Migrating your SAP R/3 to IBM DB2 Universal Database

A technical overview of the process for a successful SAP R/3 migration project.

Introduction

There are many good reasons to migrate your SAP R/3 System to IBM DB2® Universal Database™. This document gives you the information you need to complete a successful SAP R/3 migration project.

The most common type of migration consists of moving from a non-IBM database to DB2 Universal Database while keeping the existing operating system (IBM AIX®, Microsoft® Windows NT®, Sun® Solaris® operating environment, etc). This type of migration is covered in the section entitled "heterogenous system copy." Another reason to migrate is to move to a more scalable hardware platform which, in turn, can be combined with a move to DB2 Universal Database.

Various technical and organizational aspects need to be considered during these types of migration. Both will be discussed in this white paper.

Definition of Terms

When talking about migration of an SAP R/3 System, one needs to distinguish between the different types of SAP R/3 system copies.

- Homogenous system copy: In this type of operation, the operating system and the DB2 database software stay the same. Only the hardware is changed, so the system must be moved to new hardware. This copy can be undertaken by the customer with assistance from a consultant if required. The SAP Migration Service can also be used. A homogenous system copy can be made using backups and the redirected restore feature of DB2 Universal Database.

- Heterogeneous system copy: You use a heterogeneous system copy process when changing the operating system or database software, or both, for your SAP R/3 system. This type of change will typically involve moving your SAP R/3 system to new hardware as well, because you are changing the operating system. SAP does not allow you to run source and target systems on the same hardware. SAP requires that the source system be available until it has confirmed that your migration was successful. Such projects may be used to bridge incompatible hardware platforms. In this case, using the SAP Migration Service is essential. The migration itself is performed by the customer and an SAP certified migration consultant.

In this white paper we will refer to the "heterogeneous system copy" when talking about "migration" or "system copy."

SAP Migration Service

For all database migrations, SAP requires the customer to use the SAP Migration Service in order for the system to be supported after the migration is complete. The SAP Migration Service is fee-based and will provide you the following:

- Cross check of the database migration project plan
- Migration tools
- Migration keys
- Remote going live migration check (three times)
- Support in case of migration tool problems.

To contact the SAP Migration Service group, create a note using the SAP Online Service System (OSS) by using application area XX-SER-OSDBMIG. This service is available 24 hours a day, 7 days a week. In addition, SAP offers a Web-based hotline for SAP-related DB2 inquiries (*www.sap.com/db2/hotline*).

The migration project

Figure 1 represents an overview of an SAP R/3 database migration project:

As database migration comprises several tasks, we recommend that you begin your migration plan three to four months in advance.

