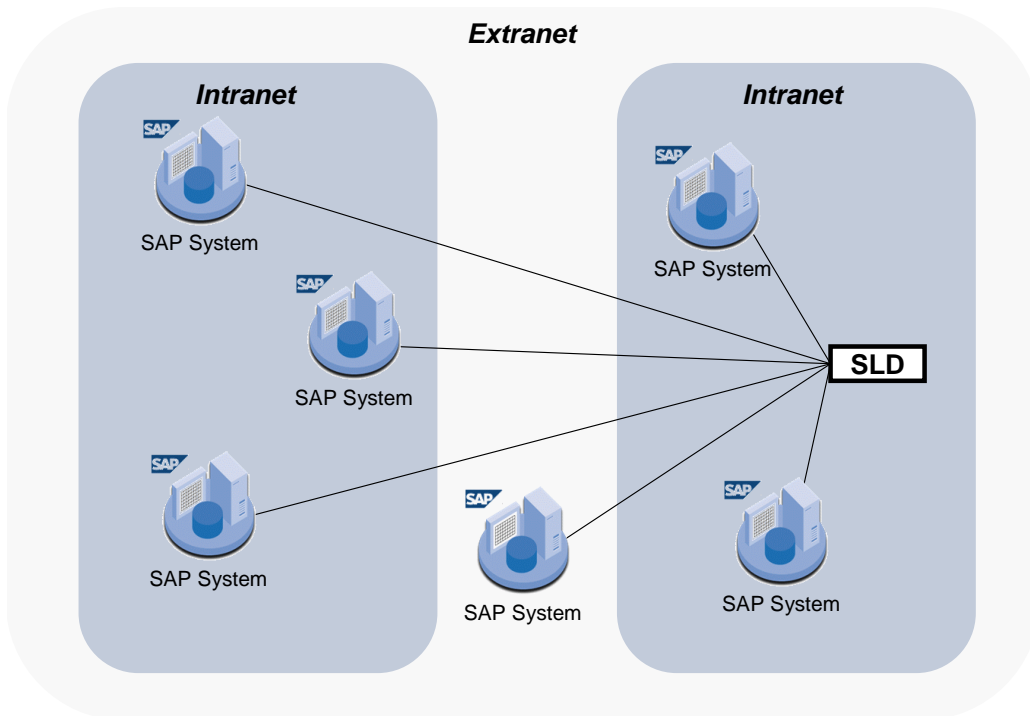
The advantages of using a single system landscape directory for the entire system landscape are consistent data, easier administration, and lower operating expense.

Nevertheless, you might face high availability requirements (depending on your SLD use cases) and all user groups (such as developers and administrators) will work within the runtime SLD and view/access the same

SLD and the same SLD data. In addition, the testing of changes to the SLD or SLD data is either not possible at all or is restricted.

Since we consider that the drawbacks of this single-SLD approach outweigh the advantages, we consider that this approach is useful for specific use cases only, for example for very small landscapes with no critical application relying critically on SLD data.

The following figure shows a corresponding example:



Distributed SLD Instances in Special Circumstances

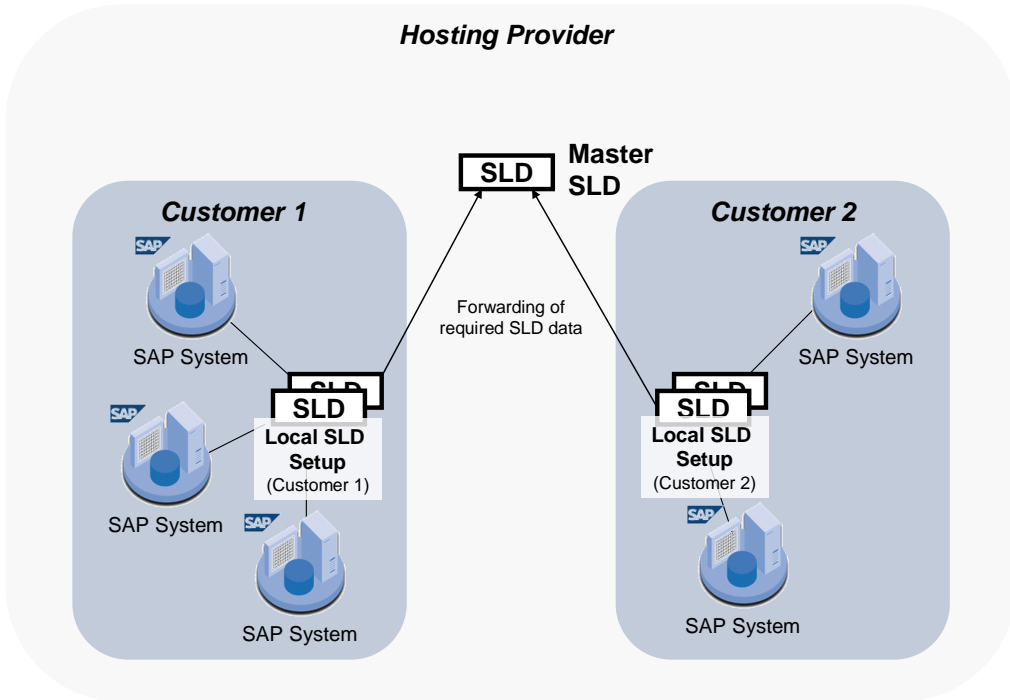
If you have special requirements, you can use distributed SLD systems as an alternative to our general recommendation. However, the effort and cost to operate such an SLD landscape might increase due to greater hardware consumption and additional operation tasks (such as manual model and content updates in all SLD instances and regular synchronization activities for the additional SLD instances).

Besides the recommended SLD landscapes shown in the previous sections, you can also run several distributed SLD instances in your landscape as described below:

❑ Hierarchical Organization

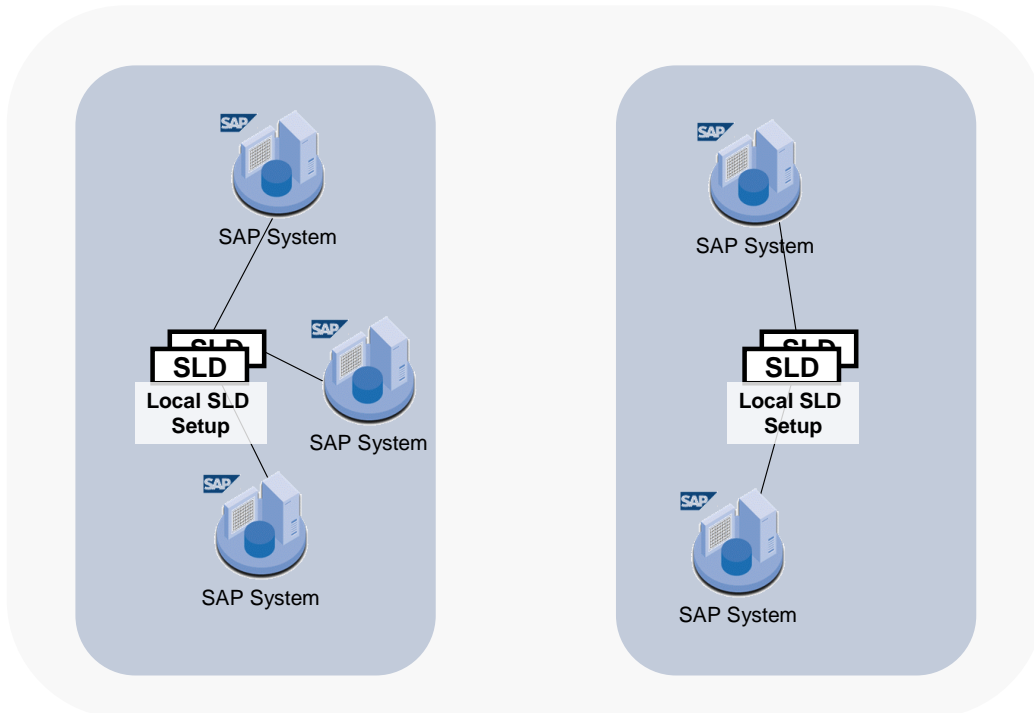
This organizational form incorporates several fully separated divisions headed by the headquarters. The local SLD instances of the divisions serve all local needs. For the local SLD setups, again consider our general recommendations for the SLD landscape described in the previous sections. Landscape data (or all SLD 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 setup 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 forward the required SLD data from the sub-divisions to a master SLD for the hosting provider. Thus, you can use a hierarchical organization of several SLD stages to create different views of your landscape.



