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Best Practices for Migrating SAP Environments

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Introduction

Migrating an SAP database and application environment, along with the associated system software and unbundled products, is one of the most demanding tasks an IT team can encounter. This white paper explains the process of moving an SAP environment from one system to another, and describes the resources and services available from Oracle to assist users planning a migration.

In general, there are two types of migration: homogeneous and heterogeneous. A homogeneous migration is a migration from one platform and database architecture to the same platform and database. This article focuses on the more challenging type of migration — heterogeneous. This type of migration consists of moving from a non-Oracle platform to an Oracle Sun environment, or from one database architecture to a different database architecture, or both at the same time. In describing the details involved with performing a heterogeneous migration, this paper addresses the following topics:

- Challenges and issues
- Assessing requirements and resources
- Creating a plan
- Preparing the infrastructure
- Performing the migration
- Validating the migration

The white paper describes procedures, techniques, and recommendations that can simplify and expedite the migration. It assumes that readers understand basic SAP technology and the services SAP provides. It also assumes they are familiar with the database software in use on both the source system (the system on which the SAP environment currently resides) and the target system (the system to which the SAP data is migrated).

Overview

In today's turbulent business climate, enterprises struggle to maintain a competitive edge. To achieve an advantage, companies must be able to create innovative, high-quality products and services and quickly bring them to market. At the same time, the business must optimize profitability by improving efficiencies, increasing productivity, and driving down costs.

For many companies, SAP solutions are a key factor in the ability to compete. As companies evolve, they need to respond to changes in the marketplace and within the organization. Consequently, the SAP applications and IT infrastructure that support mission-critical business functions must be able to adapt more quickly to these changes than ever before.

Migration Considerations

As IT managers plan for the future, they must closely examine existing SAP applications and infrastructure to determine how the IT landscape can best evolve to deliver strategic new business initiatives. Obsolete technology, out-of-date applications, unmanageable growth of systems, or multiple product silos can drive the need to upgrade to a new platform. Among the many benefits of performing such an upgrade are the following:

- **Increase utilization.** As servers are added to the SAP landscape to support new applications or more users, the result is often server sprawl. Managing a large number of small servers typically means greater administrative overhead and increasing maintenance costs. Consolidating the SAP environment during a platform transition can help to simplify administration, decrease licensing and administrative costs, and improve utilization, resulting in lower overall TCO. Oracle's ability to consolidate and virtualize IT resources offers greater flexibility and increased efficiency in managing the SAP infrastructure.
- **Upgrade technology.** Often, the expected savings on maintenance and administration fees through the use of more efficient systems can help justify anticipated capital expenditures and provide a quick ROI. Furthermore, Oracle's commitment to ecoconscious computing — with new processors that require significantly less power and cooling while delivering high throughput — can also help to reduce operational costs.
- **Enhance performance.** In existing SAP deployments, the underlying database can exhibit a high degree of fragmentation that might adversely impact performance. A benefit of a platform migration is that, during the data transfer process, the existing database can be redesigned and tables can be re-indexed. This fine tuning helps improve the overall performance of the SAP environment.
- **Expand capacity.** Over time, many enterprises require greater capacity in their SAP infrastructure. In some cases, corporate mergers, acquisitions, and new business partnerships drive this need. In others, strategic initiatives such as addressing new regulatory requirements, adding new application capabilities, and increasing data acquisition drive the need. A transition to scalable Sun systems from Oracle adds the ability to grow capacity, helping enable future expansion.

The Migration Process

In the migration process (Figure 1) data is exported from the source system, which is left untouched, and then transferred to the target Oracle Sun system. Since the migration freezes the source system in its original state, access to SAP applications can be restored using the source system if for some reason a problem is encountered during the migration process. In this way, the source system acts as a safety net in the event that application access cannot be properly validated on the target system.

