IBM Power Systems
This is Power on a Smarter Planet

Red Hat Enterprise Linux for IBM Power Systems

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Global Lead for Linux on IBM System z and Power Systems

#powersystems, #powerlinux, #bigdata, #IBMWatson, #OpenPOWER

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Agenda

• Red Hat Inc. Overview

• Red Hat & IBM Collaboration
  • Linux exploiting Power features
  • JBoss on RHEL for Power Systems

• Red Hat Lifecycle Roadmap
  • RHEL 7 Public Beta Preview Availability

• Customer References
The FIRST
$1 BILLION DOLLAR
OPEN SOURCE COMPANY in the
WORLD

The FIRST

OFFICES WORLDWIDE

Source: Red Hat, Inc.

The FIRST

MORE THAN

90% of

FORTUNE 500
COMPANIES use
RED HAT PRODUCTS & SOLUTIONS.
Fiscal Year 2014 Results

Red Hat is growing 15% Year-over-Year*

Source: Red Hat Inc.

Red Hat Open Source Model

How we do it

100,000+ PROJECTS

Apache Project
Gnome
OpenJDK
OpenStack

Linux Kernel

fedora

JBoss Community

oVirt

Gluster Community

RED HAT ENTERPRISE LINUX
RED HAT JBOSS MIDDLEWARE
RED HAT ENTERPRISE VIRTUALIZATION
RED HAT STORAGE
RED HAT OPENSTACK
OPENSHIFT

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#powersystems
*The developers who are known to be doing this work on their own, with no financial contribution happening from any company' are not grouped together as 'None' and instead are considered part of the 'long tail,' as are contributors of academic or unknown sponsorship.*

Source:
The Linux Foundation
Linux Kernel Development September 2013
(Pages 9)
Red Hat Development Powerhouse

Corporate Contributions to OpenStack

* Includes only top 35

Source: Bitergia OpenStack Havana Analysis, October 17, 2013
blog.bitergia.com/2013/10/17/the-openstack-havana-release

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#powersystems
Red Hat and IBM Collaboration
Linux exploiting Power features
JBoss on RHEL for Power Systems
More than 13 years of collaboration between Red Hat and IBM to offer choice to our customers:

*Red Hat Enterprise Linux Certified on all IBM platforms*

- **System x**
- **Power Systems**
- **System z**
Red Hat technologies
Currently part of IBM’s solutions

- Offered in zCloud
- Embedded as “KVM” in:
  - IBM SmartCloud
  - zBX (x86 Blades virtualization)
  - PureFlex Systems
- Embedded in Netezza
- IBM’s Watson Cluster
  - Running on Power Systems
Fedora bringing Innovation
An example of Linux exploiting the Power Architecture

Fedora 20 will have first phase of AME enabled with zswap. Enterprise distros to follow.

Exiting components

New components being designed and debated by the Linux community

New IBM proposal
Separate kernel components for swap and cache

Power7+ Hardware Memory Compression
JBoss adding Value to your solution
Take advantage of Java superior performance (1) on Power Systems

- JBoss® Enterprise Application Platform (JBoss EAP) is supported on a variety of market-leading operating systems, Java™ Virtual Machines (JVMs), and database combinations.

- IBM JDK is supported (2) and ready to run on Red Hat Enterprise Linux for Power Systems

- Red Hat provides both production and development support for supported configurations and tested integrations according to your subscription agreement in both physical and virtual environments.

(1) http://www.spec.org and http://www-03.ibm.com/systems/power/hardware/reports/system_perf.html
(2) https://access.redhat.com/site/articles/111663

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Red Hat Enterprise Linux Lifecycle Roadmap

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Red Hat extended from 7 to **10 years** standard technical support

- **Production 1** (5 ½ years)
- **Prod. 2** (1 year)
- **Production 3** (3 ½ years)

*All dates are approximate and subject to change*

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Red Hat Enterprise Linux 7.0
Public Beta released Dec 2013

- Available to all supported Architectures
  - x86_64, PPC64 and s390x

GET RED HAT ENTERPRISE LINUX 7 BETA

Have a Subscription? | No Subscription Yet?
Download Software | Request Evaluation

If all of your Red Hat Enterprise Linux subscriptions are in use, you can request an extra subscription.

https://access.redhat.com/site/products/Red_Hat_Enterprise_Linux/Get-Beta
Customer References

Red Hat Enterprise Linux on IBM Power Systems

For a complete list of customer success stories please access:

http://people.redhat.com/fmiranda/powersystems/customer_references/

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Why Linux on Power Systems for Big Data and Analytics?
Deliver Insight Faster and More Efficiently

Watson inspired POWER7+ performance
- Massive parallel execution with 4 threads per core vs. Intel’s 2 per core
- Extreme memory and I/O bandwidth keeps CPUs busy
- Highly optimized JVM for Java based Hadoop workloads

Hadoop acceleration with Platform Symphony and GPFS
- Efficient, parallel execution of map/reduce tasks with HPC techniques
- Push tasks to node vs. polling, more efficient protocol for network transport
- Highly optimized parallel filesystem for distributed data across cluster

Perfect match for Apache Hadoop map/reduce Linux clusters
- Over 80% faster* to sort 1 terabyte of data than x86 cluster
- 4x faster load, 8x faster queries per core for China Telecom
- Implemented solution for data mining/text mining/Web mining/statistical analysis and social network analysis
- MapReduce (Hadoop) on Linux on Power support discovery of precise marketing and development needs
- 12x faster data load per core per second than competitive solution
- 10x faster data analysis of records per core per second
Why Linux on Power for Java?

