



MIGRATE FROM UNIX TO LINUX IN SIX STEPS

INTRODUCTION

CIOs are increasingly aware that the Linux® platform offers a low-risk, robust, and value-for-money alternative to traditional UNIX® platforms. Technology professionals agree that Linux has developed into a mature platform that handles many of the world's most demanding workloads, and at a much lower cost than proprietary UNIX offerings. At the same time, Linux leverages the open source development model, which guarantees a constant stream of technology innovation fueled by a healthy multidimensional community of users and developers.

Today, Red Hat® Enterprise Linux is providing a foundation for key business applications in some of the world's most respected organizations—from the majority of financial institutions on Wall Street to an increasing number of government agencies, and all with a high degree of customer satisfaction. In fact, CIOs have ranked Red Hat as one of the top vendors delivering value in Enterprise Software for five consecutive years in the CIO Insight Magazine Vendor Value survey. An unprecedented 97 percent of customers surveyed in the 2007 report would choose to continue to do business with Red Hat¹.

Many organizations benefit from using outside consultants to guide their migration, implementing best practices and providing expert knowledge transfer. Hardware vendors want customers to run Linux on their platforms and thus many provide collateral such as whitepapers, tools, and checklists for no cost to assist in a self service transition. Plus, Red Hat Consulting provides these services with a hardware-agnostic perspective, ensuring the deployment of an ideal infrastructure by experts with proven methodology.

This paper provides an overview of a simple, six-step process for migrating from UNIX to Linux.

1. DEPLOY A TEST LAB OR PILOT PROJECT.

Organizations typically take one of two approaches to an initial Linux adoption. Some choose a test lab approach, where a small number of application environments are demonstrated and evaluated on Linux, independent of the running production systems. More often, organizations initially choose a single lower-risk production environment to re-host as a pilot. The choice between these approaches will be very organization-specific. Given the broad industry support, many will find that the risk of bypassing the test lab is worth the savings.

2. QUALIFY THE STACK.

Organizations first need to qualify their software stack for Linux. IT has typically accumulated a broad range of third-party software components for hardware enablement (such as drivers for failover SAN connectivity), storage enablement (such as volume managers), middleware, monitoring, utilities, databases, and more. Only once all the software components are qualified on Linux can the migration proceed.

Compatible Software

First, determine whether the relevant ISVs support Red Hat Enterprise Linux. A good aid is Red Hat's software catalog². You'll want to find Linux versions of your software as early in the process as possible and conduct your own qualification tests rather than simply relying on some vendor's compatibility matrix.

RPMs

Wherever possible, organizations should seek to have the components of their software stack provided in RPM form. Doing so will ease significantly the provisioning, integration, and life-cycle management.

¹ 2003 - 2008 CIO Insight Magazine Vendor Value surveys
www.redhat.com/promo/vendor/

² Red Hat Software Catalog
www.redhat.com/apps/isv_catalog/

Reducing Total Cost of Ownership (TCO)

Much of the latent UNIX system platform cost and management overhead arises from the licensing cost and integration difficulties associated with multiple third-party components in standard environments. Frequently, the move to Red Hat Enterprise Linux offers the opportunity to simplify the stack and thus save licensing and management costs.

One good example is the widely used EMC® PowerPath® drivers; in Red Hat Enterprise Linux, multi-path Fiber Channel connectivity is now fully supported as a native capability through the Linux Device Mapper facility. Another good example is volume management. Increasingly, Red Hat customers find that Red Hat Enterprise Linux's native LVM and clustering is able to meet needs previously met by expensive add-ons such as Veritas® Storage Foundation.

Driver Considerations

Many organizations use device drivers from third parties. Usually these drivers come in binary form. Such drivers may increase the integration and management burden compared to native drivers. Also, depending on their origin, there can be support implications from using third-party binary-only drivers. Generally, best practice is to use native drivers (the ones that ship standard with Red Hat Enterprise Linux) if available, and failing that, use drivers from vendors with whom Red Hat has a support relationship. From a support perspective, binary-only drivers are a black box that Red Hat has no control or visibility into. But, it is quite normal and expected that Red Hat Enterprise Linux will be deployed with some proprietary drivers from certified and supported vendors.

Java

Enterprise deployments frequently require a supported Java Virtual Machine (JVMTM). Red Hat Enterprise Linux cannot ship any of the popular Java implementations in its core release because (at the time of writing) none are open source. However, Red Hat does ship JVMs from Sun, IBM, and BEA in the supplementary CD accompanying Red Hat Enterprise Linux 5. Updates to these JVMs are available through the usual Red Hat update channels.