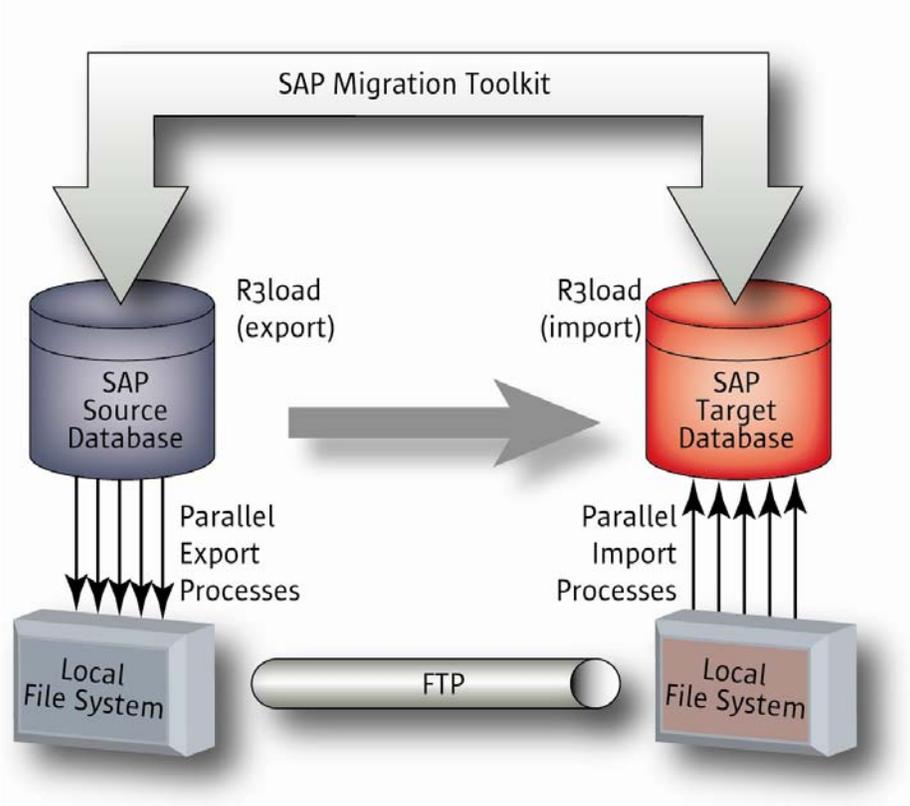


Figure 1. The migration process transfers the SAP environment from the source system to the target system.

The migration team follows a precise and well-documented procedure using tools that automate data movement and reduce the risk of human error. Multiple migrations might be necessary — for example, an initial data migration is often performed to create a test-bed to evaluate the process. In most cases, a copy of production data is migrated during the assessment phase to create a proof-of-concept environment for performance analysis and to simplify the integration of third-party software components. These early data migrations follow the same basic procedure as the final data migration of all SAP instances. Typically, the order of migration follows the order of importance of the instances — sandbox instances are usually migrated first, followed by training, test, quality assurance, development, and finally production instances.

Challenges and Concerns

Understandably, managers are apprehensive about how their business might be affected during the migration. Their questions and concerns must be addressed prior to starting the process including:

- How long will the migration take?
- For how long and during what period will the SAP applications be unavailable?
- Will production operations be interrupted or compromised?
- What is the risk of losing critical data during the downtime?
- How much will the migration cost?
- Will critical members of the IT team be unavailable to perform their normal duties?

Other issues that should be addressed include:

- Can the SAP software be upgraded and patched as part of the migration?
- Should network access to the source and target systems be segregated during the migration process?
- Must the test migration environment be a snapshot of the production system?
- What versions of the target operating system are compatible with the current SAP release?
- How much acceptance testing is required and what is the estimated duration?
- How will the newly migrated SAP system be verified for completeness and accuracy?

Leverage Oracle Services

For most organizations, the SAP environment spans the entire enterprise, often extending to customers and vendors. That is why many companies build their enterprise on open Oracle systems and SAP software, the leaders in mission-critical computing. But, technology leadership alone is not enough. An environment this crucial to the business's success demands first-rate service and support through every phase of its lifecycle — from initial development, to enterprise-wide deployment, and ongoing system management.

