FIVE THINGS TO CONSIDER BEFORE MIGRATING FROM UNIX TO LINUX

INTRODUCTION

Red Hat® Enterprise Linux® offers a low-risk, robust, and high-value alternative to traditional UNIX® deployments. 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 alternatives. At the same time, Linux benefits from the open source development model, which guarantees a constant stream of technology innovation fueled by a thriving community of users and developers.

According to IDC, "[Linux] early adoption patterns have given way to mainstream deployment."[1] Indeed, Red Hat Enterprise Linux has been successfully replacing traditional UNIX workloads in the data center, reducing operating costs, and offering hardware vendor neutrality and increased flexibility to organizations from Wall Street to the Fortune 500. Today, the New York Stock Exchange Euronext (NYSE Euronext) runs its entire trading operations on Red Hat Enterprise Linux and has replaced every popular flavor of UNIX to achieve the scalability and reliability it requires. McKesson, the largest healthcare company in the world, experienced total cost of ownership (TCO) savings of one million dollars after transitioning its clinical information systems from a mainframe environment to Red Hat Enterprise Linux.[2]

However, any change brings with it an element of risk, whether the change is an application upgrade, a UNIX upgrade, or a transition from enterprise UNIX to Linux. The key to a successful migration is in the planning. Accordingly, many enterprises find that using outside consulting services to assist in the migration is an investment that brings substantial returns. Red Hat Consulting brings vast experience and proven methodology to migration projects. Our consultants accelerate the migration process, enabling you to realize cost savings more quickly. And because Red Hat consultants are hardware-agnostic, you can be confident that your migration will include only best practices and the ideal infrastructure. With expert knowledge transfer, you will feel confident from the first day of deployment that you can use your new technology pervasively, while avoiding common mistakes.

This paper serves to explore five key considerations that every organization should make before migrating from UNIX to Linux.

1. DETERMINE THE BUSINESS OBJECTIVE.

Reasons for considering a migration from UNIX to Linux vary, but the recurring motivation among our customers is undeniably that of cost, whether it is driving cost reduction through consolidation of servers or applications or the use of virtualization and adaptive infrastructure technologies to increase average server utilization. In all cases, the most appropriate time to undertake a migration is when there is a valid business need to do so; a new line of business requiring incremental capacity or a new application, escalating hardware maintenance costs, escalating software license or support costs, a looming end of lease, or perhaps rapid business growth beyond the current IT capacity. Whatever the trigger, the diligent CIO will explore options beyond a same-for-same environment upgrade, weighing up current cost benefits but equally factoring in the future opportunities that each option affords.

With the fast pace of technology evolution and the increasing dependence of businesses on IT, the target environment should provide a solid foundation for today's requirements and a comfortable level of future proofing in anticipation of new requirements. The scope of the project may vary from the refresh of a single element (server, operating system, application) to an entire redesign of the architecture to make use of newer technologies as a foundation for innovation. Whatever that scope, the business objective should be clearly stated and agreed upon before the ever-increasing range of technical options are assessed.

1   The Role of Linux Servers and Commercial Workloads; IDC; April 2008.
    www.linuxfoundation.org/publications/IDC_Workloads.pdf

2   McKesson Provider Technologies.
    customers.press.redhat.com/?b=customers&s=mckesson

2. CONSIDER THE SCOPE AND AVAILABLE OPTIONS.

The end goal might be a combination of transitioning to Linux, adopting virtualization, upgrading to a later version of the current application, or introducing a new platform, but a conservative user will keep it simple and prioritize simultaneous proposed changes with the knowledge that reducing the level of complexity contains the level of risk. For example, after a corporate merger, the primary goal of a project might be to consolidate data centers and core business applications to provide for a single business view.

The project becomes increasingly more complex with the addition of secondary, longer-term goals to adopt virtualization and replace underlying hardware platforms in parallel.

The basic building basic blocks to be considered when scoping a UNIX-to-Linux migration remain the same regardless of the business goal behind the transition.

Any transition project should be scoped and planned to an accepted level of risk for the organization in question.