□ Fully-Separated Organizations (Several Standalone SLD instances)

You can use several local SLD setups for a fully-separated management of data that is independent of each other, as shown in the following figure:

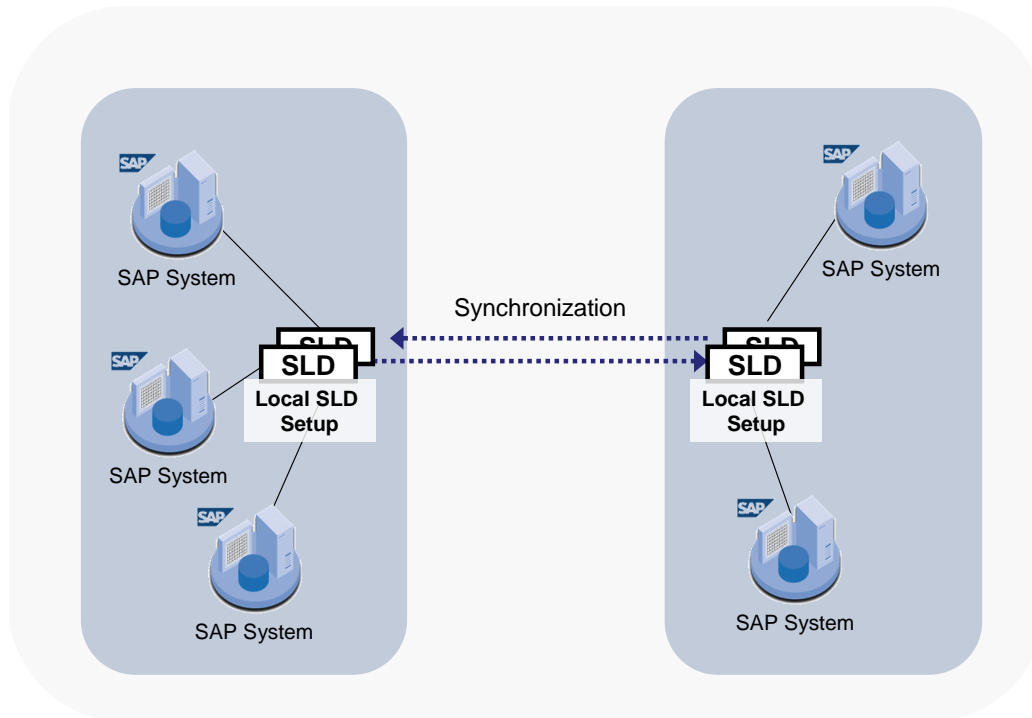


For the local SLD setups, again consider our general recommendations for the SLD landscape described in the previous sections.

□ Several Coupled SLD Landscapes

Global or widely distributed IT landscapes might require more than just a central runtime SLD. It is then expected that SLD data is locally available but that it provides more than just a local view. You can achieve this by coupling several distributed SLD setups that exchange all or just specific SLD data. For the local SLD setups, again consider our general recommendations for the SLD landscape described in the previous sections.

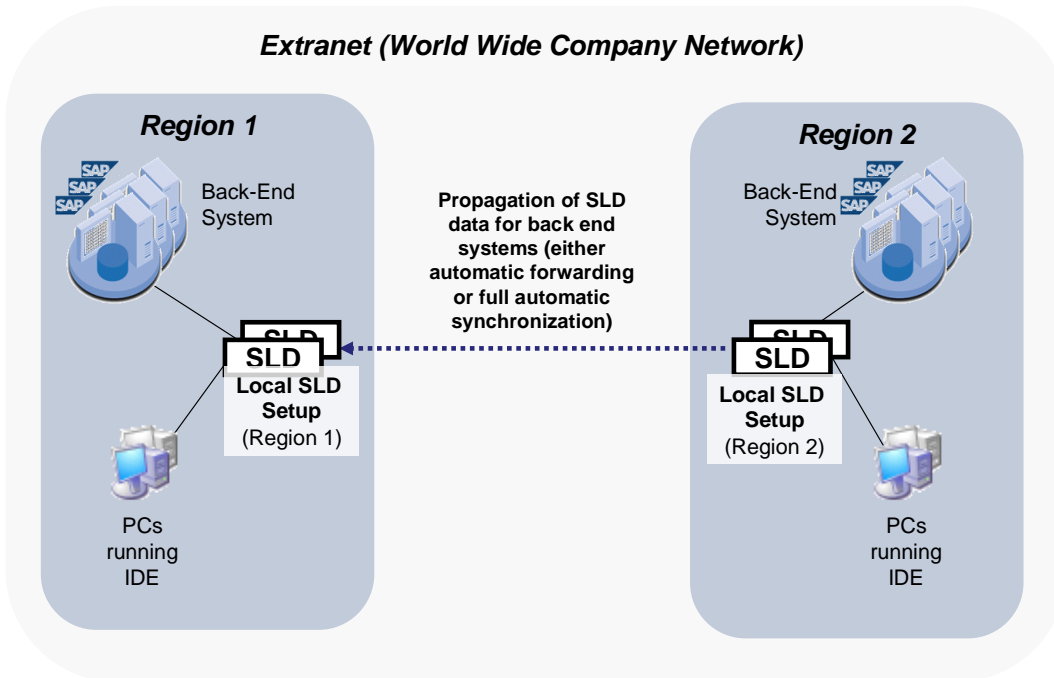
The following figure shows a corresponding example:



Another example is the use case of a distributed development environment. Large and multinational companies tend to spread development departments all over the world. This may be due to cost effectiveness (off-shoring) or organizational reasons. Nevertheless, it is essential for each regional development department to have SLD data locally available. The availability of local SLD instances in each region enables quick responses and avoids network traffic.

Forwarding landscape data or fully automatic synchronization of all SLD data can be used to provide global back-end access in distributed Web Dynpro development landscapes.

The following figure shows the propagation of SLD data from the SLD setup in region 2 to the SLD setup in region 1:



3.4.2 Recommendations: SLD and SAP Solution Manager 7.1

Release 7.1 of the SAP Solution Manager introduces the Landscape Management Database (LMDB). The LMDB is the central tool to handle landscape data in the SAP Solution Manager. The LMDB retrieves data from the SLD by full automatic synchronization, which works exactly as described above (see 3.3.2.1 Full Automatic Synchronization [page 20]). The content retrieved includes all SLD data (*CIM/CR Content, technical systems' data, and manually created data* such as business systems, manually created products, software components, etc.).