Datacenter upgrades are a fact of life because business needs evolve and technology marches forward. With the help of Oracle's services, managers can reduce the risk of a technology refresh and take advantage of best practices and experience based on thousands of datacenter implementations. Oracle's services not only help IT staff move data between systems, but also can assist in assessing, planning, and executing the SAP migration project.

Oracle offers the expertise to help overcome the challenges associated with data migrations such as application downtime and loss of productivity. Oracle consultants analyze the business's and the project's objectives and ascertain possible constraints such as partnerships, resources, road maps, dependencies, and operational requirements. Oracle's experts can even help demonstrate to executives the value of the migration as a necessary step for improving business and IT efficiency.

Once the SAP migration is complete, Oracle helps businesses capitalize on the greater flexibility of the new infrastructure. Oracle can assist the IT staff to develop new operational procedures and processes by offering services in the following areas:

- **Account management.** Oracle consultants meet with IT staff to help outline the SAP development strategy.
- **System deployment.** With access to engineering and the latest technology updates and expertise in installing and configuring SAP on Oracle Sun platforms, Oracle service engineers help enterprises successfully deploy SAP systems.
- **Project management.** Oracle's engagement managers act as a single point of contact for SAP projects.
- **Skills development.** Oracle's training consultants can help analyze, build, and certify IT staff.
- **Staff support.** Oracle consultants use their expertise to augment the knowledge base of SAP project teams, helping to minimize their SAP migration project risk.

Finally, for most migration projects, Oracle offers a period of extended support — either on-site or on-call — to answer questions and to help to complete a smooth migration. Also, IT staff should attend system administration and system management training classes available from Oracle Educational Services. With more than 36 years of industry experience and strategic relationships with leading vendors worldwide, Oracle's extensive, customized services help managers meet their goals.

Next Steps

The migration process starts in the following chapter with interviewing the IT staff and conducting a site survey in order to assess the available resources and to determine the target system requirements.

Assessing Resources and Requirements

Involving the business users and data experts in the process is the single biggest factor behind a successful migration project. To determine their needs, the project team must gather the necessary information to create a comprehensive assessment of the available resources and to describe a clear direction to the ultimate goals. There are a range of topics to address including:

- Architecture of the source system
- Inventory of resources available in the source system
- Architecture and functional capabilities of the target system
- Personnel needed to conduct the migration and their availability
- Software, media, and licenses needed including patches and migration toolkits for both the source and target systems

Evaluating the Source System

The team should determine the hardware and software available to host the migration project. Specific evaluation activities include:

- Perform a site survey to assess the currently available resources such as:
 - Servers
 - Storage and data management capabilities
 - Networking infrastructure
- Identify all of the elements of the current SAP environment including:
 - SAP applications
 - Third-party software
- Determine if the system has sufficient throughput, storage, and networking capabilities to complete the migration in the scheduled time
- Determine if the necessary data integration and data quality tools are available

Architecting the Target System

The design for the target system should be planned as part of the assessment phase and should include:

- Hardware and networking requirements
- Database layout, sizing, and storage capacity goals — all permanent and temporary storage requirements must be addressed as part of the overall migration strategy
- Database management issues (extents, tables, and physical layouts)
- Load balancing requirements
- Information lifecycle management requirements (back-up, recovery, and archiving)
- High availability configurations and requirements

Assessing Human Resources

Prior to undertaking the SAP migration, it is important to engage a committed team of individuals to increase the chance of a successful project. The key personnel that should be recruited and their primary responsibilities are listed in Table 1.

