

I D C T E C H N O L O G Y S P O T L I G H T

Choosing Linux as a Strategic Platform

April 2010

Adapted from *Worldwide Linux Operating Environment 2009–2013 Forecast: Can Linux Prove Resilience in an Economic Slump?* by Al Gillen, IDC #219380

Sponsored by Symantec

The economic downturn has created turmoil and indecision throughout the operating environment industry, and this is affecting Linux both as a standalone product and as a possible replacement to other operating system platforms in use. In difficult economic conditions, enterprises tend to avoid actions that call for significant new investments in hardware, software, or human resources. Instead, IT organizations want to leverage the skills of existing staff who are left after downsizing actions, and they will be looking for any possible investments to have a same-year payback associated with them. This Technology Spotlight discusses the growth of Linux as a strategic platform for enterprises as well as the evolving uses of Linux and its benefits. The paper also looks at the role of Symantec in this important market.

Linux on the Rise

Linux continues to transition as a mainstream solution, often at the expense of Unix. IDC's research has found that historically, the greatest success for Linux has come from penetrating organizations that were classic Unix shops. The success of Linux in those organizations has come from replacing some or all of the existing Unix servers and, equally importantly, capturing growth opportunities for installed systems — growth opportunities that previously would have most likely gone to new Unix installations had Linux not arrived on the scene.

Linux growth has ramped up and continues to grow far beyond what Unix ever was in terms of unit volume and cross-platform pervasiveness. Paid subscription revenue for Linux grew 23.4% year-on-year in 2008, and IDC data shows that Linux operating systems revenue grew by 18% in 2009 compared with 2008.

Both confidence in and customer satisfaction with Linux are also growing. Among other indicators, IDC research finds that Linux is increasingly seeing use as a platform for supporting business-critical applications. Accordingly, IDC's research confirms that workload shifts continue to mature in the Linux market, with an increasing portion of total Linux deployments being made today to support more business-oriented and increasingly mission-critical workloads.

At the same time, enterprise versions of Linux (products including SUSE Linux Enterprise and Red Hat Enterprise Linux) are becoming more capable, allowing more workloads to migrate from Unix servers to Linux instances aboard x86 servers or, at some customer sites, to Linux VMs aboard a mainframe server.

Application portfolios are likewise growing. Key commercial, non–open source business solutions, including databases, continue moving in favor of Linux, and major vendors such as Red Hat and Novell claim several thousand application solutions for their operating environments.

This growth of Linux applications aboard Linux is reflected in other ways. For example, IDC data shows that the 2008–2013 compound annual growth rate (CAGR) for worldwide Linux application software revenue is forecast to be 27.4%. These applications include ERP, CRM, supply chain management, manufacturing, and engineering application software. IDC's ongoing Server Workloads studies, modeled against the Linux server shipments, show that business-oriented workloads for Linux, such as business processing and decision support, are growing very quickly.

Similarly, the worldwide CAGR for system infrastructure software, which includes systems management, virtualization software, storage, and security applications, is projected to be 21.3% for the forecast period.

Benefits

IDC research indicates there is a value proposition associated with using commercially supported Linux distributions, particularly for enterprise customers and datacenter deployments.

Commercially Supported Linux

IDC makes the following observations on commercially supported Linux versus self-supported forms of Linux:

- Most IT organizations are not in the business of building and supporting operating systems; rather, they are charged with delivering the IT application services and productivity tools that other departments and end users within their company need to accomplish the organization's primary business goals. Supporting and maintaining an operating system can often be a distraction that can be more effectively outsourced.
- Using a commercial Linux distribution gives IT continuity and long-term support (including mainstream and extended support periods), as well as support from independent software vendors (ISVs). IDC notes that ISVs will typically develop for a very limited number of operating system variations. In the Linux market, this typically means two or three distributions are supported by ISVs. Other distributions are not tested and are not supported by these ISVs. In fact, the vast majority of commercial applications available for Linux today are certified to run on only the major commercially supported distributions.
- Commercial Linux ensures better compatibility, interoperability, and application support. One of the benefits associated with commercial Linux distributions is that the commercial providers typically are active within the greater industry, will work to promote interoperability, and manageability, and will certify hybrid system combinations.
- Regulatory compliance is a concern. Using a non-commercially supported version of Linux may make regulatory compliance complex or outright impossible.