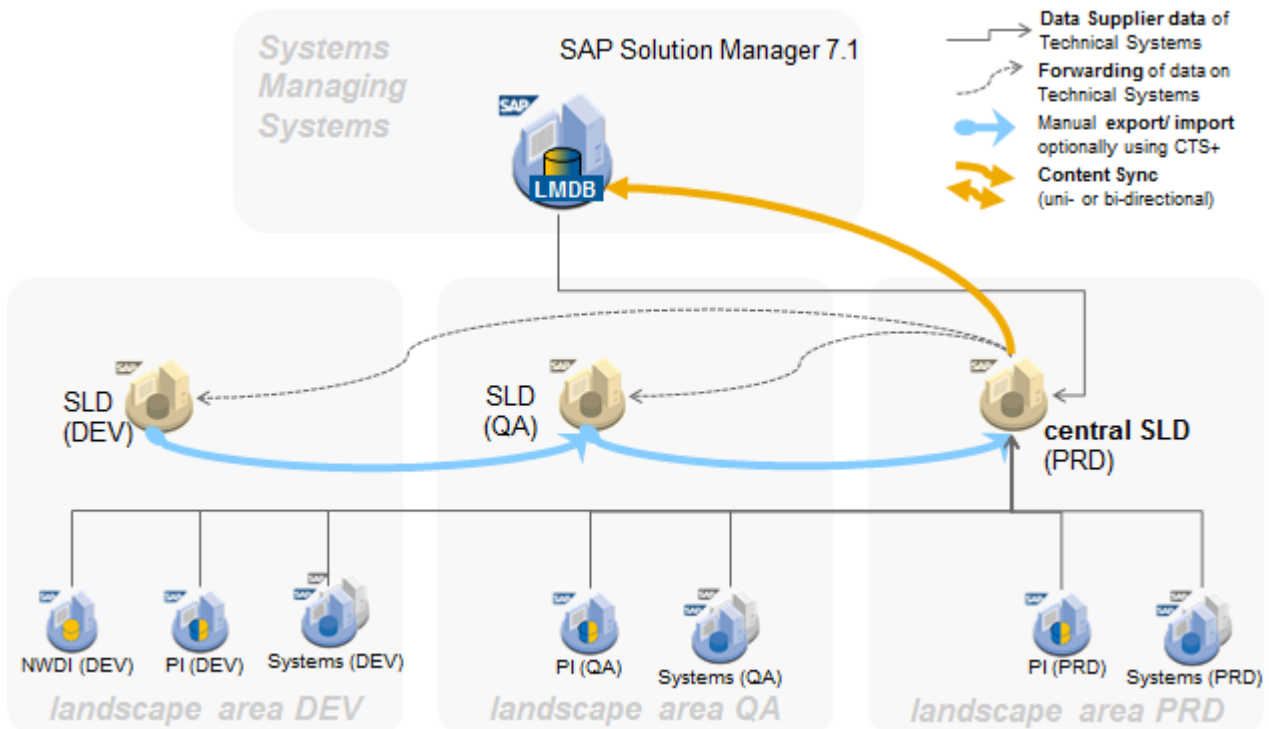


Note: SLD CR Content is filtered in the LMDB. Exactly one SLD is assigned to the LMDB as the source for this content. If multiple SLD systems are attached to LMDB, the source for CR content should be the first SLD to import CR content updates into.

3.4.2.1 Overall Recommendation

The recommended topology of SLD systems in the non-productive and productive landscape area will not change, so follow the principles explained above.

However, the type of connection to the SAP Solution Manager changes in the default landscape:



The default landscape topology in a landscape with productive use of SLD data (example: SAP NetWeaver Process Integration) and SAP Solution Manager 7.1 or higher running the LMDB.

In the default topology, you send data from the central runtime SLD to the SAP Solution Manager's LMDB directly by full automatic synchronization.



Note: The use of the local SLD of the SAP Solution Manager 7.1 is optional. If you are not using SLD data productively in your landscape (typical applications making such use being SAP NetWeaver Process Integration or Web Dynpro Java based applications) and therefore no other SLD is available in the landscape, the local SLD of the SAP Solution Manager can be activated as a target for data suppliers. In that case, data suppliers address the SLD available on the SAP Solution Manager. This is then used as a source for the LMDB. (Using the Solution Manager SLD in such a case is part of the recommendations for SAP Solution Manager 7.0.)



Note **that in case the SLD system is in a content synchronization connection with the LMDB is backed-up with a second SLD**, you have to decide between two scenarios: if you are in a situation that you need to switch between “main” or “central” SLD “A” and “backup” SLD “B”: To avoid data inconsistencies, it is important to choose between the following two scenarios and act accordingly during the switching:

- The 1st scenario uses a very simple setup, which will require only a few steps but interrupts updates of the 3rd system
- The 2nd scenario keeps the 3rd system up-to-date all the time, which requires following a strict procedure

Note that in the SLD systems in bi-directional full automatic content synchronization

- Object server names for both

- **Internal object server** names need to be different
(Internal object server is only called object server on the SLD UI)
- **External object server** names are identical

- The Change log of each system is different, even though the content is the same

Whereas applications identify the SLD via the external object server name, the full automatic content synchronization identifies the SLD via the internal object server name. For this reason, switching does not affect applications; but it does affect the content synchronization.

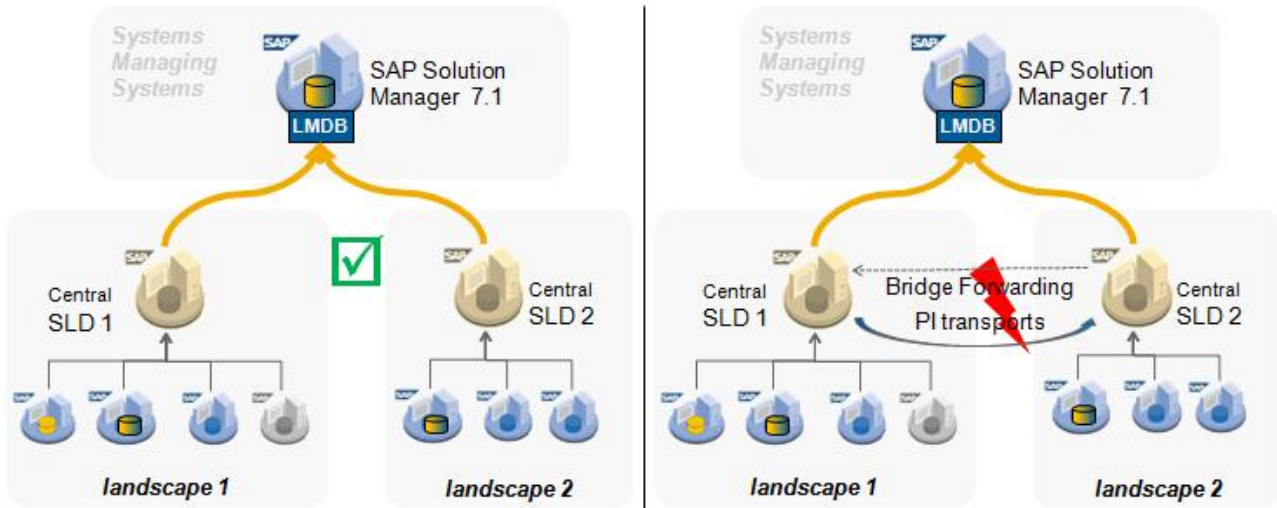
For more information, see [Switching between 2 SLD Systems in Sync with an LMDB or a 3rd SLD.](#)

3.4.2.2 Other Synchronization Scenarios of LMDB with the SLD

As in other mechanisms of data exchange, the *unique path principle* for data needs to be fulfilled, when the LMDB is synchronized with more than one SLD system. The kind of content is important here:

- CIM and CR Content retrieved from SLD is filtered automatically by the LMDB – you must select one SLD as the source for this kind of data.
- All other content cannot be filtered and therefore must not overlap. Practically, this can only be achieved if SLD systems connected to the LMDB run in separated landscapes.