TABLE 1. PERSONNEL RESOURCES AND FUNCTIONS

TITLE	FUNCTION
Executive sponsor	Key decision maker responsible for the migration
Oracle account/sales manager	Oracle account manager responsible for client relationship, funding, and primary interface to the enterprise's executive committee
Project manager	Oracle Professional Services project manager responsible for day-to-day project coordination, resourcing, and project delivery
Migration consultant	Certified SAP migration consultant responsible for the technical aspects of the migration
Database consultant	Consultant responsible for the database export aspects of the migration
Oracle Solaris consultant	Oracle system administrator responsible for all system management activities ranging from user administration to system configuration and set-up
Backup consultant	System administrator responsible for all backup activities including interfacing into SAP backup architecture
SAP interface architect	SAP interface administrator responsible for ensuring all migration interface issues are addressed
Business consultants	Key functional business experts responsible for verifying the migrated target system

Determining Toolkit/Media/License Resources

During the assessment phase, the team should review the system requirements to determine the suite of software utilities and tools — including appropriate media and licenses — that are needed to complete the migration including:

- Oracle Solaris
- Patches for the OS, SAP applications, and third-party software
- SAP migration toolkit
- Interfaces

Next Steps

Now that the team has determined what resources are available and what the ultimate SAP landscape is, the next steps are to develop the project plan, communicate the plan to the participants, answer questions, and address concerns.

Creating the Plan

As with virtually any non-trivial IT project, success depends on creating and following a detailed, comprehensive plan. It is crucially important that before the first bit is exported, a strategy is developed describing the steps that must be accomplished, in the proper order, and identifying the responsible personnel for each step. The plan also outlines the current SAP infrastructure and captures the organization's requirements.

Often a migration project presents an opportunity to upgrade the supporting SAP environment. The plan should include any new capabilities and enhancements that are to be added to the SAP environment during the migration process such as:

- Improved application availability by implementing a disaster recovery architecture
- Increased security by improving identity management mechanisms
- Upgraded application or database software
- New SAP functionality

The plan frequently includes recommendations that are based on best practices — especially in the area of database layout — that can often dramatically impact performance. Effective planning helps to mitigate the risks associated with the migration project.

Writing the Plan

The major items that should be included in a migration plan are:

Preparing the Infrastructure

- Architect the target system(s) including network connectivity
- Order and take delivery of the required server(s), storage, and other resources
- Install and test the target system(s) and connectivity
- Apply patches to the source and target systems
- Install the SAP migration toolkit to the source and target systems
- Conduct a migration workshop for the participants

Performing the Migration

- Export the database from the source system
- Generate the migration structure files
- Transfer the exported files to the target system
- Import the database into the target system
- Verify the imported SAP system
- Verify the target database startup and shutdown

Validate the Migration

- Backup target system with imported SAP database
- Perform functional acceptance testing
- Perform performance testing
- Perform interface testing
- Perform DR testing

Next Steps

Once the planning is completed, the next task is preparing the systems and the personnel to perform the migration.

Preparing the Infrastructure

This phase of the project includes the steps necessary to obtain the resources, prepare the source and target systems, and create the checklists that are used to help ensure the actual migration is completed as smoothly as possible.

Setting Expectations

It is critically important that early in the preparation phase all the key participants meet to review the project plan and to make sure that everyone's questions and concerns about the migration are addressed. Clarify all realistic risks that might disrupt normal operation or cause a loss of critical data. Describe any expected interruption to, or compromise of business functions, that might occur during the migration. Explain to the team specifically what will happen and how long it will affect operations.

After the migration plan is reviewed and accepted, the project moves into the preparation phase. The configuration of the target system must be finalized and the system purchased, installed, and loaded with Oracle Solaris, the database software, and the applicable SAP modules. All necessary patches are

downloaded and applied to the source and target systems, file systems are configured, and both systems are networked as necessary to efficiently transfer data. The migration toolkits are then downloaded and installed on both systems.

Obtaining Resources

TABLE 2. KEY TASKS IN PREPARING THE INFRASTRUCTURE FOR THE MIGRATION

TASK	OWNER	DESCRIPTION
Architect system	Oracle/User	<ul style="list-style-type: none"> Design environment including target system and networking
Order resources	User	<ul style="list-style-type: none"> Place order for Oracle Sun system Place order for necessary media: Oracle Solaris, SAP migration toolkit, interfaces
Deliver resources	User	<ul style="list-style-type: none"> Take delivery of system and licenses
Commission target system	Oracle	<ul style="list-style-type: none"> Install Oracle Sun hardware and software
Set-up network	User	<ul style="list-style-type: none"> Install necessary network connectivity between source and target systems
Download patches	Oracle	<ul style="list-style-type: none"> Download latest patches for source and target systems
Download migration toolkits	Oracle	<ul style="list-style-type: none"> Download SAP migration toolkits for source and target systems

Recommendation: In order to provide the optimum bandwidth for transferring data, a dedicated, high-speed network should be installed between the source system and the target system for FTP traffic.