FROM UNIX-TO-LINUX MIGRATION – GREATER ARCHITECTURAL CONSIDERATIONS

ARCHITECTURAL LAYERS	CONSIDERATIONS
Hardware Platform	1. Retain existing server 2. Redeploy server 3. Same vendor, server upgrade 4. New vendor, new server
Operating System	Source: e.g. enterprise UNIX Destination: e.g. Red Hat Enterprise Linux
Applications	1. Retain existing application and version 2. Retain existing application, newer version 3. Replace with new commercial application 4. Replace with new open source application 5. Port of in-house application (if port required) Verify and plan for all applications
Data Storage	1. Retain existing solution(s) 2. New solutions(s) Consider the options for the transfer of application data (configuration, database, etc.). Will you use a plug-&-play solution or will database tools be required to export and import?
Management	Ensure new enviroment will plug into the existing management framework as expected.

3. DECIDE WHETHER TO KEEP THE MIGRATION IN-HOUSE OR OUTSOURCE THE TRANSITION.

Whether your preference is to utilize in-house skills to manage the migration or to outsource the project, the breadth of platform support for Linux means that there are many partnerships that can be leveraged. Hardware vendors want customers to run Linux on their platforms and thus provide collateral like whitepapers, tools, and checklists for no cost to assist in a self-service transition. IBM and HP are just two of the vendors vying for Red Hat Enterprise Linux business, and both have websites and migration frameworks complete with transition toolkits available for free download. For those preferring to outsource the migration, Linux skills are readily available, and as Red Hat Certified Engineer (RHCE) training has become the de-facto certification process for Linux, RHCE resources provide an excellent benchmark for skills.

In addition, Red Hat consultants can integrate into your team or work out of band with them, designing and deploying with best practices and providing a smooth transition from implementation to support. Learn more about Red Hat Consulting services at:
www.redhat.com/consulting.

4. SELECT THE BEST HARDWARE OPTIONS.

Depending on the scope of the project, it may be appropriate to retain existing servers, to use redeployed servers, or to provision new servers. Today's x86-64 platforms are providing stunning price-performance and make up a large portion of Linux platforms. However, this is no longer a reflection of the ability of Linux to scale in larger SMP environments, but rather a reflection of the price tag of large SMP servers combined with the ability of x86-64 servers to handle more demanding workloads. Today there is evidence of exceptional (in some cases, near linear) scalability on large 64-bit platforms with 16 and 32 cores in Oracle, SAP, computer server, and shared services workloads.[3]

5. PLAN HOW TO TRANSITION YOUR APPLICATIONS.

In the simplest case, a UNIX-to-Linux migration will retain the same applications and versions, thus preserving a common end-user interface experience. Red Hat Enterprise Linux offers a large application portfolio, so it is highly likely that the desired applications are available; however there may be a need to upgrade to a later version of the application if the existing environment has not been upgraded in some time or if there is a desire to take advantage of functionality enhancements. Always verify the entire application stack, including small completer applications, to confirm availability and highlight any version differences.

Applications fall in to three major categories: database, home-grown, and other third-party.

A current Red Hat Enterprise Linux certification is provided by all the major enterprise database vendors today. They can provide advice and tools to assist in the transfer of application data from source to destination.

Home-grown applications or custom code may require a porting exercise. Free tools provided by vendors like IBM and HP on their Linux migration websites will assist with scanning code and with the identification of required modifications, should a port even be necessary.

There are also a number of third parties, such as Transitive, who offer transition assistance, tools, and products, should these be deemed necessary. For older applications where the source code may no longer be available, Transitive's product may provide a viable means of facilitating re-hosting.

CONCLUSION

Today, Linux is being deployed broadly with great success. Red Hat Enterprise Linux, the most successful commercially supported Linux distribution, today handles many of the world's most demanding mission-critical workloads with heightened performance and reduced costs.[3] Migrating environments from UNIX to Linux with Red Hat can be achieved with minimal risk on a wide range of hardware, thanks to the broad IHV and ISV support that Red Hat Enterprise Linux has achieved. With a bit of thoughtful planning, Red Hat Enterprise Linux offers a low-risk, high-value alternative to proprietary UNIX environments.

3 IDEAS International paper
www.hp.com/wwsolutions/linux/products/servers/itanium.html

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