



Migrating SAP® Solutions to Linux? Three Steps to Success

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Every day, SAP® solution administrators all over the world have an opportunity to make truly transformational decisions. One of those is whether to migrate SAP applications from proprietary RISC/UNIX platforms to Linux running on standards-based servers. Such a move has the potential to dramatically reduce the total cost of ownership (TCO) of your SAP infrastructure.

But how can you ensure that this very technical and potentially risky operation goes smoothly and successfully? read on for three simple steps to ensure success:

- 1. Understand your Linux options.**
- 2. Build a business case for migration.**
- 3. Select a certified SAP migration partner.**

1. Understand Your Linux Options

Three providers of Linux distributions are tested and certified for use in SAP environments: SUSE Linux Enterprise Server, Oracle Linux and Red Hat Enterprise Linux.¹ When evaluating these three options, look for the following:

SAP endorsement: Patches and fixes for an SAP primary software development reference platform have received the greatest level of scrutiny, which reduces the possibility of incompatibilities when patches are applied. SUSE Linux Enterprise is SAP's UNIX and Linux development platform. Also, look for SAP certification and a proven history of customer success.

Optimized for SAP solutions: Choose a distribution tuned specifically for performance and high-availability with SAP solutions.

For performance, your choice should support large workloads with features such as *page cache limit*, a parameter that allows SAP administrators to optimize the kernel's paging behavior.

For high availability, look for HA certification by SAP, which ensures smooth integration of the clustering software with the new SAP clustering interface. Additionally, your choice should offer the OS and clustering software together to ensure compatibility.

Simplicity: Your choice should provide installation wizards and be easy to manage.

When you understand your Linux options, you're in a strong position to take the next step.

2. Build a Business Case for Migration

For many organizations, the main motivation for migrating SAP solutions to Linux is cost reduction. Such a move can lower software license fees and hardware maintenance costs by up to 70%, according to some SAP solutions migration specialists.²

Standards-based servers integrate readily with your storage and networking infrastructure, which helps eliminate specialized siloes that require unique skills. The industry trend toward Linux is clear and can help you make the business case for migration. One SAP solutions migration consultant reported that UNIX was the source of 77% of its SAP migrations from 2008 to 2012.² Also, IDC reported that UNIX servers experienced a year-over-year revenue decline of 14.2% in the third quarter of 2012, while Linux hardware revenue increased 6.6% year over year in the same period. The research firm noted that Linux servers now represent 21.5% of all server revenue.³

Because the TCO of your SAP infrastructure can be dramatically less with Linux on x86 hardware, it's not difficult to strengthen the business case for migration. While every IT environment is unique and one approach to calculating TCO doesn't fit all scenarios, consider starting with a simple side-by-side comparison of hardware costs, vendor support costs and software licensing costs (both applications and OS). List the costs associated with your current infrastructure in one

¹ [Supported Platforms](#), SAP AG.

² "The Trend from Unix to Linux in SAP Data Centers: Large, Critical, Beyond Limits," REALTECH, October 2012.

³ "Worldwide Server Market Revenues Decline 4.0% in Third Quarter as Market Demand Remained Soft, According to IDC," IDC, Nov. 28, 2012.

column and see how they compare with the same costs on a Linux and x86 infrastructure in another column. Include the costs shown in Table 1 and any other costs that are applicable in your environment.

Table 1: Start your business case with a simple cost comparison.

Costs on RISC/UNIX Infrastructure		Costs on Linux and x86	
Hardware CAPEX	\$ _____	Hardware CAPEX	\$ _____
Hardware OPEX	\$ _____	Hardware OPEX	\$ _____
OS licenses	\$ _____	Linux subscriptions	\$ _____
OS maintenance/support	\$ _____	Linux support	\$ _____
DB licenses	\$ _____	DB licenses	\$ _____
Other licenses	\$ _____	Other licenses	\$ _____
System administrator	\$ _____	System administrator	\$ _____

This comparison could lead you to further insight. For example, many organizations that migrate find that they can achieve the results they need with fewer x86 servers running Linux than with their current RISC/UNIX infrastructures. This uncovers additional savings in energy costs and system administration.

