

EMC DELIVERS STANDARDIZED SOLUTIONS FOR ACCELERATED SAP UPGRADE, MIGRATION, AND REPLATFORMING

Applied Technology

EMC SOLUTIONS GROUP

Abstract

This white paper describes various challenges posed by upgrade, migration, and replatforming activities in the journey to the SAP cloud. The paper also explains how EMC® uses SNP AG Transformation Backbone (T-Bone) software to reduce risk and shrink the downtime window.

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Executive summary

Business challenge

SAP upgrade, migration, and replatforming are playing an increasingly critical role in the strategic activities of many organizations in pursuit of optimized business processes while reducing capital and operational costs.

IT managers now must focus on new techniques to prosper in an economy that is marked by constant change, including:

- The need to virtualize SAP environments or implement cloud computing, which will require the replatforming of the SAP environment
- Technology progress, which results in regular release updates
- Data and system consolidations to ensure transparency and all-encompassing reporting
- Corporate restructurings, mergers, splits, and carve outs

Due to constant changes, IT managers must be flexible and transform their software, including their SAP systems, frequently. This process is essential, highly complex, and sensitive as well.

As manual processes that require highly qualified and experienced technical specialists to operate and control software tools, upgrade, migration, and replatforming have historically been expensive, time-consuming, and error-prone.

If extended downtime is not a concern, then traditional methods probably work for you. However, if you are facing constant changes and narrow downtime windows, you can no longer afford to use the traditional approaches.

Business solution

Software-based approach

EMC believes that to quickly, painlessly, securely, and cost-effectively accomplish upgrade, migration, and replatforming, companies need a standardized, accelerated, and nearly risk-free approach. SNP AG Transaction Backbone software and its service offerings can meet the requirement. You can see the significant benefits of using SNP AG T-Bone process compared to the one that uses traditional approach in Table 1.

Table 1. Traditional vs. T-Bone

Factor	Traditional	With SNP AG T-Bone
Outage windows	Multiple	One
Production downtime	Days	Hours
Failback	Tape based, difficult	Protected, online, instantaneous
OS migration and Unicode upgrade user testing	Separately, multistep	Single step in a parallelized manner
Auditing	Logging	Complete audit trail

An EMC customer recently learned how significant those benefits were when it carried out a multi-system upgrade, migration, and replatforming in parallel using SNP AG T-Bone. The project was executed within extremely narrow downtime windows and at a lower cost than the traditional approach.

Audience

This white paper is intended for EMC customers and members of the Professional Services community. The paper presents the technical and business benefits of using a standardized software-based approach such as SNP AG Transformation Backbone for SAP to accelerate upgrade, migration, and replatforming activities.

EMC Consulting

Introduction

SAP and EMC have partnered successfully since 1997, engaging in several joint technology and marketing initiatives. The two companies have formal maintenance and technical support agreements to provide mutual customers with the highest level of service and support.

The SAP Practice within EMC Consulting helps enable efficient IT operations, accelerate upgrades, migrations, and replatforming, and reduce the risk and cost within the SAP application environment. With deep expertise in SAP infrastructure technology, the SAP Practice helps clients meet service-level agreement requirements for performance, scalability, and availability. These qualities are important when it comes to the challenges of upgrade, migration, and replatforming.

Upgrade

Upgrading from earlier to current versions of SAP system landscapes requires comprehensive planning to meet time and budget constraints. Technical challenges must also be addressed. The feasibility of developments, both in-house and from other companies, and, also interfaces for adaptation to Unicode and the new release must be analyzed.

Migration

Migration potentially involves every IT hardware and software asset across servers, storage, data, applications, and networks that support them. A migration might also entail data center consolidation or relocation.

Replatforming

Replatforming involves moving from one platform to another, often from one vendor to another, as part of a migration. Upgrades are companion events that can be done in conjunction with the replatforming.

Replatforming an SAP landscape is a complex operation that involves multiple dependencies. An example of replatforming can be moving SAP instances from a physical HP-UX and Oracle environment to a virtualized Linux and DB2 environment under VMware, or to a virtualized Windows and SQL Server environment under Hyper-V.

Because SAP is a mission-critical application, most organizations cannot afford a long downtime window. In addition, companies need a guaranteed failback option to restart an existing production system with minimal effort. The organization probably has to contend with an internal audit on business processes for compliance reporting as well.

Parallel Execution of Multiple Processes

Overview

EMC Consulting recently completed a client engagement, which involved the parallel execution of multiple processes for SAP. This five-TB upgrade, migration, and replatforming project outlined in Table 2 involved a number of SAP modules including Sales and Distribution (SD), Materials Management (MM), and Finance and Control (FI/CO). The client could not afford to do one process at a time in a serial fashion. It had to do everything at once within downtime windows measured in hours instead of days or weeks.