Preparing the Source System

TABLE 3. KEY TASKS TO PREPARE THE SOURCE SYSTEM FOR THE MIGRATION

TASK	OWNER	DESCRIPTION
Backup source system	User	<ul style="list-style-type: none"> Complete full system backup Verify source system backup
Patch source system	User	<ul style="list-style-type: none"> Apply patches Prepare SAP and database for export

TASK	OWNER	DESCRIPTION
Install migration toolkit	Oracle	<ul style="list-style-type: none"> Install SAP migration toolkit and set required environmental variables
Assign source system storage	User	<ul style="list-style-type: none"> Allocate storage for host export dump files
Assess database structure	Oracle	<ul style="list-style-type: none"> Identify largest SAP tables/indexes in source system
Set up file system	Oracle/User	<ul style="list-style-type: none"> 15% of total database Spread file system across many storage LUNs to avoid write contention during database export

Preparing the Target System

TABLE 4. KEY TASKS TO PREPARE THE TARGET SYSTEM FOR THE MIGRATION

TASK	OWNER	DESCRIPTION
Verify network	Oracle	<ul style="list-style-type: none"> Verify connectivity between source and target systems
Patch target system	Oracle	<ul style="list-style-type: none"> Install patches on target system Prepare SAP and database for import
Set up backup network	Oracle	<ul style="list-style-type: none"> Set up connectivity to backup infrastructure
Install interfaces	User	<ul style="list-style-type: none"> Install and configure interfaces
Install licenses	User	<ul style="list-style-type: none"> Install SAP licenses
Install migration toolkit	Oracle	<ul style="list-style-type: none"> Install SAP migration toolkit and set required environmental variables
Set up file system	Oracle/User	<ul style="list-style-type: none"> 15% of total database Spread file system across many storage LUNs to avoid write contention during database export

Creating the Checklists

Use the following checklists to help ensure that all necessary tasks are completed on the source system prior to the migration and on the target system after the migration. The pre-export checklist shown in Table 5 outlines the key tasks to complete prior to starting to export the SAP database from the source system.

TABLE 5. PRE-EXPORT CHECKLIST

TASK	COMPLETED
Stop all SAP users and set appropriate profile parameters to ensure users cannot access the SAP system	
Verify all updates have completed	
Stop all active jobs and all scheduled background jobs	
Release all SAP locks	
Release all transports and open repairs	
Stop all operation modes	
Clear all ABAP dump files	
Clear TemSE (spool database)	
Stop all print queues	
Stop all cron or OS scheduled background jobs	
Stop interfaces and third-party tools	
Stop all application instances, CI, and SCS	
Stop SAP database	

The post-migration checklist shown in Table 6 outlines the tasks to complete after the SAP database has been imported into the target system.

TABLE 6. POST-MIGRATION CHECKLIST

TASK	COMPLETED
Verify all SAP file systems are mounted (/usr/sap/trans)	
Start SAP database	
Start CI, SCS, and all application instances	
Verify connectivity via SAP GUI, portal, etc.	
Set up and verify transport system	
Reset SAP and DDIC passwords	

TASK	COMPLETED
Regenerate SAP programs	
Install new SAP licenses	
Reset SAP operation modes	
Perform a full system backup	
Start SAP user access	
Complete user acceptance testing	

Next Steps

Once the hardware and software components are staged, updated, and operational, the team is ready to perform the actual data migration.

Performing the Migration

This chapter describes the steps and procedures to perform the actual migration including:

- Exporting the SAP database from the source system
- Transferring the database to the target system
- Importing the database into the SAP environment on the target system

Prior to starting the migration, there are various techniques that can be used to improve the performance and efficiency of the migration. Review the section below to determine the appropriate optimization methods for the project.