3.4.2.2.1 Synchronization of one LMDB with more than one SLD System



Valid and an invalid configuration of an LMDB's connections to more than one SLD systems:

The figure shows two cases (only the central SLD of each landscape connected to the LMDB is shown; this scenario can be found if a hosting provider has several customers or a company separated subsidiaries):

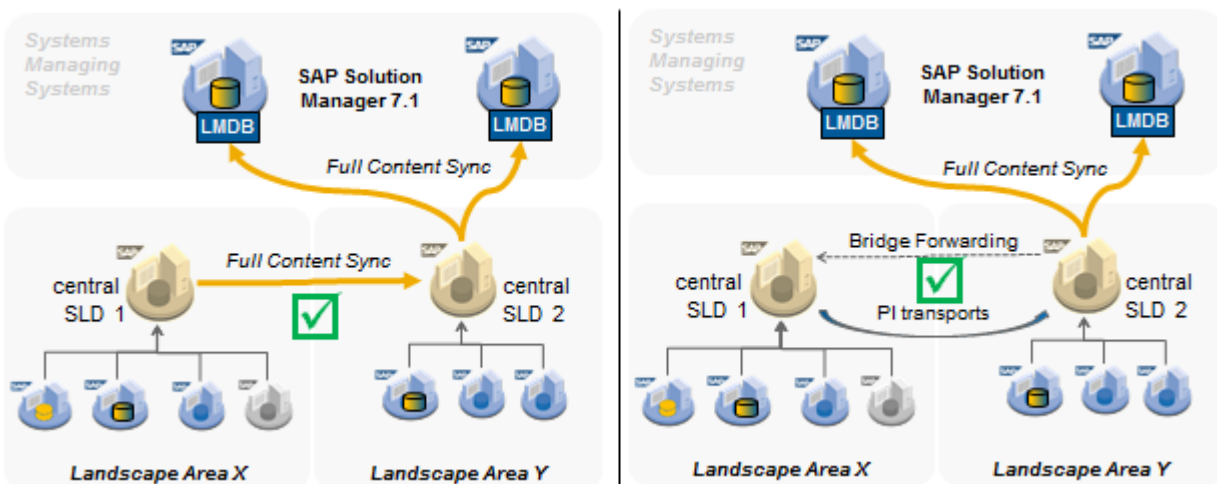
- On the left, both SLD systems are used in separated landscapes, which make connections to the same LMDB for both SLD a **valid** option.
- On the right, both SLDs are used in separated landscapes but connected with mechanisms of data exchange, which makes connections to the same LMDB for both SLD an **invalid** option, because the unique path principle is violated. For a discussion of a number of full automatic sync connections, see section 3.3.2.1.



Note: All names (e.g. host names and Business system names) need to be unique across all landscapes (no overlap of names is allowed in all landscapes connected to the LMDB).

3.4.2.2.2 Connecting SLD and LMDB – Using one SLD for more than one LMDB

Using the SLD-LMDB connection the other way round is much simpler: In case you have more than one LMDB (for example an SAP Solution Manager QA and PRD system or separated SAP Solution Manager systems for different parts of your company), that shall get data from the same SLD, simply create connections from both LMDBs to the same SLD.



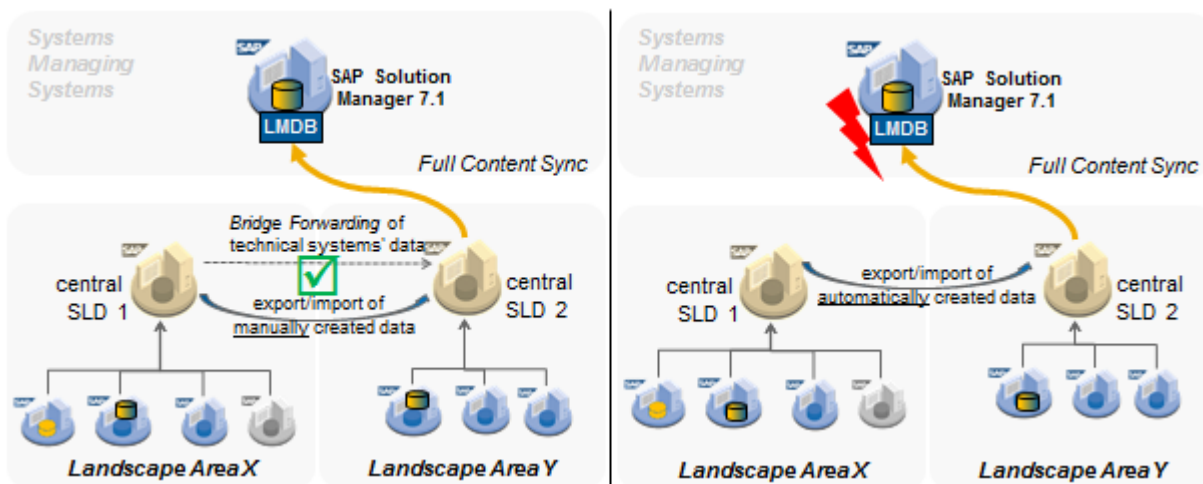
Valid schemas of one SLD in sync with LMDB. Note that SLD read by the LMDB may exchange data other SLD systems and distribute its information to more than one LMDB.

3.4.2.2.3 Avoid Using Single System Export/Import of Automatically Created Data

While there is – usually – only one LMDB in most landscapes, there often are several SLD systems used in DEV/QA/PRD environment, SLDs dedicated to one big SAP NetWeaver Portal system, etc.

In this case, it is necessary and recommended using manual export and import of single systems. However, as soon as the data is needed in the LMDB, **use this export/import function only for manually created data**, such as *Business Systems for SAP NetWeaver Process Integration*. Note that manually create data is not as complete as data supplier data: Use Data Suppliers whenever possible. Otherwise you might need to add data in the LMDB manually too; manually added data of course will not be automatically updated.

Do not export/import automatically delivered data; most importantly these are technical systems’ data sent via Data Supplier. When exported and imported, some details are missing that are not needed by SLD client applications (such as Process Integration) but they are required by the LMDB. It is possible to use delta export of LD data instead. Using the export/import of LD data (a full export first, delta export later) works well for automatically delivered data.



Valid and invalid schemas of one SLD in content sync with LMDB: Note that the SLD read by the LMDB can exchange data other SLD systems but **MUST NOT** get import automatically data from other SLD systems.

So simply follow the default recommendation using bridge forwarding for all technical systems’ data and transport manually created data as needed. For details, see **SAP Note 1805109**.

3.4.2.2.4 Using the Local SLD of SAP Solution Manager 7.1 as Source for the LMDB

You can still use the local SLD of SAP Solution Manager in the following scenarios

- There is no use of SLD data by application other than those of the SAP Solution Manager. You do not use *SAP NetWeaver Process Integration (PI)* or *SAP NetWeaver Portal* for example. In that case, data suppliers can address the local SLD of SAP Solution Manager 7.1 and LMDB can read this SLD.
- You use the local SLD as a CR Content Source only. This can be helpful, if you are using for example a central SLD associated to or running with *SAP NetWeaver Process Integration* and are not willing to do the CR Content Updates in that SLD as required by the LMDB.