The next step is to estimate the cost of migrating the SAP landscape(s) from your current platform to Linux. Based on the criteria shown in Table 2, SAP migration partners such as REALTECH can give you a rough estimate of the migration costs.

Table 2: Estimation of migration costs based on the following criteria:

SAP Implementation Criteria	Examples
SAP products	BW, CRM, ERP, SCM
Product versions	4.7, 4.6c, 6.0
Application stacks	Java, ABAP, Dual
Number of system copies	Development, production, Q&A, staging
Database migration	Yes, no
Database type/version/size	Oracle / 11R2 / 2TB, DB2 / 9.7 / 500GB
Code page transfer	Yes, no
High-availability requirements	None, Active/Passive, Active/Active
Max downtime during migration	24h, 36h, 48h
Modifications/DB tables, scripts	None, 1-100, 101-250, more than 1,000 (estimate)
Printer landscape	Standard, std.+ delivery notes, barcode, proprietary
Interface	None, SAP only, SAP and OS interface
Source operating system	z/OS, AIX, HP-UX, Solaris, Windows Server, Red Hat
Source hardware vendor/platform	IBM System z, Sun Sparc, HP Itanium, Dell x86_64
Target operating system	SUSE Linux Enterprise Server
Target hardware vendor/platform	IBM System z, HP x86_64, Cisco UCS

>> Characteristics of Successful Migrations

- **Early planning for budget and selection of an SAP-certified migration partner.**
- **Pre-migration stress testing of target platforms to validate hardware and OS performance capabilities.**
- **Thorough post-migration testing and tuning.**
- **Pre- and post-migration training for IT staff on the new environment.**

Your business case should include examples of organizations that have successfully made the migration. One large international manufacturing company, for instance, went from 10 servers in its RISC/UNIX SAP infrastructure to eight x86 servers running SUSE Linux Enterprise Server. The move saved more than \$3.5 million during three years, with a TCO reduction of 63%.⁴

You should also consider the less visible costs associated with your SAP infrastructure, such as those related to auditing, training and risk mitigation. Because Linux running on x86 is a standards-based infrastructure, it requires fewer specialized skills to administer, which helps reduce TCO.

3. Select a Certified SAP Solutions Migration Partner

When you have decided to go ahead with your migration, the SAP OS/DB Migration Check optimally prepares you for a successful migration and supports smooth, continued operations on the new platform.⁵ The OS/DB Migration Check is mandatory if you are going to migrate a production system. The service delivery then includes all the systems in that system landscape. If you want full support for the migration, be it a production system or not, then you must secure the services of a technical consultant with a special certification for OS/DB migration.

When selecting a partner, look for one that is not only SAP certified, but that also has substantial experience with migrating to Linux. Your partner of choice should also give you complete visibility into the migration process through a comprehensive roadmap that describes potential pitfalls and how the team will address them. It should also define:

- Which steps will occur.
- How long the migration will take.
- When critical changes will take place.
- When production system outages will occur and how long they should last.
- How the technicians will minimize downtime and risk during the migration.

Migrate With Confidence

When you are ready to transform your SAP environment and dramatically reduce associated costs, you can move forward confidently knowing that Linux and today's x86 servers are more than up to the task. Many companies are already running SAP workloads on Linux, with the majority of those using SUSE Linux Enterprise Server. A mature, rock-solid operating system and an experienced partner can make your migration to Linux a smooth one and lay the foundation for outstanding, cost-effective performance for your SAP environment.

⁴ "Migrating to SUSE® Linux Enterprise Server from Novell® for SAP on IBM eX5 Enterprise Systems: Lowering Total Cost of Ownership," Alinean, April 2011.

⁵ [SAP OS/DB Migration Check](#)