Optimizing the Environment

Prior to starting the migration, there are several steps that can improve the migration process by increasing the performance of the storage systems, the servers, and the database. In addition, there are techniques for reducing downtime and minimizing read/write contention.

Increasing System Performance

Data migration efficiency can be enhanced by reconfiguring the storage systems on both the source and target servers as well as setting some of the parameters on the database software and on the servers. The following tables provide specific suggestions for optimizing the performance of the storage, database, and servers.

TABLE 7. OPTIMIZE STORAGE SYSTEMS PERFORMANCE

TASK	DESCRIPTION
Stripe database files — Export	<ul style="list-style-type: none"> • Stripe the database across all available disks • Avoid read/write contention introduced by the migration toolkit during the database export process
Stripe database files — Import	<ul style="list-style-type: none"> • Stripe the database across all available disks • Avoid read/write contention introduced by the migration toolkit during the database import process
Export dump files	<ul style="list-style-type: none"> • Create a local file system sized at 20% of the total database • Stripe across all available disks to improve read/write performance
Import dump files	<ul style="list-style-type: none"> • Create a local file system sized at 20% of the total database • Stripe across all available disks to improve read/write performance
Storage cache — Export	<ul style="list-style-type: none"> • Set the storage cache for read optimization
Storage cache — Import	<ul style="list-style-type: none"> • Set the storage cache for write optimization

TABLE 8. OPTIMIZE THE DATABASE

TASK	DESCRIPTION
Disable archiving	<ul style="list-style-type: none"> • Set database to noarchive log mode
Stop mirroring	<ul style="list-style-type: none"> • Stop mirroring redo logs
Obtain statistics	<ul style="list-style-type: none"> • Generate database statistics prior to export
Avoid sorts	<ul style="list-style-type: none"> • Avoid executing database sorts during export phase
Increase temp space	<ul style="list-style-type: none"> • Set PSAPTEMP to be at least 30% of user data
Set parameters	<ul style="list-style-type: none"> • Set database parameters identified in SAP Note 936441
Create packages	<ul style="list-style-type: none"> • Create separate export packages for the largest 20 tables

TABLE 9. OPTIMIZE THE SERVERS

TASK	DESCRIPTION
Set parameters	<ul style="list-style-type: none"> Set the fast loadprocedure R3load parameter (if this option is available)
Parallel operation	<ul style="list-style-type: none"> Use table split procedures during the export and import phases (R3load)
Control network traffic	<ul style="list-style-type: none"> Use a dedicated network for ftp traffic between the source and target systems

Reducing the Downtime Window

When performing SAP migrations, data can be exported from the database in a structured format. This structured format categorizes the data into various types such as application data or functional configuration data. A template export file is provided by SAP for database exports. When working in environments that consist of very large databases and imposed restrictions in terms of acceptable downtime, however, advanced techniques are utilized to support the migration process.

Segregating Files

During the database export phase, structure files and various associated files are generated that contain lists of tables in alphabetical order. After the largest tables are identified, entries for these tables can be transferred to new individual structure files and associated files. Then the order in which the tables are exported can be determined. In general, the largest tables should be exported first.

Significant time improvements can be achieved using an interleaved, *export-then-import* method. A table should be imported as soon as it is exported. At the same time, the next table can be exported. When applying this approach, multiple **R3load** processes are scheduled and controlled manually since the migration toolkit cannot support this level of complex interleaving.

Exporting Tables

Significant database export speed improvements can be achieved by using the **-unsorted** option to **R3load** when exporting large tables with many rows. Use the command **R3load -help** to determine if this option is available. By using the **-unsorted** option, data is read sequentially and writes to a file rather than using an index that attempts to sort data before writing to a file. Normally this option is recommended only when exporting tables using the sorted approach and should only be used during a migration to overcome time-constraint issues. Pool tables, cluster tables, reports, Dynpros, and nametabs cannot be exported using the **-unsorted** option. These items must be exported by primary key order.

