UNIX to Linux Migration in Three Stages

Deliver high availability and reduced costs for your business-critical applications by migrating services from UNIX to Linux.
A Three-Stage Approach for Migrating from UNIX to SUSE® Enterprise Linux

Today’s enterprises are leveraging mobile, social and big data applications to grow their business and gain a competitive advantage.

Your business lines make important operational decisions based on information from these emerging applications and traditional mission-critical workloads like enterprise resource planning (ERP). It is essential for you, as their IT provider, to ensure that you deliver these services cost-effectively and that the supporting systems are available when your organization needs them.

SUSE delivers industry-standard Linux solutions that give your IT organization the flexibility to consolidate on the best server platforms for your workloads. These solutions deliver the reliability, scalability, availability and security you need for the mission-critical databases and SAP applications often deployed on UNIX servers. In this paper, we recommend a three-step approach for organizations considering migrating applications from UNIX to Linux.

Organize Your Migration in Stages
IT organizations migrate legacy UNIX systems onto a common server platform as a way to reduce software licenses, space, energy and system management costs. Whether you’re simply coming to the end of your servers’ lifecycle or are standardizing on open source applications for cloud deployment, consider this three-stage approach to migrating your workloads from UNIX to Linux.

Stage 1: Develop a Migration Plan
Before diving into moving workloads, it’s important to have a complete picture of what is technically possible, whether the costs are justified, how your hardware choices affect those costs, and if your IT staff is ready.

Stage 2: Assess the Workload
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After having a migration plan, it’s important to assess the workloads that need to be migrated. This will help you understand the current state of your UNIX systems and identify the workloads that can be migrated to Linux.

Stage 3: Migrate Workloads
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With a plan in place and workloads identified, the next step is to begin the migration process. This involves testing the workloads on SUSE Linux to ensure compatibility and performance.

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VERIFY THAT YOU CAN MIGRATE ALL YOUR SOFTWARE
When moving applications to Linux, first look beyond the applications to verify that you can migrate the complete software stack to Linux. SUSE Linux Enterprise Server supports hundreds of hardware systems and devices and comes with drivers for many of them included. Visit drivers.suse.com for a list of drivers that ship with SUSE Linux Enterprise Server and www.suse.com/yessearch to see if SUSE supports your hardware. Be sure that there is Linux support for the applications you use for server and storage systems management, especially if you have service-level agreements with the lines of business. Also, consider that the middleware used to support databases, web environments and other application support functions must also be available on Linux. SUSE supports a broad set of systems management tools and middleware. You can search to find yours by visiting: www.suse.com/susePSC/home

UNDERSTAND THE FULL SCOPE AND COSTS OF PORTING APPLICATIONS
The next step in the planning phase is to ensure you understand the scope and costs of porting your applications from UNIX to Linux. Many business applications like enterprise resource planning (ERP), supply chain management (SCM) and customer relationship management (CRM) already run on Linux platforms, so no porting is required. In fact, SUSE maintains strong partnerships with companies like SAP to deliver optimized enterprise solutions for mission-critical workloads.

For applications that do require porting from UNIX to Linux, you want to work with a partner who has proven success with application migrations. Server vendors like HP and IBM provide fee-based application migration services for their server platforms.

CHOOSE YOUR HARDWARE PLATFORM
Consider your requirements for workload availability and total cost of ownership (TCO) before migrating to a different server platform. Industry standard x86 servers typically have a low total cost of acquisition, and in most cases can meet your requirements for mission-critical applications. If you want the higher reliability and performance of UNIX-based RISC servers so that you can consolidate more workloads, you may want to look at options like IBM Power Systems or IBM zSystems. If your UNIX workloads are already running on IBM Power, you may be able to migrate to Linux without switching server platforms.

You want to ensure that the administrative and maintenance costs of replacing failed servers are not greater than the acquisition savings of the server platforms. The good news is that SUSE uses the same code base for x86_64, IBM Power Systems and IBM z Systems. With SUSE Linux Enterprise Server, you can get the benefits of open source software on the right platform for the workload.

BE SURE THAT YOUR IT STAFF IS READY FOR LINUX
An important third step in the planning phase is to be sure that you have the buy-in and training for your IT staff. As the UNIX market declines, your systems administrators can develop Linux skills that increase their ability to remain current with the newest technologies and innovative solutions. UNIX staff can easily apply their existing knowledge as they transition to working with Linux environments. You can get information on Linux training and certifications by visiting: training.suse.com

Stage 2: Migrate Your Selected Applications
When your planning is complete, you’re ready to start executing the migration. Here you want to carefully prioritize the applications to be migrated, standardize your software builds and deploy them in a test environment.
SELECT THE APPLICATIONS TO MIGRATE
Begin by prioritizing the applications you want to migrate, and set up a test environment for those applications. For the first few migrations, you want to balance meeting business requirements for reducing costs with getting early success with a simple application. It’s wise to start with an application that already runs on Linux while your staff ramps up their skills. In some cases, the choice of where to start may be driven by expiring hardware leases or software maintenance renewals.

CREATE STANDARD BUILDS FOR THE SOFTWARE STACK
Take the time to create standard builds that will provide a consistent approach to provisioning the same workloads in the future. We recommend using RPM to help simplify the set-up, implementation and maintenance of the software stack. A standard, documented process for installation, upgrading, configuring and removing each software package can help reduce set-up and maintenance time. For SAP applications, SUSE Linux Enterprise Server for SAP Applications delivers an installation wizard with automation features that can reduce deployment times from days to hours.