Table 2. Strategic Activities

Activity	From	To
Application upgrade	SAP ERP ECC 5.0	SAP ERP ECC 6.0
Transformation format upgrade	Non-Unicode	Unicode
Five-TB database migration	Informix v9.4	Oracle v10.2.4
Operating system migration	HP-UX v11.11	AIX v6.1
Storage infrastructure migration	EMC CLARiiON	EMC Symmetrix DMX-4
Note Parallel transformations cut the outage window from originally planned three days to eight hours.		

Partnering with the customer, EMC Consulting used SNP T-Bone software to provide minimal downtime and protected failback for the application, Unicode upgrade, operating system, database migration, and replatforming. SNP T-Bone reduced user-testing time by combining the operating system and database migration, and the SAP and Unicode upgrade into a single step, shortening the overall upgrade time to eight hours.

Minimal Downtime: How is it done?

The migration of the SAP data from the source system to the target system can take weeks or longer, depending on how large the database is. Yet, the SAP production system must continue to run in order to support the client businesses.

Figure 1 presents an architectural overview of the SNP AG T-Bone solution. It illustrates the ingenious manner in which the T-Bone architecture balances the needs of the migration and the production system to shrink downtime windows.

Figure 1.

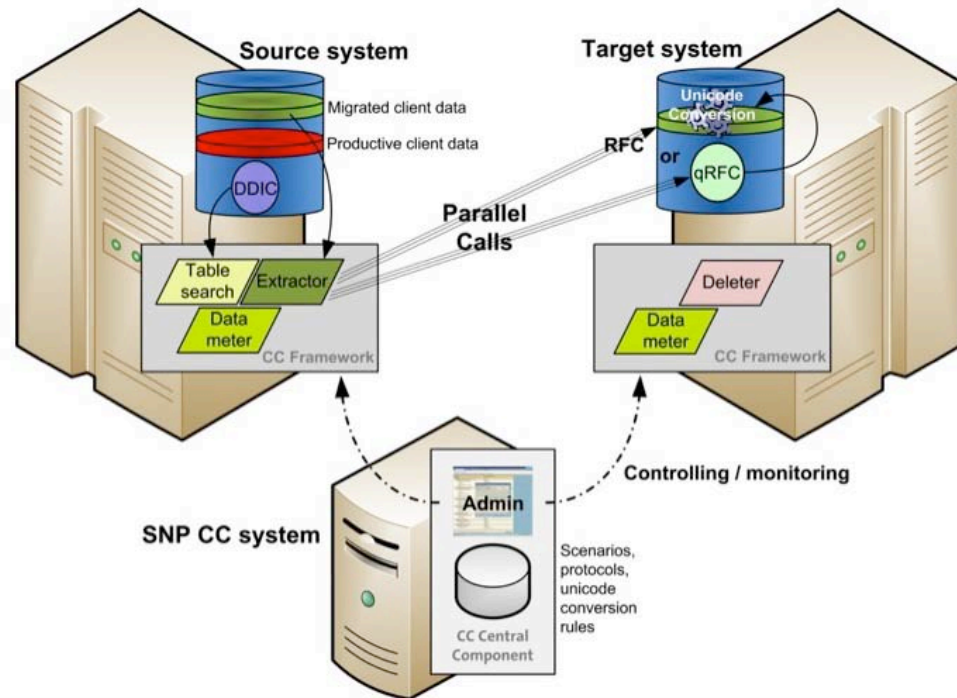


Figure 1. Architectural overview

The target system is set up with the correct version of the operating system, database, and SAP version, but devoid of any production data. In essence, it is an empty vessel waiting to receive the data to be migrated over from the source system.

The T-Bone software installed in the source system analyzes the database while applying all the migration rules defined during the analysis stage. Data is then migrated using Remote Function Calls (RFCs) running in parallel. The rate of migration depends on how much CPU headroom the source system can give to T-Bone while still running the production system.

During the data migration process, which can last weeks, all changes to the production database on the source system are recorded in the SNP T-Bone CC System.

Once the data migration is complete, the project team chooses a cutover date to the target system. On that date, Production is stopped on the source system and the entire delta held in the SNP CC System is migrated to the target system. The time needed to accomplish this task represents the production downtime.

**Protected Failback:
how is it done?**

Once the production system is stopped on the source system on the appointed day, everything on that system remains **untouched**. If a problem occurs on the target system that prevents the project team from starting Production there, the source system can be restarted.

Decouple the upgrade, replatform, conversion process from the data transfer

SNP T-Bone software organizes and supports the different steps of the change process: repository analysis, migration of client data, and Unicode conversion. To avoid conflicts during the repository analysis, SNP T-Bone provides fully-automated tools for conflict analysis and resolution.