Reducing Contention

Performance gains can sometimes be achieved by analyzing and tuning SAP tablespaces. Tablespaces often grow rapidly and can cause I/O wait time that can impact export and import performance. Relocating large or frequently accessed tables into their own tablespaces often has a positive impact on the overall migration time frame.

TABLE 10. TABLESPACES THAT CAN AFFECT MIGRATION PERFORMANCE

TABLESPACE	DESCRIPTION
PSAPBTAB	Transaction data tables
PSAPSTAB	Master data tables
PSAPCLU	Clustered tables, e.g., finance tables
PSAPPOOL	Pool tables containing customization information
PSAPPROT	Spool and print requests
PSAPROLL	Rollback segments
PSAPTEMP	Required during imports and reorganizations

Exporting the Database

Once the environment is optimized for the migration, the process of exporting data from the source system can begin by utilizing the SAP migration toolkit. This toolkit is a utility that aids in planning, executing, and managing the SAP data transfer from one system to another. Configure the toolkit to activate multiple migration streams between the source and target systems. The number of streams is determined by the number of processors in the target system.

TABLE 11. TASKS TO EXPORT DATABASE FROM THE SOURCE SYSTEM

TASK	OWNER	DESCRIPTION
Generate export structure files	Oracle	<ul style="list-style-type: none"> • Create export structure files using SAP migration toolkit
Split structure files	Oracle	<ul style="list-style-type: none"> • Create a separate structure file for each large table based on the migration assessment

TASK	OWNER	DESCRIPTION
Export SAP database	Oracle	<ul style="list-style-type: none"> Execute the database export Utilize the unsorted option if appropriate (R3load -unsorted -e) or (R3load -e) (Set number export processes = No CPU's -1) Collect accurate timings Document all steps and problems
Monitor	Oracle	<ul style="list-style-type: none"> Monitor the export process Review the export log files Complete all export processes without error

When a table is exported and becomes available, importing should be scheduled as soon as possible in order to enable load balancing and interleaving between the export and import processes.

Note that this is a more efficient approach than waiting for all of the export processes to complete before transferring the files across to the target system.

Importing the Database

After successfully completing the first export process, all relevant files are then immediately transferred to the target system, ready for loading. Once the first import begins, export the next table. To speed up the import processes the `-fast` option should be utilized.

TABLE 12. TASKS TO TRANSFER THE DATABASE AND IMPORT IT INTO THE TARGET SYSTEM

TASK	OWNER	DESCRIPTION
Transfer dump files	Oracle	<ul style="list-style-type: none"> FTP the dump files to the target system
Reset database	Oracle	<ul style="list-style-type: none"> Make the database ready for import using the SAP utilities
Import SAP database	Oracle	<ul style="list-style-type: none"> Execute the database import (R3load -fast ...) Import all of the tables starting with the largest first Collect accurate timings Document all of the steps and problems encountered
Monitor	Oracle	<ul style="list-style-type: none"> Monitor the import process Review the import log files Complete all of the import processes without errors

As data is transferred from the source database, review the log files for each stream to check for errors. If an error occurs and transmission stops, the stream can be easily restarted after the problem is resolved. After the export/import process completes for the database tables, use the toolkit to perform the final procedures in the migration.

Next Steps

Once the entire SAP environment and database is transferred, the next steps are to check that all the information has been accurately imported and the target system is ready to assume the business functions. This validation process is a critical phase to verify that the migration is successful.

Validating the Migration

A copy of the SAP database now exists on the target Oracle Sun system. During the migration process, the toolkit automatically generates a number of log files that can be analyzed to confirm the success of the data migration. Compare the number of objects exported against the number of objects imported for any discrepancies or errors, checking counts for tables, views, constraints, and indices.