Virtualization and Linux

Virtualization today is considered a mainstream solution that no longer has significant risk associated with it. With several years of history and broad evidence of customer success using virtualization in conjunction with Linux, it is fair to say this technology is mature today. This mainstream acceptance is helping Linux virtualization adoption move forward.

Virtualization is increasingly a part of the core value proposition associated with Linux distributions. Where the open source Xen hypervisor was integrated and delivered with Linux distributions — but was effectively a block of standalone software — today the new KVM (Kernel-based Virtual Machine) technology is emerging in the most current Linux distributions. While IDC believes that KVM will need to prove itself to be a credible alternative to the Xen hypervisor, we also believe that this will happen over time, and two years from now KVM may be considered a viable alternative to Xen.

Cloud Computing and Linux

Linux is well-positioned to capture a significant role in cloud computing. IDC's view on cloud computing is that it is a natural extension and enhancement to a well-managed and virtualized infrastructure. We identify three generic forms of cloud computing:

- Infrastructure clouds offer infrastructure services such as CPU, networking, and storage, often presented as a virtual machine over the Web. Users install their own operating system and applications on top of this type of infrastructure cloud.
- Platform clouds are effectively an operating system hosted in a cloud form factor, providing an application development and runtime environment.
- Application clouds virtualize an entire application stack and what today are often described as SaaS. These services either may be consumed in their entirety as a solution or may deliver individual services, accessed through application programming interfaces (APIs), allowing those services to be aggregated into another application solution that may be hosted locally in a company's intranet, on a second cloud, or on the same cloud that is providing the application services.

Cloud computing also will have a drastic effect on how computing is consumed and leveraged by end users. The near instantaneous provisioning and fine-grained metering provided by clouds promise to offer an entirely new class of service and utility to business units. Previously, projects could require a substantial investment in hardware and software licenses and weeks of provisioning time, all of which must go through a lengthy justification process. With clouds, resources can be provisioned instantly, and this utilitylike model incurs minimal charges. Thus, users are free to experiment and innovate, which can lead to faster time to market and the creation of unique products and services for the company.

IDC believes that Linux will be a key component of many cloud infrastructures and will serve as both the base technology for cloud providers and an operating environment for customers who wish to access the Linux operating system and Linux services that are hosted in a cloud. Linux has gained traction among cloud providers due to its low cost and ability to be customized. Cloud providers are building cutting-edge, highly complex services and often require source code access and the ability to modify the base code to their highly specific needs.

Migration Considerations

Unix servers have long held a well-deserved reputation for being platforms that are highly reliable and perform well under heavy workloads. In the early 2000s, Linux was seen as a solution that could perform some of the noncritical roles that Unix held, primarily for network infrastructure and Web infrastructure deployments. Linux proved itself in those roles and over time has continued to mature and scale.

Linux was first seen as a solution that was suitable for handling business-critical deployments aboard higher-end systems, such as mainframe servers, with impeccable reputations for availability, reliability, and scale. With the continued evolution and maturing of servers built on the x86 processor family, extended in March 2010 with the launch of servers built around the Xeon 7500 processor, Linux is able to offer a scale-up story on all major server platforms:

- **Uptime.** A migration to Linux from Unix may create the potential for some reduction in uptime, mainly because of the affinity between the operating system and the underlying hardware. Unix servers and the operating systems they run have long been designed by a single company, allowing the operating system to exploit sophisticated hardware features that simply do not exist in the x86 world. In addition, Unix servers often have the ability to use predictive failure analysis and to support hot-swap capabilities to promote high levels of uptime. These are capabilities that only today are working their way into the x86 architecture and the Linux operating system.

- **Storage.** Storage consumption in a Linux environment is likely to compare with storage consumption in a Unix environment, assuming a like number of servers are in use.
- **Performance.** Unix servers have long set the standard for performance beneath mainframe-class systems, but today they are increasingly seeing direct competition from more scalable x86-based servers. Many customers still see Unix as the right solution for some of their most demanding business applications and large databases, but Linux serves as an alternative for the next tier of applications.
- **Skills transfer.** Unix administrative, management, and development skills transfer very naturally to a Linux environment, especially considering that many of the layered software products in use on a Linux server are the same tools that are used on Unix.

Considering Symantec

Symantec offers a wide range of solutions for Linux server operating environments, including data protection, storage management, and high availability and disaster recovery, which provide protection and management for physical and virtual Linux infrastructures. These products support all major enterprise operating systems, including Solaris, AIX, HP-UX, Linux, and Windows, with excellent performance characteristics across all platforms.

