IBM Systems and Technology Group
February 2011

IBM Enterprise Linux Server

Impressive simplification with leading scalability, high availability and security

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Executive Summary

Our Understanding of Your Goals

Challenges in many of today's IT organizations

The proliferation of servers in the average data center is a major obstacle to achieving high IT efficiency. Often, multiple underutilized servers take up more administrative costs, space and energy than can be justified by their workloads. The IT landscape is filled with "inexpensive" x86 or UNIX® servers, chosen to reduce costs. But does such an IT environment saves costs over the complete life-cycle? The facility requirements, power consumption, and administrative costs are high—but the servers are underutilized in many cases. In the end, the IT organization may have difficulty managing all those servers, and the ability to quickly and efficiently respond to changing business needs suffers.

IT organizations may feel the squeeze from continued information growth and the associated growing costs to manage and support their IT infrastructure. At the same time, IT organizations have to realize near-term cost reductions, driving total cost of ownership (TCO) improvement, driving up resource utilization, driving down cost structures, while continuing to drive the structural IT change.

IT organizations are using virtualization technologies to reduce the number of servers. While virtualization technologies are different in resource virtualization and resource sharing, the ability to add resources on the fly, the virtual network flexibility, workload automation and the operational efficiency, the infrastructure has to scale, horizontally and vertically, to meet the business requirements.

IT organizations want confidence and clarity in how to address availability and security concerns in the highly connected world. With global competition and customers in multiple time zones, the transactions with clients and business-to-business transactions need to complete successfully with good performance and protection against security threats. Organizations desire an IT infrastructure that can agilely respond to consumer demands, has integrated security, is resilient to threats, meets compliance requirements, and meets service level expectations while delivering 24x7 availability.

IT organizations and the company's business can be impacted by disasters and unplanned interruptions, but many companies lack on established processes for successfully recovering data systems from disruptions. The infrastructure architecture should provide the capabilities for effective backup and archiving, and response to disruptions while minimizing the costs and time associated with recovery.

Our Approach to Meeting Your Goals

The IBM Enterprise Linux® Server is providing a scalable and flexible, high available and secure infrastructure inside a single IBM server. Impressive simplicity, helping on IT optimization, is the key success factor of this infrastructure that is designed for today's instrumented, interconnected and intelligent world.

The IBM Enterprise Linux Server is addressing IT optimization through industry-leading virtualization and outstanding server capacities, which provide unmatched scalability, and high levels of availability and security. The Enterprise Linux Server environment offer flexibility and management characteristics that can make it possible for you to satisfy the requirements of a smarter infrastructure. The complexity of maintaining large numbers of x86 or UNIX server environments, even when virtualized, can be relieved with a single IBM Enterprise Linux Server.

In short, the IBM Enterprise Linux Server can benefit you by freeing your business from IT complexity and improving the responsiveness of your systems and your people. The Enterprise Linux Server helps you extract the maximum value from your IT budget through software, operations, power and space savings, as well as providing rock-solid security and virus-resistance while delivering high system availability.

The Linux distribution partners, Novell SUSE and Red Hat, are partnering with IBM for the Enterprise Linux Server.

Why IBM?

The IBM Enterprise Linux Server offers an ideal platform for applications in midsized and large enterprises. It combines the industry-leading IBM System z® server technology with the z/VM® virtualization software, server maintenance and software subscription & support to create a simplified, secure and highly available infrastructure for IT optimization through server virtualization and workload consolidation. It can easily scale to meet your needs adding efficiencies to drive down the cost of operations or at least control it.

IBM Global Services (IGS) offers a comprehensive services portfolio to support the Enterprise Linux Server deployment, migration and implementation.

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IBM Enterprise Linux Server

Impressive simplification with leading scalability, high availability and security

Highlights

The IBM Enterprise Linux Server offers a proven platform solution for IT optimization through server virtualization and workload consolidation for midsized and large enterprises.

The IBM Enterprise Linux Server provides:

- Simplicity of a single physical IBM server
  - Ability to share all system resources with all virtual servers
  - Ability to grow “on demand” by adding resources without disruption
  - Ability to remove physical servers, network devices and switches
- Scalability to deploy and manage a large scale-out virtual server environment
  - Virtualization that may support hundreds of virtual Linux servers
  - New server deployment in minutes
- Business continuance—24x7 availability and disaster recovery that help minimize expenses
- Security to protect sensitive data with highest security rating or classification for any commercially available server [1].
- Attractive pricing for adding capacity when it is time to grow or host new virtual server solutions—inside one physical server.

  Pay less as you consolidate more.

A Linux-ready, enterprise-class server solution with leading scalability that is designed to consolidate more work with superior levels of manageability, availability, security and cost control.

Business Value

Simplicity and Scalability

The cost and complexity of managing a sprawl of real and virtual servers on x86 or UNIX systems can be a drain on budgets and hinder a company’s ability to maximize the business value of its IT investment.

A single Enterprise Linux Server can greatly simplify the hardware and software infrastructure, and operational tasks, needed to host a large number of virtual server images. In fact, the

Enterprise Linux server is able to consolidate hundreds of distributed server images into a single, space and energy efficient footprint, saving up to 70 percent of corresponding competitive systems costs [2].

Consolidation of distributed physical servers means fewer components, which results in less complexity, less management time, less licensing requirements and less expenditure. Because the Enterprise Linux Server provides a truly centralized environment, it's much more economical and resourceful compared with traditional server systems. Yet it can handle the most challenging workloads.