Internal and external developments were reviewed for Unicode and release compatibility. SNP T-Bone also conducted a usage analysis for these developments. The SAP Unicode Dictionary is used for the Unicode conversion but customers can, with the help of SNP T-Bone, also define their own conversion rules. The processes were monitored from the central Cockpit. SNP T-Bone also makes semi-automated code adjustments.

Four-Phase Software-Driven Project

Overview

EMC Consulting used various software tools of SNP T-Bone to support the four phases of the client project from planning to implementation. Figure 2 depicts the project phases driven by the SNP T-Bone Client Migration Engine.

Figure 2.

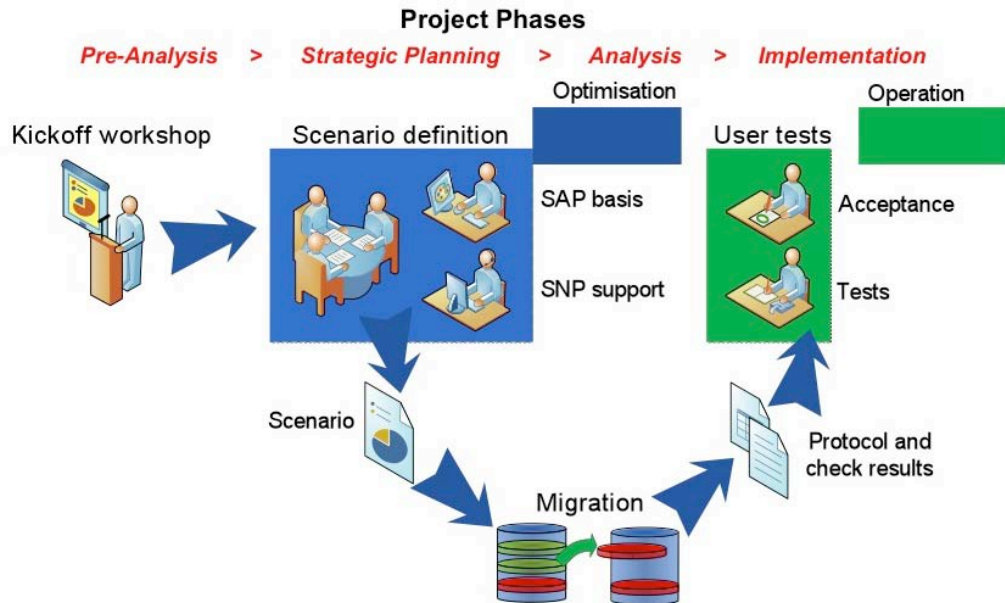


Figure 2. Project phases

Phase 1: Pre-Analysis

As the first step in the process, EMC Consulting analyzed the SAP system landscape with SNP T-Bone System Scan. This step automatically performed a detailed analysis of the SAP-support business requirements, and ensured the capture of all relevant information about the intended transformation.

Phase 2: Strategic Planning

EMC Consulting used SNP T-Bone Wizard to support the strategic-planning project phase by guiding the customer through a simple questionnaire produced using the results of the SNP T-Bone System Scan. This questionnaire helped define and organize the project plan. The Wizard clarified the necessary technical frameworks by determining how the company planned to use the new system landscape. An additional feature of the Wizard is its ability to graphically display a representation of the existing system landscape. Using drag-and-drop features, different transformation scenarios can be simulated, providing information on feasibility and expected costs.

Phase 3: Analysis

After the strategic planning phase, EMC Consulting used SNP T-Bone to run further, more in-depth analysis, during which the software automatically generated task lists and transformation rules. For example, to meet the requirements of the Unicode conversion the software analyzed all custom in-house developments and installed add-ons to check for Unicode compatibility. In that way, SNP T-Bone was able to measure the impact of the Unicode conversion.

Phase 4: Implementation

As shown in Figure 1 above, EMC Consulting used the SNP T-Bone Cockpit Console (CC) as the focal point for controlling the implementation. The Cockpit also supported standardized procedures for planning, organizing, managing, monitoring, and

documenting SAP transformations. It displayed all activities and documents, giving EMC and the customer a consolidated view of the complete transformation process. It also provided extensive testing, risk management, auditing, and compliance capabilities.

Conclusion

Summary

EMC Consulting used its expertise, EMC tools, and integrated SNP methodologies to support the parallel execution of multiple processes. This eliminated the need for multiple outage windows and minimized the production downtime. Combining the operating system/database migration and SAP ECC 6.0/Unicode upgrade into a single step also reduced the time spent in user testing.

With advanced, software-driven capabilities, EMC Consulting delivered this complex, physical-to-physical implementation with minimal downtime to the client. Those same capabilities can deliver physical-to-virtual replatforming and migration to the SAP Cloud with reduced risk and smaller downtime windows.

References

For further information, please visit EMC Solutions Group website at https://community.emc.com/community/connect/sap_eco?view=overview or contact EMC Consulting Mark Pfab at mark.pfab@emc.com.