Note that the LMDB reads all data from the SLD including manually created data. This is needed for example for business systems of *SAP NetWeaver Process Integration*, which are needed for PI Monitoring. It is therefore necessary transporting such information by export/import: The *local SLD of SAP Solution Manager 7.1* is running on SAP NetWeaver 7.0; it therefore cannot be the target of a full automatic content synchronization. In addition, there shall not be runtime dependencies from productive applications. Because of this if PI is used the *local SLD of SAP Solution Manager 7.1* shall not be used as the central one.

3.4.3 Where to Run SLD in Your System Landscape

After having identified the number of SLDs to run in your landscape, you should now decide where to run the single SLDs. There are different options and each option has different advantages and disadvantages. In a normal landscape, you might have realized a mix of these options (for example, by running a central runtime SLD on your production SAP NetWeaver PI system, a central design-time SLD on a non-production SAP NetWeaver PI system, and a local SLD on your SAP Solution Manager system).

Relevant Aspects

To decide where to run your SLDs in your landscape, the following points can act as a basis for your decision-making:

❑ **Dedicated/standalone SLD system:**

This is the most flexible way to run an SLD.

Factor	Explanation
+ Flexibility	<p>It is easier to plan and perform changes in your system landscape – for example, it is easier to plan the downtime of a standalone application system, because you do not have to consider SLD availability requirements for other applications using this SLD as well.</p> <p>In addition, you have achieved release independency between your SLD system and the systems using this SLD. Therefore, applications using this SLD are not affected by the upgrade of the corresponding SLD system, because SLD is backward-compatible.</p>
- Availability requirements might require a high-availability setup	Depending on the availability requirements you would face for this dedicated SLD, a high-availability setup might be required for this SLD system.
- Cost	You have to operate and maintain an additional system.



If you use a high-availability setup for your dedicated SLD system, we recommend that you start an additional Gateway service (used as the Standalone Gateway required for data suppliers of AS ABAP systems to send data to SLD) for the Java SCS instance as follows:

a) Add an entry to the start profile `START_SCS<inst_no.>_<virtual_host>`, for example:

```
#-----
# Start SAP gateway service
#-----
_GW = $(DIR_EXECUTABLE) \gwrds$(FT_EXE)
Start_Program_05 = local $_GW pf=$_PF
```

b) Add `gwmon`, `gwrds` to the `sapcpe` file `scs.lst` that is located at:

```
/usr/sap/<SID>/SYS/exe/uc/<os>/scs.lst
```

c) Check the enqueue replication port settings - for more information, see SAP Note 1064290.

- ❑ Running **SLD integrated with an SAP application or SAP NetWeaver system** (for example, SAP NetWeaver PI) or with a central shared service (such as SAP Solution Manager). This is the easiest and cheapest way to run an SLD.

Factor	Explanation
- Inflexibility	<p>Planning and performing changes is more complicated – for example, if you plan the downtime of an application system, you have to consider SLD availability requirements of other applications relying on this SLD as well.</p> <p>In addition, there is a release dependency between the SLD and the application - the application would be affected by upgrade requirements of your SLD and the other way around. If an upgrade to a required release is not yet available for the application, you have to postpone the upgrade or move the SLD to a different system.</p>
+ Improved availability for one application	<p>Availability of the SLD is the same as the application – if the application system is up, the SLD is also available. If the system is down, the SLD is not available, but this would not be critical for the application, because the application is down as well.</p> <p>In addition, the SLD would automatically profit from a possible high-availability setup of the application.</p>
+ Cost	You do not have to operate and maintain an additional system.



For more information about shared services (such as SAP Solution Manager), see the *Master Guide – SAP NetWeaver* available in SAP Service Marketplace at service.sap.com/instguides → *SAP NetWeaver* → *<Release>* and navigate to the Master Guide for your SAP NetWeaver release.

Recommendation for the Landscape of our General Recommendation

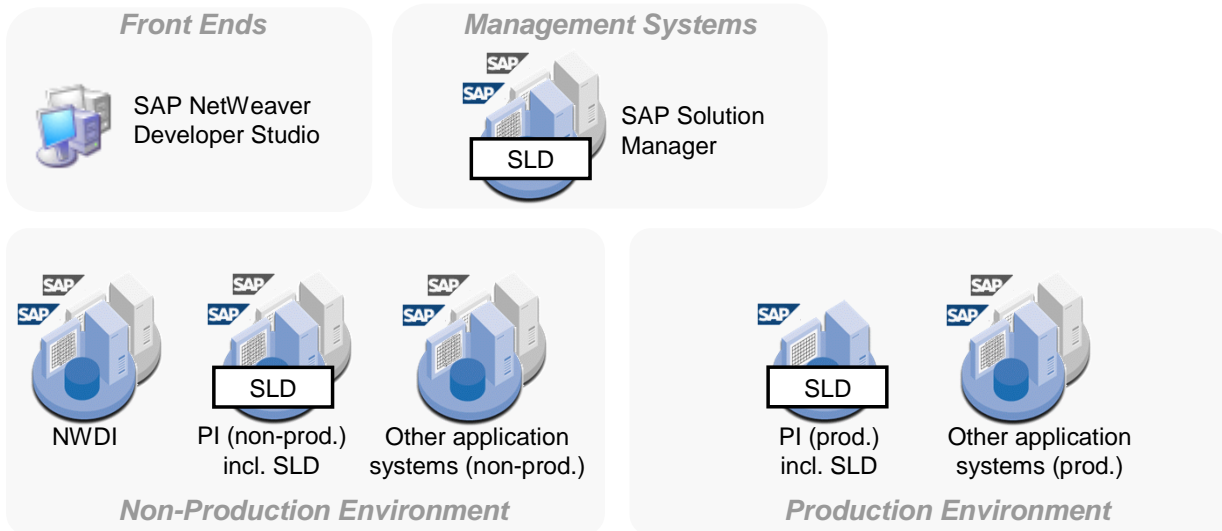
If you have a central SLD on SAP Solution Manager, you only have to decide where to run your design-time SLD (here we assume no productive PI system is used nor Web Dynpro applications).

If you require a runtime SLD in addition to the SLD on SAP Solution Manager and to the design-time SLD (for example for a productive PI system), we recommend the following:

- ❑ If you use SAP NetWeaver PI, this runtime SLD should run on the PROD PI system. (For the use of a local SLD on an SAP NetWeaver PI 7.1 system, read SAP Note 1031321).
- ❑ If customer uses SAP NetWeaver CE 7.1, but not PI, this runtime SLD should run on the PROD CE system
- ❑ An alternative option would be to run a dedicated runtime SLD on a standalone system. This would then run without dependencies to any applications in the system (for example, the SLD could be updated/upgraded without updating/upgrading the application also).