For mission-critical application migrations, it’s important that these builds include high-availability capabilities for both planned and unplanned downtime. SUSE Linux Enterprise High Availability Extension, added to SUSE Linux Enterprise Server, provides an easy-to-use interface so your IT staff can flexibly set up clusters with physical and virtual server systems. It works in conjunction with server platform high-availability solutions to leverage platform-specific features and capabilities. When the OS, clustering software and hardware capabilities are fully compatible, your IT staff spend less time troubleshooting high-availability issues.

DEPLOY THE PILOT PROGRAM
Using the RPM packages, develop repeatable installation processes for the software stack. Be sure to include any recent updates or patches as part of the process. You should carefully document any provisioning process and correct it with anything learned during the initial set-up. SUSE Studio™ helps your IT staff use RPM packages to quickly build, configure and deploy workloads on a wide range of server environments including x86, IBM Power Systems and System z. Whether your workloads are physical or virtual, you can easily deploy them to the cloud now or in the future with very few, if any, configuration changes.

Stage 3: Validate Your Results
Now more than ever it’s important to demonstrate the value of IT projects to the business. This is especially true with migration projects where there could be a significant initial investment in time and resources. To effectively validate that you are getting the desired improvements in capital expenditures, operational costs and reduced downtime, you need to start with a baseline for your current operations.

GET A BASELINE FOR YOUR CURRENT COSTS
To demonstrate savings over your previous UNIX system, you’ll first need to calculate what you spend on that solution. You will want to consider:

- Your average yearly capital expenditure for new servers
- The cost of running and maintaining those servers (for example, electrical power and cooling)
- License fees for the operating system software and the applications themselves
- Your maintenance or support contracts for your softwares

Before moving workloads, it’s important to have a complete picture of what is technically possible, whether the costs are justified and if your IT staff is ready.
You should also measure costs related to your IT staff. These include both the amount each staff member costs and how much of that staff member’s time, on average, is spent maintaining or working on the system.

**GET A BASELINE FOR YOUR SERVICE AVAILABILITY AND DOWNTIME**

Downtime is expensive. You probably already have a good idea of what level of service you provide your organization. If not, collecting this historical data for a short time before starting your migration can pay off in your ability to prove the value of your new investments.

When establishing a baseline, make sure this number includes the amount of time important services are available. Services consultants and market analysts can often provide guidance on typical costs of downtime that you can use as a starting point and adjust to fit your organization.

**CALCULATE THE COST OF YOUR SUSE LINUX ENTERPRISE SERVER PLATFORM**

Once you have a baseline for your previous system, calculating the same costs for your Linux system is relatively straightforward. As with calculating your baseline, you want to consider your estimated capital expenditure for servers and the cost of maintaining those servers. If you’re purchasing new hardware, your hardware vendor can help you understand these potential costs.

Because SUSE Linux Enterprise Server is open source, your software expenses will follow a slightly different model, with a SUSE Linux Enterprise Server subscription rather than a UNIX software license. For your new solution, as with the previous one, you will need to calculate the costs of application licenses, your software maintenance and support and the staff time spent maintaining the solution.

**ADD IN CONSULTANT AND TRAINING COSTS**

Depending on the skills available to your organization, you may need outside consultants to help architect your solution or aid in performing the migration. These can be significant costs, but, once annualized over the course of three years or another reasonable term, are often offset by other savings. Factor in the costs to retrain your IT staff on your new Linux system as well. Because UNIX and Linux are similar, training expenses for a UNIX staff will likely be less than for a staff without any UNIX or Linux experience.

**MAKE THE COMPARISON**

Now that you have both a baseline and numbers pertaining to your new system, you can compare them to provide a measure of the new system’s success. These numbers can help you validate your organization’s investment and illustrate the value of IT to the business. They can also help guide you in planning for future migrations or expansions in your data center.

**Use Cases**

To see how other organizations accomplished a move from UNIX to Linux and how such a move could help you, consider two examples: a basic use case for those with IBM Power, and a specific SUSE customer who saved over US$700,000 by choosing Linux over UNIX.

**SWITCHING OS WITHOUT SWITCHING SERVERS**

IBM Power servers can run both UNIX and Linux operating systems, which means organizations may be able to easily test out Linux and perform migrations for some workloads using the servers they already have. They can also leverage their current IBM vendor relationship and their staff experience with IBM Power and add Power servers running Linux while limiting the need for additional training or a lengthy hardware procurement contract process.

**SAP ON LINUX INSTEAD OF UNIX**

Peerless Clothing, Inc., produces men’s tailored clothing for designer labels and supplies clothing to almost every major department and specialty store retailer in the United States.

Peerless had been growing rapidly and was finding its UNIX platform inflexible. The company wanted to introduce new SAP applications, such as NetWeaver, SAP Business Warehouse applications, SAP Enterprise Portal and SAP Knowledge Management.

“Moving our UNIX environment to Linux made a lot of sense because our staff didn’t require a lot of retraining,” said Joffrey Bienvenue, IS infrastructure and operations manager at Peerless Clothing. “We looked at Red Hat Enterprise Linux, but found that SUSE Linux Enterprise Server offers better support for open standards.”
Staff training costs weren’t the only expenses that Peerless avoided by choosing SUSE. “SAP systems require a lot of memory, so had we gone with a UNIX-based platform, we would have been forced to make a significant investment in new hardware,” said Bienvenue. “SUSE Linux Enterprise Server allows us to leverage inexpensive midrange commodity hardware, and by using VMware to virtualize our Linux servers, we can quickly respond to the needs of the business by adding new servers in no time.”

Peerless Clothing’s decision has paid off by saving it at least US$700,000 compared to the cost of a UNIX solution. By virtualizing its servers, the company has also reduced its hardware by 90 percent and can deploy new servers in a matter of hours.

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