Symantec's approach is to enable enterprises to achieve the following goals:

- **Infrastructure agility.** Organizations can standardize on a single storage management and high-availability software infrastructure. This reduces complexity and increases visibility and management across physical and virtual platforms, thus reducing total operating expenditures. This is especially important for organizations introducing Linux into their environments. By standardizing on infrastructure software, organizations can significantly simplify migrations to another operating system platform such as Linux. Data can be migrated much faster by not having to copy it to other storage. The high-availability software remains the same and can be implemented faster because the concepts are the same regardless of operating system.
- **Operational efficiency.** Operational processes can be greatly streamlined and automated, thereby reducing operational complexity and costs. With Symantec's centralized storage and high-availability management tools, tasks that affect multiple servers can be done from a central interface. All servers using Symantec's software can be observed and managed from one view. It can also alert the administrator of potential problems before they occur.
- **Higher storage utilization.** Storage utilization rates can be significantly increased, thereby reducing capital expenditures and operational costs. With Symantec's storage management products, organizations can optimally take advantage of thin provisioning storage arrays. These products provide the smartest way to move to thin provisioning arrays. They also provide the industry's only way to reclaim wasted storage and return it to the array's free storage pool while keeping applications online. In addition, business value can be placed on data and thus be stored on the appropriate tier of storage dynamically, based on criteria established by the organization.
- **High availability and disaster recovery.** Planned and unplanned downtime can be dramatically reduced, allowing mission-critical IT servers to stay up and running. This is done by automating the failover of applications for both local availability and disaster recovery to a site any distance away. Faster failover can be accomplished by allowing multiple servers to concurrently share the same storage pool. Data recovery can be made simpler by using Symantec's data management solutions such as host-based mirroring and replication. Integrated into these solutions is the ability to do proactive and nondisruptive disaster recovery testing without having to take a running application down for testing.

Symantec products that accomplish this are the following:

- **Veritas Storage Foundation**, which offers an integrated storage management platform that virtualizes storage across heterogeneous server and storage infrastructure
- **Veritas Cluster Server**, which provides high-availability server and application clustering and is designed to provide a cross-platform solution for minimizing application downtime
- **Veritas Cluster File System**, which enables multiple servers to concurrently share the same storage pool (It helps organizations achieve fast application failover, improve the performance of applications that work in parallel across multiple servers, and reduce storage costs.)

Challenges

The company does face the following market challenges, however.

- **Open source alternatives to its products.** The open source developer community continues to enhance the Linux portfolio with related technologies and already offers clustering and file system software solutions. In most cases, open source–developed solutions tend to lag commercially developed solutions in maturity, especially when the commercial solutions evolved from Unix solutions that may have been in the market for a decade or longer.
- **Competitive commercial vendors.** Symantec is one of the leading vendors in the markets in which it competes, but other commercial solutions can compete with portions of Symantec's portfolio.

Conclusion

The Linux ecosystem is healthy and continues to grow, even during the tough economic downturn of 2008–2009. Linux is one of the few operating systems that will be a survivor in tomorrow's IT, and it will play an instrumental role in cloud computing into the future.

Linux growth has ramped up and continues to grow far beyond what Unix ever was in terms of unit volume and cross-platform pervasiveness. Confidence in and customer satisfaction with Linux continue to soar, and that confidence translates into a willingness to use Linux as the foundation for business-critical application deployments.

The intersection of the growth and maturation of Linux — along with virtualization and cloud computing, and of course the very nature of Linux as an open source technology — leads to significant opportunity for Linux into the future.

In the meantime, Linux is successfully being used to solve enterprise business needs and should be on the evaluation list for any organization that has used Unix or Linux in the past when it comes time to deploy new solutions for enterprise business needs.

ABOUT THIS PUBLICATION

This publication was produced by IDC Go-to-Market Services. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Go-to-Market Services makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

COPYRIGHT AND RESTRICTIONS

Any IDC information or reference to IDC that is to be used in advertising, press releases, or promotional materials requires prior written approval from IDC. For permission requests, contact the GMS information line at 508-988-7610 or gms@idc.com. Translation and/or localization of this document requires an additional license from IDC.

For more information on IDC, visit www.idc.com. For more information on IDC GMS, visit www.idc.com/gms.

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc.com