Example

The following figure shows an example landscape based on our general landscape recommendation with three SLD instances (a runtime SLD on your production SAP NetWeaver PI system, a design-time SLD on a non-production SAP NetWeaver PI system, and a local SLD on your SAP Solution Manager system):



Here is an assessment of this example:

- ❑ You profit from increased availability for your critical PI processes, because the production PI system uses a local SLD.
- ❑ In addition, you profit from a possible high-availability setup of your production PI system that would also increase availability of the central runtime SLD for other use cases.
- ❑ You profit from increased availability for SAP Solution Manager, because SAP Solution Manager uses a local SLD – this is especially crucial for end-to-end root cause analysis functions of Solution Manager Diagnostics if problems arise with your runtime SLD/production PI system.
- ❑ You have a release dependency between the SLD and PI. If you want to profit from new SLD features only available with a higher SAP NetWeaver release, you have to upgrade your PI system.
- ❑ You have a release dependency between the local SLD and SAP Solution Manager. If an upgrade to a required release is not yet available for SAP Solution Manager, you cannot profit from new features for your local SLD.
- ❑ Possible downtimes of your PI system would affect other applications that use this SLD as well.
- ❑ You have a clear separation between your non-productive and productive environments. For example, your developers would only use the SLD running in the non-productive environment.
- ❑ You would have a clear separation between your management system (SAP Solution Manager) and the managed systems in your landscape. SAP Solution Manager does not rely on an SLD running in the productive environment. No productive system relies on the availability of the SLD running inside SAP Solution Manager.

3.4.4 Sizing Requirements of a System for SLD

The following sections provide relevant considerations to size a system used for the SLD.

3.4.4.1 Hardware

As a starting point, we recommend that you stick to the recommendation for an AS Java system given in the implementation documentation of SAP NetWeaver. This is normally suitable for most SLD use cases. For large use cases, you can perform normal AS Java sizing.

More information:

- ❑ For hardware recommendations, see SAP Service Marketplace at service.sap.com/instguidesnw.
- ❑ For general sizing of SAP NetWeaver, see SAP Service Marketplace at service.sap.com/sizing.



For example, we recommend that you run the SLD for SAP NetWeaver 7.0 on a host with at least a 64-bit dual core CPU with not less than 4 GB of RAM, and on up-to-date hardware for the other parts as well (such as disks and so on).



Running the SLD on hardware that is more powerful should reduce the processing times assumed below for the estimation of the system load.

3.4.4.2 System Design

We recommend that you run the SLD on a non-clustered system. If you run the SLD for SAP NetWeaver 2004 or SAP NetWeaver 7.0 on a clustered system, make sure you disable the SLD cache. For more information, see **SAP Note 825116**.

If you plan to run the SLD on a system shared by several applications, be aware that all applications running shared on this system will compete for hardware resources.

3.4.4.3 Estimation of System Load

The following rule of thumb helps you to judge the hardware requirements based on the load in an SLD caused by SLD data suppliers.

To compute the data received by one SLD data supplier, we assume the following maximum processing times for the SLD (based on the hardware listed above):

- ❑ 10 seconds for data received from the data supplier of an ABAP system
- ❑ 30 seconds for data received from the data supplier of a Java system



For example, if you have 60 ABAP and 30 Java systems connected to your SLD and each of these systems sends data twice a day (which is the standard data supplier configuration), you would get a maximum processing time for data suppliers of 50 minutes (60 ABAP systems * 2 messages per system and day * 10 seconds/per message + 30 Java systems * 2 messages per system and day * 30 seconds/per message = 3000 seconds per day = 50 minutes per day).

These assumptions do not consider peak loads of the SLD. Therefore, it could be a problem for the SLD if all data suppliers send updates at the same time. As a result, we recommend that you add further reserves and use factors of safety.

Also, if you want to reduce the load of your SLD, you could consider reducing how often data suppliers send updates to the SLD and try to de-concentrate the time when the single data suppliers send updates to the SLD. For example, by reducing the update frequency from twice to once a day, you halve the corresponding processing time to handle data supplier data in the SLD.



In our example, a system as proposed above could process the data of the data suppliers of over 1000 ABAP and 1000 Java systems, but only if the updates are sent spread over the day. As this can hardly be guaranteed, you should restrict the number to several hundred connected systems, reduce the update frequency or use a stronger host.

Additional load is generated when users access the UI and browse the data in the SLD, and when clients read data from and write data to the SLD (for example, SAP NetWeaver PI and SAP Solution Manager). The resulting load is difficult to estimate because it heavily depends on your system landscape and how you use the single clients that rely on the SLD.

Note: In cases where you experience a high demand in SLD data availability (for example, if many Web Dynpro Java based connections are used), you might add a dedicated SLD system to your application. In most cases, these additional SLD systems can be activated on the Java system running the application demanding the SLD data.

3.4.5 Using Full Automatic Sync to Distribute CIM and CR Content from a Dedicated Namespace

Note that this procedure should be tested by you in a sandbox and used very carefully – not fulfilling the prerequisites or performing the steps wrongly will cause data inconsistencies.

Full Automatic Synchronization (FAS) of SLD content keeps all data of connected SLD systems in sync; this includes CIM Model and CR Content data. However, FAS does not allow for filtering of data, nor does it give any control about the point in time when content is synchronized: All changes become active on the target of an FAS connection more or less at once. Therefore, you must not simply connect the DEV SLD to QA SLD to PRD SLD because all manually created data need to be synchronized in a controlled manner between SLDs with different roles – see [How-to Handle Data in the SAP NetWeaver System Landscape Directory](#). On the other hand, there is data, which should be available on each SLD:

- Technical Systems' data should be available in the whole landscape – but this is easily handled by Bridge Forwarding of Data Supplier data.
- Up to date CIM Model and CR Content data.

The fastest mechanism that can be used to transport **CIM/CR Content** is the full automatic synchronization. However, FAS always transports all changes – to use FAS for the update of **CIM/CR Content** *only*, a specific configuration is needed: To separate CIM/CR Content from all the other content (manually created content and technical systems' data) you can utilize the SLD namespace concept – see figure 1:

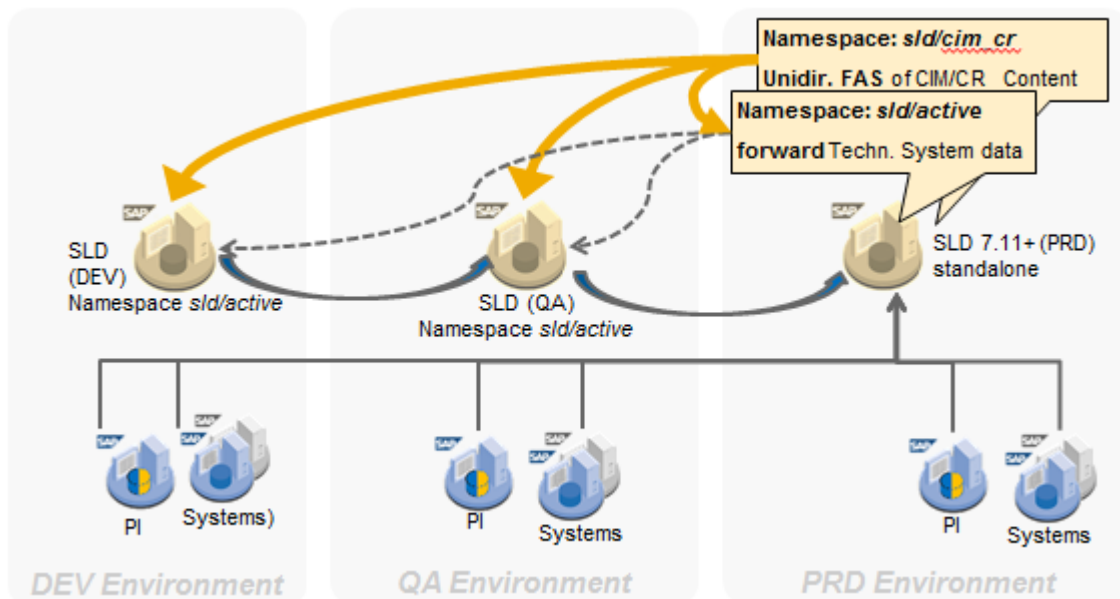


Figure 1: SLD systems, namespaces and connections in a typical landscape to optimize SLD content maintenance by automation of CIM Model and CR Content update.