TABLE 13. TASKS TO VALIDATE THE SUCCESSFUL COMPLETION OF THE MIGRATION

ITEM	OWNER	TASK
Run offline backup	Oracle/User	<ul style="list-style-type: none"> Perform a full offline backup of the newly migrated environment
Test users functions	User	<ul style="list-style-type: none"> Perform the functional acceptance tests Document the procedures
Test user performance	User	<ul style="list-style-type: none"> Run the user performance tests to validate the business critical transaction timings
Perform interface acceptance tests	User	<ul style="list-style-type: none"> Validate the interface functionality Document the procedures
Perform go-live check	Oracle/User	<ul style="list-style-type: none"> Execute the SAP go-live check
Implement recommendations	Oracle	<ul style="list-style-type: none"> Implement the SAP recommendations (if required)
Perform second go-live check	User	<ul style="list-style-type: none"> Run a second go-live check
Check backup and recovery	Oracle/User	<ul style="list-style-type: none"> Validate the backup and recovery testing in line with the user's policies and procedures Document the procedures
Complete acceptance	Oracle/User	<ul style="list-style-type: none"> Perform the final project acceptance

If no unresolved discrepancies exist, then the system administrators can apply SAP licenses to the target system, the IP address of the source system can be mapped to the IP address of the target system, and users can be notified that the SAP applications are, once again, ready for use.

Summary

Managers at enterprises running SAP on aging platforms must choose a direction for their SAP infrastructure — one that encourages flexibility and scalability as their SAP environment grows and evolves. Oracle offers a clear direction for the future, grounded on Oracle Solaris and SPARC® and x64 processor technologies, providing scalable, innovative solutions that allow non-disruptive technology refresh and seamless capacity expansion.

As many companies discover, migrating the SAP infrastructure to Oracle Sun platforms can create an agile IT infrastructure for SAP solutions — helping to adapt to continuously changing business demands. Oracle consultants can design a solution that virtualizes and consolidates SAP application services. This model streamlines administrative tasks and increases utilization, which can help to lower TCO. Oracle's expertise in network security can also help to safeguard the Web delivery of SAP application services across an extended enterprise, at the same time simplifying user access and identity management.

Oracle's proven and robust migration process helps to make a transition to a modern Oracle Sun platform virtually risk free. Oracle's methodology helps ensure the successful transfer of SAP data to the new platform, while leaving the source system in place until all data is migrated successfully. SAP migrations to Oracle Sun platforms provide benefits for many organizations such as savings in operational costs, systems management, floor space, and software maintenance and support costs.

About the Author

Himesh Bhatt is a Senior SAP Solutions Architect with the Global Sun Solution Center in Manchester, U.K. He has over 20 years experience architecting and implementing key ISV solutions. Himesh has worked with companies in a variety of industries including manufacturing, automotive, finance, utilities, chemical, and food and beverage. Himesh has earned various certifications including:

- SAP Certified
- SAP Certified Basis Migration Consultant
- Prince2 Practitioner Accredited
- ITIL Service Management and Service Delivery Foundation Accredited
- TOGAF

References

The following notes from SAP provide additional information on various aspects of the migration process. These notes can be found at <http://service.sap.com/notes>

TABLE 14. SAP NOTES PROVIDE ADDITIONAL INFORMATION TO HELP THE MIGRATION PROCESS

NOTE	DESCRIPTION
82478	SAP System OS/DB Migration
547314	FAQ System Copy Procedure
1035051	Transportable Tablespaces
89188	R/3 System Copy
1003028	Enhanced Support For Database Copy BR Tools
552464	What Is Big Endian / Little Endian? What Endian Do I Have
548016	Conversion To Unicode
784931	Hom./Het. System Copy SAP Web AS 6.40
806554	FAQ: I/O Intensive Database Operations
793113	FAQ: Oracle I/O Configuration
795267	System Copy For SAP Web AS Java™ Based Systems
936441	Oracle Settings For R3load Based System Copy
857081	Unicode Conversion: Downtime Estimate
855772	Distribution Monitor
784118	System Copy Java Tools
693168	Minimized Downtime Service And Incremental Migration (IMIG)
317096	Migration Key Generation For ABAP Systems
144864	SAP Remote Services: Technical Preparation
118059	Storage Parameter For System Copy With R3load



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