The IBM Enterprise Linux Server builds on the robust and reliable virtualization capabilities available with IBM System z servers–IBM zEnterprise™ System [3], IBM System z10® Enterprise Class (z10™ EC) and IBM System z10 Business Class™ (z10 BC™)–and z/VM virtualization software to greatly enhance the economic attractiveness of hosting Linux workloads. The Enterprise Linux Server includes up to 80 processor cores [4], memory, I/O connectivity, and z/VM software with solution pricing that helps accelerate return on investment.

The Enterprise Linux Server offers huge capacity to enable large scale consolidation that can drive up to:

- 80% reduction in energy consumption and costs [2]
- 85% reduction in floor space [2]
- 80% reduction in management costs [2].

It's all about IT optimization, transforming data centers into more efficient places that are easier to manage.

Flexibility

The Enterprise Linux Server responds and adapts instantly to constantly changing business demands. Naturally, your system is configured to suit today's business priorities. But what about tomorrow?

With the Enterprise Linux Server, you can reconfigure in minutes. There's no physical disassembly or unplugging of machines, it's all done via software, virtually. You're not limited by the physical infrastructure. So there's no need for extra wiring, new routers or additional disk subsystems. And if it's a short term reconfiguration, you can quickly and easily revert back to your original settings for business as usual.

Because the Enterprise Linux Server responds to changing demands fast, downtime is dramatically reduced while availability increases. The faster you can reconfigure, the less time is spent managing your IT systems, leaving you free to focus on other important aspects of your business.

The Enterprise Linux Server is designed for Linux, supporting open source solutions for a broad range of applications and workloads such as cloud computing, business intelligence, collaboration and Web applications. With this industry recognized operating system installed as standard, there's no need for any additional staff training.

Business continuance and Security

It's all about trust. Your data is an absolutely vital part of your business, possibly your most valuable asset. So you need to house it on a server you can truly rely on.

With its built-in protection, availability is a given for the Enterprise Linux Server. Unlike distributed systems – for instance a cluster with one machine backing up another and an additional failover machine – peace of mind comes included in the price.

The Enterprise Linux Server is the most secure commercial server available, built using groundbreaking technology from a company who you know you can trust: IBM. Powerful encryption will ensure your data, and therefore your business, is protected 24/7.

In addition, you can rely on the IBM Maintenance and Support included in the price. So if you do have any issues you know exactly who to call – one point of contact. Whereas figuring out who to call for an issue with a distributed system can be complicated and time consuming.

Efficiency

IBM Enterprise Linux Server virtualization offers scalability, simplicity, availability and security that clients need to meet customer expectations for dynamic access to new services. A Linux on z/VM environment offers server provisioning in minutes, rock solid workload isolation, an extensive set of virtualization management features, and cost-attractive business resilience and failover solutions.

A hallmark of z/VM virtualization support is the ability to share and over-commit system resources at high levels of efficiency every hour of every day. This allows clients to "do more with less," and realize savings in the area of software licensing in particular.

The IBM Enterprise Linux Server is highly efficient, especially compared with traditional system setups with distributed servers. The typical utilization rate for a distributed server is between 5% to 20%, while the Enterprise Linux Server is built for maximum utilization, capable of up to 100%. That makes the Enterprise Linux Server a perfect system for a shared cloud environment.

Virtualization is an inherent part of the IBM Enterprise Linux Server design. It's not just an added feature. It's in the machine's DNA. This powerful virtualization enables unparalleled consolidation on a massive scale. Think of the reductions in terms of space, or in terms of complexity, or even the amount of copper cabling required.

Increased efficiency also means less waste. Not just by eliminating unnecessary power and cooling requirements. With the Enterprise Linux Server, you'll spend less time managing your IT systems. For instance, the machine load balances itself dynamically to ensure available resources are maximized at any time. Bottom-line, life-cycle management costs for an Enterprise Linux Server solution can be considerably less expensive than competitive system alternatives.

The IBM Enterprise Linux Server, when based on the zEnterprise System[3], can benefit from the hybrid approach of the zEnterprise as well. A complete solution suite can run on a single zEnterprise, running Linux applications and databases on the z/VM virtualization software on the zEnterprise™ 196 (z196) in conjunction with a "companion" application on the IBM zEnterprise BladeCenter® Extension (zBX). In addition, the IBM zEnterprise Unified Resource Manager (zManager) allows to manage all virtual servers running on z/VM and zBX.

Look to the Future

By exercising this solution, you have the ability to deploy a server infrastructure that takes virtual server hosting to the next level of simplicity, scalability, availability and security, at a price, designed to lower your Total Cost of Ownership (TCO) and achieve a quick return on investment (ROI).

For more information

To learn more about the IBM Enterprise Linux Server, please contact your IBM representative, IBM Business Partner or visit us at: ibm.com/systems/z/os/linux/els.html

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U.S.A.
Produced in the United States of America,
02/2011

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[1] On May 5 2009, the IBM Enterprise Linux Server joined previous IBM System z servers, as the world's only servers with the highest level of hardware security certification, Common Criteria Evaluation Assurance Level 5 (EAL5). This certification provides assurances that many different applications running in different operating environments in different logical partitions will be secure and distinct from each other.
[2] When consolidating distributed environments on to Linux on System z. IBM Internal Study based on Oracle SW with Nehalem 4 core running 25% utilization. Results can vary based on workload type, capacity utilization, and hardware technology being consolidated.
[3] The zEnterprise System (zEnterprise) is comprised of the IBM zEnterprise 196 (z196), the IBM zEnterprise BladeCenter Extension (zBX) and the IBM zEnterprise Unified Resource Manager (zManager). zEnterprise enables to deploy an integrated hardware platform that brings System z and distributed technologies together in a hybrid approach. The zBX is attached and works with the z196 to support the multiplatform environment.
[4] 80 processor cores are available with the zEnterprise 196 (z196) server.