Note that there **MUST NOT** be any FAS connection transporting CIM/CR Content back to SLD (PRD).

3.4.5.1 Prerequisites

- All SLD systems, in which CIM Model and CR Content are to be updated automatically, need to be running on SAP NetWeaver 7.1 or higher to be able to retrieve data from another SLD by Full Automatic Synchronization.
- This process does not need to be installed at the beginning – it can be installed at any time, if the prerequisites explained below are adhered to when a new synchronization connection for CIM model and CR Content is added.
- The **unique-path-principle** must be fulfilled (the same content must not reach any SLD on two different paths – for valid topologies see [How-to Handle Data in the SAP NetWeaver System Landscape Directory](#) or the *Planning Guide - System Landscape Directory* mentioned there.)
- Most importantly, when adding such a new FAS connection for a target namespace that already contains CR Content, ensure the following: Both the CIM model and the CR content version of the target namespace *sld/active* and the source namespace *sld/cim_cr* **MUST** be the same. Otherwise, the CR Content in the target namespace will become inconsistent.

3.4.5.2 Steps

Automatically updating CIM Model and CR Content should not affect your SLD performance noticeably. In case that your SLD is working without some performance buffer near its maximum capacity, you should either strengthen the SLD system or plan the CIM Model/CR Content update for times when the load is small by planning the manual CIM/CR Content update in the central SLD accordingly. (If this cannot be achieved with FAS, keeping the manual process for such an SLD might be recommendable.)

Note: Once you are using this automated setup for CIM/CR-updates you **MUST NOT** perform manual CIM/CR-updates in the target SLDs anymore. This would lead to inconsistent data.

1. Create a namespace for CIM Model and CR-Content on one SLD (probably your central SLD), where you keep CIM Model and CR Content up-to-date, naming it *sld/cim_cr* for example
2. Create a FAS connection on every target SLD that can be updated with latest CIM Model and CR Content (see “Prerequisites”) to namespace *sld/cim_cr* on the central SLD

Note that on these target systems, no additional namespace is required: *sld/active* can be directly used as the target namespace for the update to take effect on technical systems registering. When adding such a new FAS connection for a target namespace that already contains *CR Content*, **both the CIM model and the CR Content version** of the target namespace *sld/active* and the **source namespace *sld/cim_cr*** **MUST** be the same.

3. For the source SLD containing namespace *sld/cim_cr*, there are two options to update CIM/CR-Content:
 - a. You can automate the required update of namespace sld/active by creating a local uni-directional FAS to its **own sld/cim_cr** namespace.

- b. If you want to be in control of the CIM/CR-state of this SLD (which probably is your productive one) you can import it manually.

Note: You can control the point of time to update CIM/CR-Content: Optionally, you can de-activate the FAS connection updating the CIM/CR-Content and activate it manually, if you want to perform an update.

3.4.5.3 Result

CIM Model and CR Content will be updated automatically in any SLD reading the CIM-CR namespace.

4 Appendix

4.1 Network Access Scenarios

This section shows various SLD setups that take networking aspects into account.

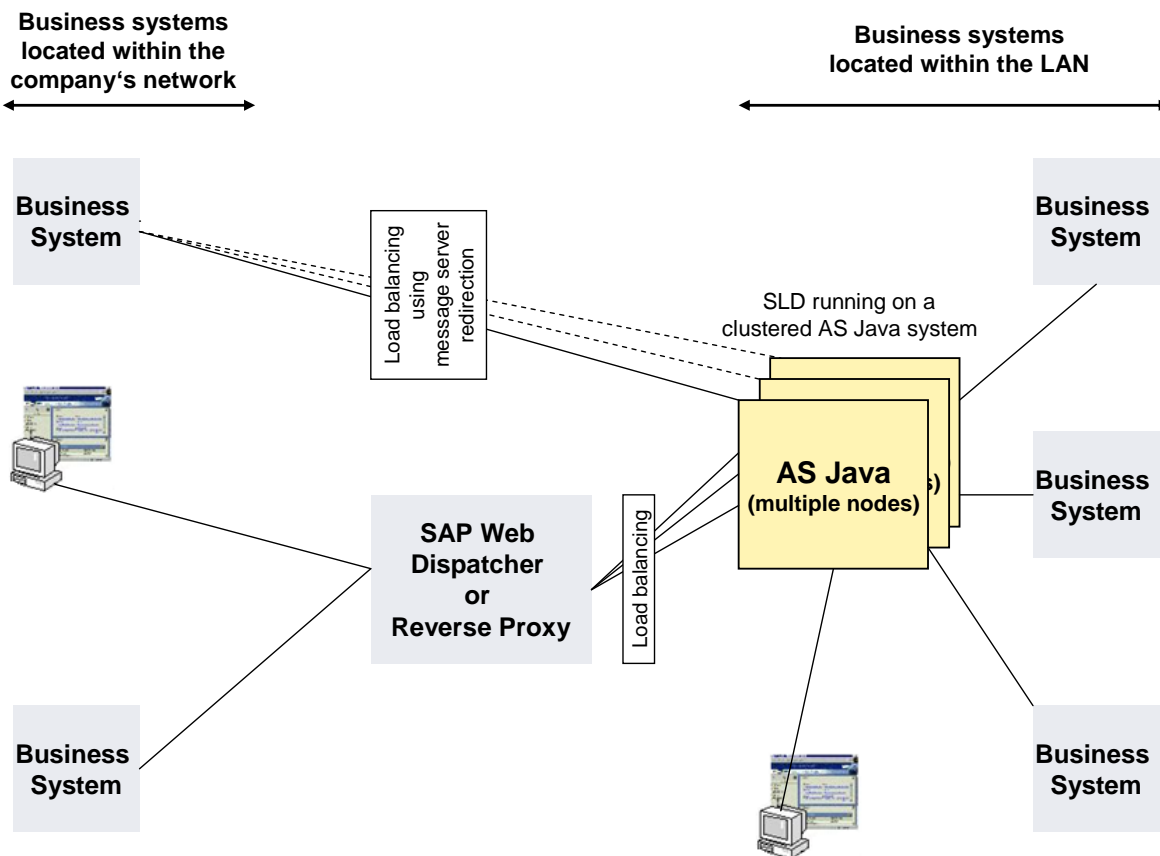
4.1.1 Intranet Scenario

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 such as firewalls and NAT (Network Address Translation) allows you to use both SAP load balancing - the SAP message server redirect mechanism - as well as the new SAP Web Dispatcher.