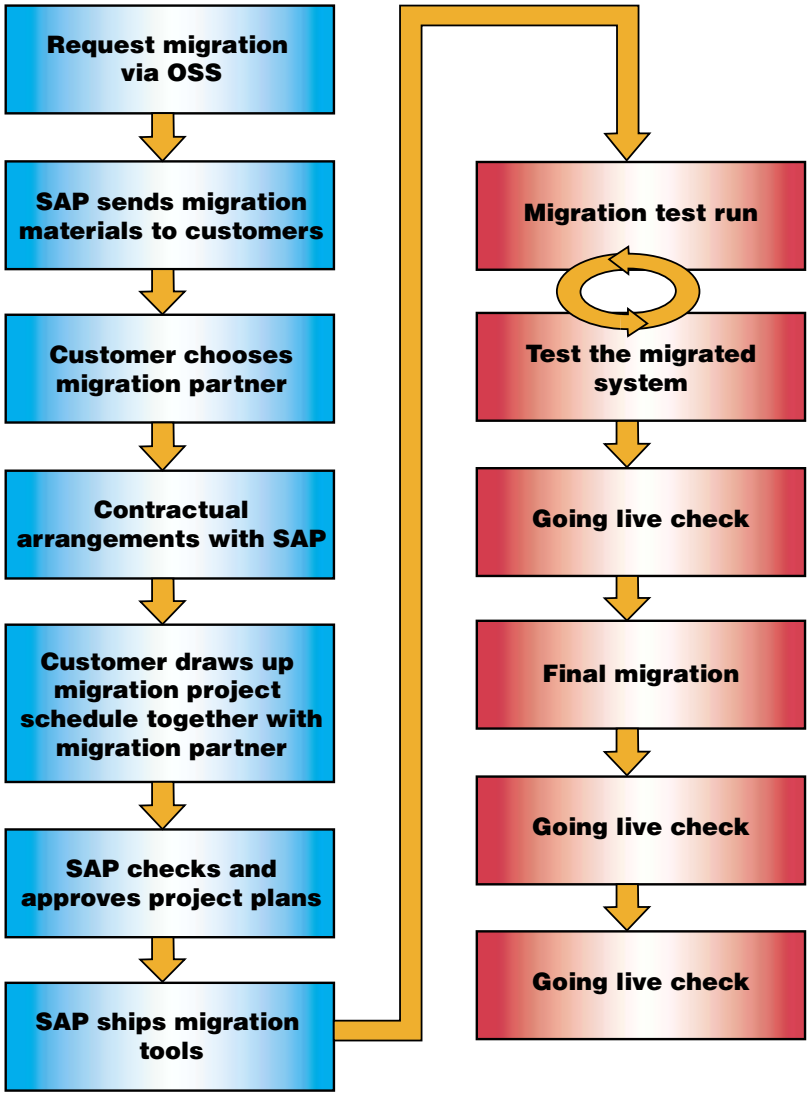

Figure 1.

Figure 2 represents a typical timeline for a migration project.

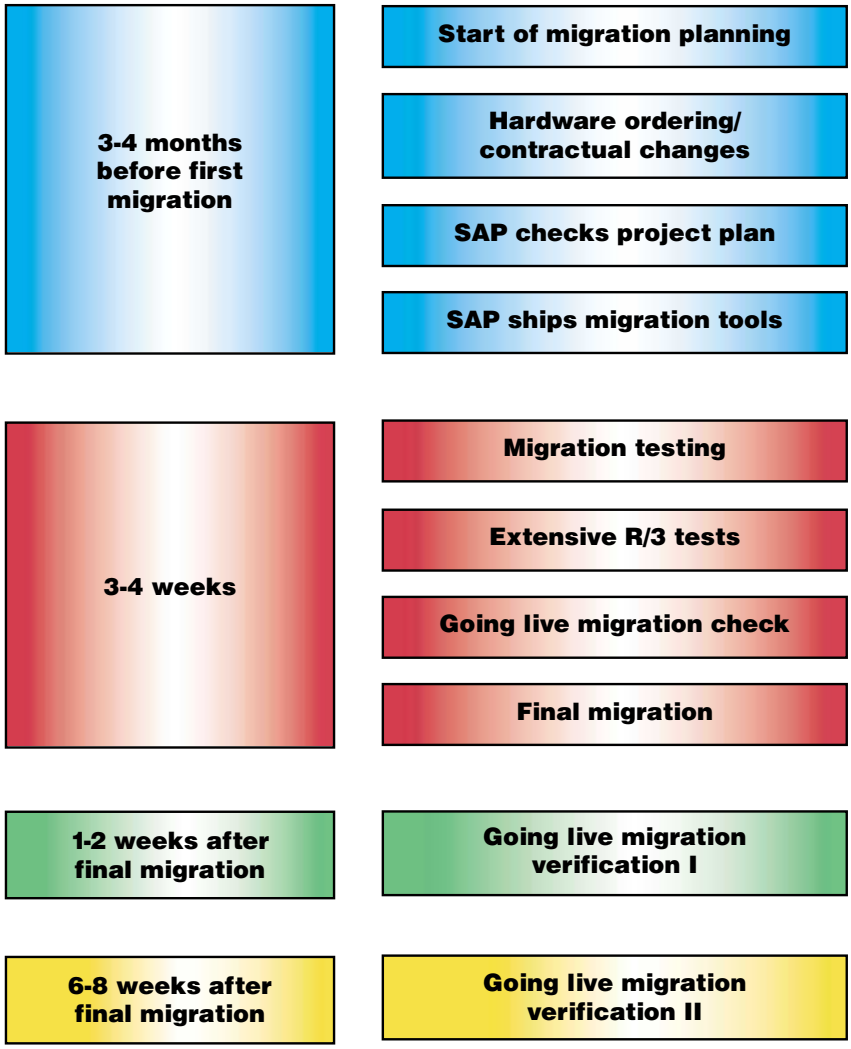

Figure 2.

The migration process

Your contacts

Contact your IBM DB2 for SAP representative well before starting your SAP R/3 migration project to obtain all the necessary information.

Also review SAP's migration Web page at SAPNET: *http://sapnet.sap.com osdbmigration*. On this site, you will find white papers, manuals and frequently asked questions (FAQs) concerning migrations. For information on handling a migration project, download OSS Note 82478.

To contact the SAP Migration Service, create a note in OSS, application area XX-SER-OSDBMIG. The SAP Migration Service group will assist you and provide you the needed migration information and a list of certified migration experts if required.

IBM also has a migration center with experienced experts on migration — and on DB2 — to assist you.