3. PORT YOUR IN-HOUSE APPLICATIONS.

Some organizations will have in-house developed software in their stack. Assuming good availability of source code, the porting of code from UNIX to Linux is typically straightforward. Red Hat Enterprise Linux ships with a broad range of developer tools and compilers. Unless the in-house code is written in a lesser-known language, or uses an unusual proprietary library, it is likely that the porting will be reasonably simple.

Alternatives to Porting

One alternative to traditional source code recompilation is to re-host UNIX software using a tool like QuickTransit® from Transitive³. This approach uses unmodified UNIX executables and runs them directly on Linux. This works even though the target machine architecture of the UNIX executables is different from the executing platform. Such an approach could accelerate the migration process in particular for custom in-house developed applications.

3 www.transitive.com



4. TRAIN YOUR IT STAFF.

For organizations considering adopting Red Hat Enterprise Linux, key staff should be trained as early in the process as possible. Although UNIX skills apply well to Linux, there is much to know that is specific to Red Hat Enterprise Linux. It is all too easy for UNIX architects and administrators initially to view Linux through the prism of their preferred UNIX flavor. With Red Hat Training courses, it becomes much easier for them to appreciate why Linux does things a certain way. Learn more about Red Hat Training and Certification, including the popular Red Hat Certified Engineer program (RHCE) at www.redhat.com/training.

Red Hat Certified Engineer

Red Hat delivers a comprehensive training curriculum, the centerpiece of which is the Red Hat Certified Engineer qualification, which has been available since 1999 and has become the de facto Linux certification around the world. UNIX-skilled staff might consider the five-day Red Hat Rapid Track course and exam. For more information see www.redhat.com/training.

5. PREPARE A LINUX STANDARD BUILD.

All organizations have their own particular requirements and standards for system installation and configuration. A key part of adopting Red Hat Enterprise Linux is preparing a suitable build that embodies these organizational standards. Current provisioning methods, typically using Kickstart, are able to codify organizational build requirements in a flexible and repeatable manner. Red Hat Consulting has considerable experience in preparing Standard Operating Environment builds for Red Hat customers. Learn more at www.redhat.com/consulting/.

6. DEPLOY A PILOT.

It's difficult to be prescriptive about the timing and planning of a pilot deployment because of variations between sites; no two pilot deployments will be the same. However, following are some general guidelines for getting maximum benefit from a pilot project.

Closed-loop is Better Than Open-loop

An open-loop approach would involve an unrepeatable sequence of steps starting with base install, then a separate install of each of the other components. A good pilot project would install the target systems using a repeatable provisioning (closed-loop) approach that codifies the steps for each component and is then followed by a re-installation. The benefit of this approach is that it captures the learning at every step to: give the greatest confidence that all the deployed systems are in a consistent state, be largely self-documenting and transparent, and give the greatest possible leverage to implementations that follow.

Updates

Aim to have the systems fully up-to-date at the time of commissioning. Once production change control applies, it will be much harder to justify the application of software updates. The best way to do this is to ensure that systems are registered with Red Hat Network.

Create RPM Packages

Sets of locally created files that need to be installed can be turned into RPM packages for the sake of repeatability and manageability. This applies not just to software, but also to things like documentation, fonts, images, icons, and scripts. Sometimes it might even be appropriate to encapsulate a third party's software as an RPM for the sake of modular deployment and ease future upgrading efforts.



CONCLUSION

Linux has come of age and is being deployed broadly with great success. Migrating environments from UNIX to Red Hat Enterprise Linux can be achieved with minimal risk on a wide range of hardware, thanks to our broad IHV and ISV support. Organizations adopting Red Hat Enterprise Linux benefit from the unique features of the open source development model, including a lower total cost of ownership (TCO). And migration need not be a complicated endeavor; with a proven methodology and the guidance of experienced Red Hat consultants, IT organizations can enjoy a smooth transition from implementation to support.

LEARN MORE ABOUT RED HAT CONSULTING

www.redhat.com/consulting

EUROPE, MIDDLE EAST AND AFRICA

00800 7334 2835
www.europe.redhat.com
europe@redhat.com

Turkey: 00800 448 820 640
Israel: 1809 449 548
UAE: 80004449549

ASIA PACIFIC

+65 6490 4200
www.apac.redhat.com
apac@redhat.com

ASEAN: 800 448 1430
Australia and New Zealand: 1800 733 428
Greater China: 800 810 2100
India: +91 22 3987 8888
Japan: 0120 266 086
Korea: 080 708 0880

NORTH AMERICA

1-888-REDHAT1
www.redhat.com

LATIN AMERICA

+54 11 4341 6200
www.latam.redhat.com
info-latam@redhat.com