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

The following figure shows the Intranet scenario:

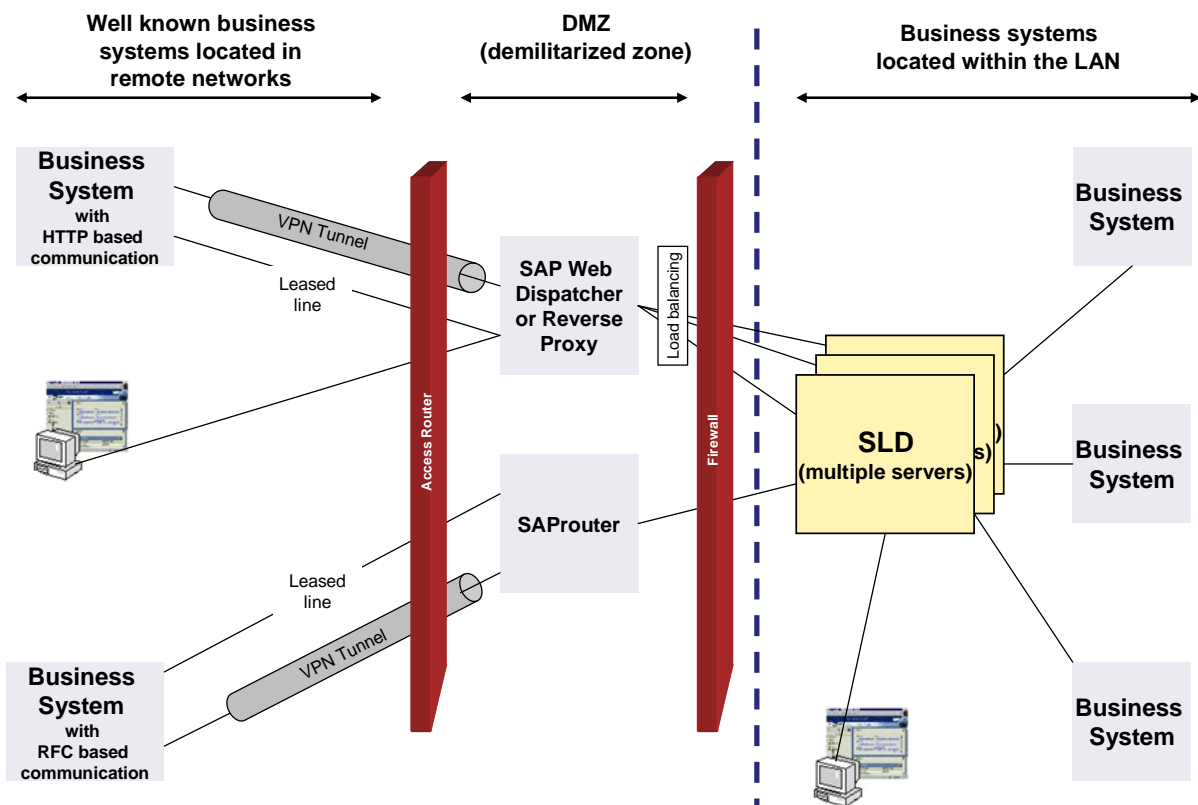


4.1.2 Extranet Scenario

Extranets extend the range of the Intranet. Well-known systems – for example, systems of business partners – get access to specific 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 achieved 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 an HTTP reverse proxy and load balancer. SAProuter can be used to check and forward RFC connections.

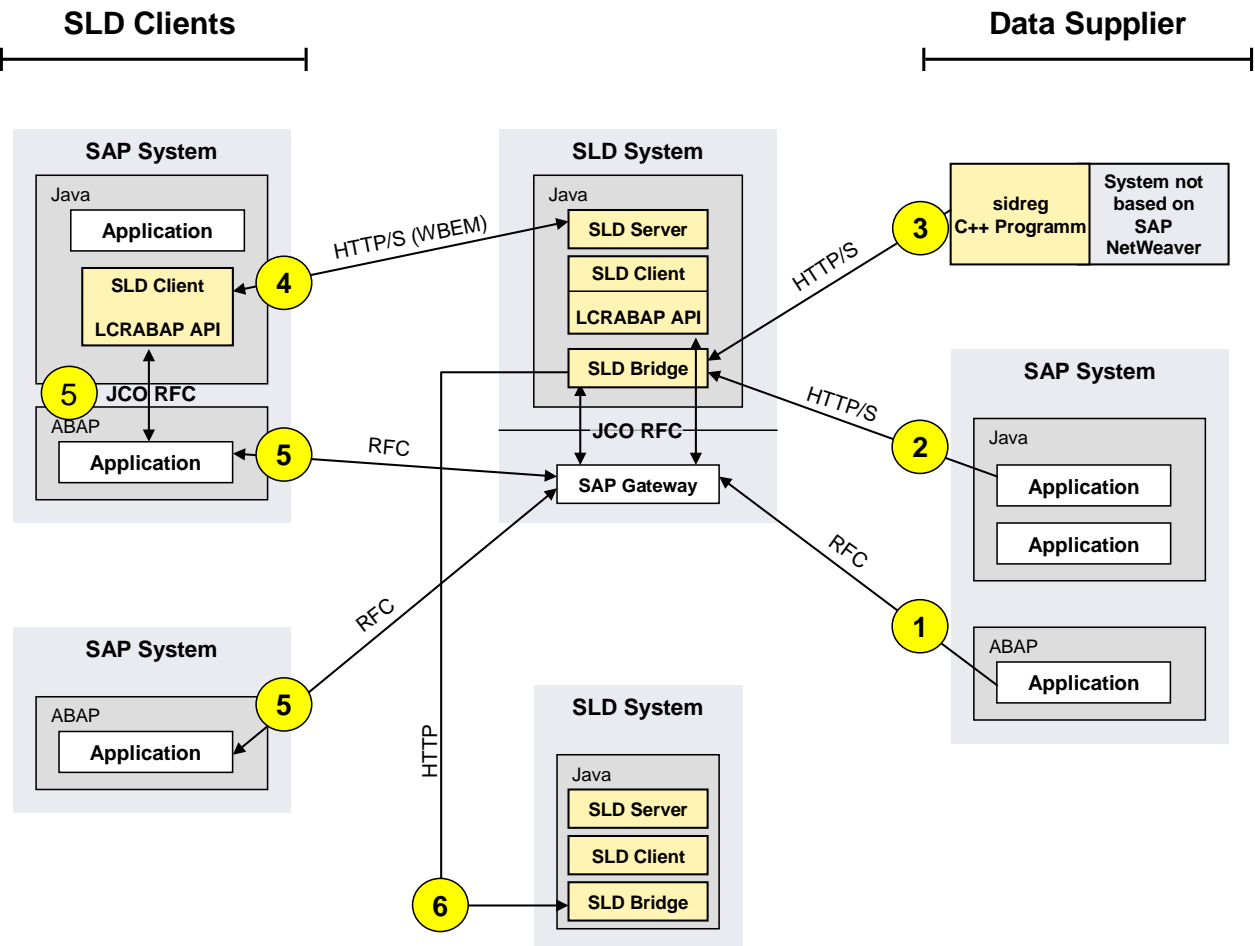
The following figure shows the Extranet scenario:



4.2 Overview of Connections to and from SLD

The following figure gives you an overview of all communication paths to and from the SLD. The SLD data suppliers are displayed on the right side (bullets 1 to 3). They send up-to-date system landscape data to the 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 the SLD.

The following figure shows all communication paths explained in the following sections:



4.2.1 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.

4.2.2 Java Data Supplier (2)

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

4.2.3 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 by using HTTP/HTTPS protocol.

4.2.4 Java SLD Client (4)

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

4.2.5 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 HTTP/HTTPS protocol.

4.2.6 SLD to SLD Message Forwarding (6)

Data suppliers send their messages to the SLD bridge to which they are connected only. 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 SLD instances in large IT landscapes. For more information, see [Automatic Forwarding of Landscape Data \[page 18\]](#).