The migration project plan

To successfully perform a migration, you need to follow a well-defined process using the steps indicated in figure 1. SAP requires a project plan for your migration project. This plan is typically developed by the customer and the migration partner. SAP Migration Service will check this plan to ensure that your migration is successful. Sample project plans can be found at SAPNET (*http://sapnet.sap.com/osdbmigration*).

Changing the SAP R/3 release

In order to perform a migration, the source and target systems have to run on the same version of SAP R/3 and operating system release. Thus, you should upgrade your SAP R/3 release using a separate upgrade procedure before or after the database migration.

The migration tools

Migration tools are available from SAP on CD-ROM and come with documentation and installation manuals. The CDs are part of SAP's fee-based Migration Service.

The SAP R/3 software for your new IBM DB2 system will be delivered by SAP after the necessary contractual/licensing changes are made.

Migrating an SAP R/3 system to a different operating system or database needs to be planned and approved by SAP, therefore SAP requires that you use its migration tools.

The migration key

To perform a migration you will need a migration key. This key will be provided to you by SAP. The key is mandatory for the data export step using SAP's tools in SAP R/3 Release 4.x and for data import in SAP R/3 Release 3.x.

Migration test run

Before the final migration, SAP also requires at least one migration test run to ensure that all of your SAP R/3 data and functionality is moved correctly to the target system.

The following steps are needed to perform the test run:

- Export data from the SAP R/3 source system.
- Install DB2 Universal Database on the target system. This is the same as a standard IBM DB2 installation.
- Install SAP R/3 on the target system. This installation is similar to a standard one.
- Transport the migration data from source to target system.
- Export the data into the target database. This is similar to a standard SAP R/3 load. Do not use SAP's export CDs; use your own data created from the source system.
- Check all migration log files for errors.
- Perform follow-up tasks. These tasks are the same as those you would follow in a standard installation.
- Configure the test environment, i.e. printers, transport system, jobs, etc.

Testing the migrated system

After the first functional test of the migrated system is completed, end users should be involved in the test process to ensure that the target system is tested thoroughly.

- Run reports so that the results can be compared to those on the source system
- Do a live run test of critical reports
- Test typical transactions, with end-users running day-to-day business operations
- Test connections to external systems and make sure interfaces are still running
- Test the archiving system
- Implement a backup strategy
- Analyze the database structure, i.e. tablespace layout, tables and indices
- Record all test activities.

Going live migration check

This step is a part of the migration services offered by SAP. It should be scheduled after the test migration and three to four weeks before the final migration.

Final migration

This step is performed after the target system has been tested and after SAP's "going live migration check" has been successfully completed.

The final migration is usually scheduled for a weekend since downtime is required when the switch to the new platform occurs. The steps are the same as with the test run, but, in addition, you should do a full backup afterwards.

Going live migration verification

This step is a part of the migration services offered by SAP. The migration verification step is done twice. The first time it is done, it should be scheduled one to two weeks after the final migration; the second time it should be scheduled six to eight weeks after the final migration. This should ensure that all daily, monthly and other reports and functions are operating correctly.

Support from IBM

IBM has a migration center with experienced and certified experts in migration and DB2. They can assist you throughout the migration process. Contact your IBM representative before planning a migration to discuss your consulting requirements.

Migration timetable

This timetable has been adapted from that of an actual migration project.

- Day 1: Contact IBM, contact the SAP Migration Service
- Day 5: Prepare project plan, contract with the SAP Migration Service
- Day 6: Analyze source system, define target system
- Day 15: Migration test run, going live migration check, test target system
- Day 29: Final migration
- Day 44: SAP R/3 on DB2 in production
- Day 60: Going live migration verification I
- Day 90: Going live migration verification II

When you plan your migration, the SAP Migration Service will provide you a more detailed project plan.

Related material

SAP AG provides the following material on SAPNET *(http://sapnet.sap.com/osdbmigration):*

SAP OS/DB Migration Service
mat. no. 50019526 english
50018645 german

SAP OS/DB Migration Service Planning Guide
mat. no. 51002186 english
51002185 german

Summary

- Operating system and database migrations have been identified as processes that customers will require over the life of a SAP R/3 system. These processes have been well defined by SAP AG.
- IBM services can assist you with the tasks necessary to complete a successful migration.
- Test migrations ensure that the switch to the new system will happen seamlessly.
- SAP provides all the tools and documentation necessary for an SAP R/3 migration.

For more information on IBM DB2

Contact your IBM representative or IBM authorized software reseller, or visit our Web site at *http://www.software.ibm.com/db2sap*.

You can also receive information by contacting the SAP hotline for DB2 at *www.sap.com/db2/hotline.*

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