Fewer servers or cores support same # workloads, clients do more for less at comparable TCA

POWER7+ highly optimized for WebSphere and Java

- Highly threaded Java apps tuned for **4 threads per core**
- Java “pre-fetch” tuning leverages **2.5x larger cache**
- Latest IBM JVM has been highly optimized for POWER7+

Superior performance and virtualized throughput

- **36% better Java performance** than best Sandy Bridge
- **125% greater throughput** from same number of VMs

New WebSphere Mobile and Web Application Development Solution

- Quickly develop, deploy apps for iPhone and Android
- Lightweight, fast, flexible & simplified WebSphere Application Server

Other customers:
RED HAT SUMMIT

http://www.redhat.com/summit/
San Francisco, CA April 14-17
Danke
Thank you
Grazie
Obrigado
Gracias
Additional Customer References
Red Hat Enterprise Linux on IBM Power Systems

For a complete list of customer success stories please access:
http://people.redhat.com/fmiranda/powersystems/customer_references/
Janata Sahakari Bank Ltd., Pune

Realizes a 20 - 40 percent increase in database performance with DB2 upgrade

“We’ve realized a 20 - 40 percent increase in database performance and 40 - 50 percent increase in DBA productivity with our latest DB2 upgrade.”

—Mr. Jitendra Ravetkar, IT Head, Janata Sahakari Bank Ltd., Pune

Overview

Janata Sahakari Bank Ltd., Pune
Pune, India
www.janatabankpune.com

Solution components:
• IBM DB2® Workgroup Server Edition
• IBM Tivoli® System Automation for Multiplatforms
• IBM Power Systems™
• IBM System Storage®
• Red Hat Enterprise Linux

Services
• IBM India Software Lab (ISL) Services and Solutions

IBM Business Partner
• Infrasoft Technologies Limited

The need

In 2005, JSBL, Pune sought to implement a core banking system for online banking and related back office processes, such as fund transfers. Performance and availability of the underlying infrastructure was critical as any outages or delays could be visible to customers and lead to customer dissatisfaction.

The solution

JSBL, Pune worked with IBM Business Partner, Infrasoft Technologies Limited (InfrasoftTech), to implement its OMNIEnterprise core banking solution on IBM DB2® database software. JSBL, Pune was among the first banks in India to implement DB2 on Linux, providing a successful model for core banking systems that many other Indian banks later followed. The bank selected IBM DB2 over Oracle Database for its database platform due to the exceptional performance and scalability, and lower licensing costs.

The benefit

• Improved performance by 20 - 40 percent with DB2 upgrade
• Increased DBA productivity by 40 - 50 percent
• Provided near real-time data for MIS reports and reduced downtime by nearly 99.9 percent
PHYSnet doubles its file serving performance

With a powerful, highly virtualized IBM solution

PHYSnet is responsible for providing IT services to the University of Hamburg Physics Department. It runs a large datacenter, whose systems deliver basic IT services and also the high levels of computing power needed by physics researchers at the university.

Developing a virtualized solution

PHYSnet had been using IBM® hardware for many years, and trusted IBM Power Systems™ machines for mission-critical IT services. The PHYSnet team approached IBM Business Partner pro-com DATENSYSTEME GmbH for advice on finding a solution that could meet its needs.

In response, pro-com designed a distributed configuration for OpenAFS that was based on just two IBM PowerLinux™ 7R2 servers. To provide the system architecture needed to run OpenAFS effectively without the need for additional physical servers, pro-com proposed a virtual scale-out environment, using IBM PowerVM® to set up five virtual machines on each IBM PowerLinux server.
Energen powers up for greater flexibility

Virtualizing Linux servers to enterprise
IBM Power Systems

Energen Corporation is a growing oil and gas exploration and production company complemented by a single-state natural gas utility, and is among the Top 20 US independent oil and gas producers on the basis of its reserves in the country. Headquartered in Birmingham, Alabama, the majority of the company’s reserves are located in the Permian and San Juan basins.

Karl Swelling, Unix Systems Engineer comments: “Within Energen, the same team manages both our AIX and Linux-based systems, so it made sense for us to run both operating systems on the same hypervisor and hardware platform. By migrating our Linux workloads to our IBM Power Systems™ servers, we realized that could significantly cut down on IT complexity, moving towards a single enterprise platform for all systems.”

The company now runs almost all of its Red Hat Enterprise Linux-based applications within logical partitions (LPARs) set up on both its production Power 770 servers and on its backup IBM Power 740 server.

“Since moving our Linux systems to Power Systems, we can build a Linux LPAR and provision the associated storage in under an hour—an improvement of more than 99 percent. This gives us the flexibility to innovate and roll out new services to users more easily and quickly.”
ELK Group builds for business expansion

Paving the way for corporate growth by increasing profit margins and productivity

Overview

The need
Construction group ELK wanted to further increase profitability and boost staff productivity to help realize ambitious corporate expansion targets.

The solution
Working with IBM® Business Partner® EDV-Design, ELK Group implemented a new solution supporting round-the-clock operations, improving staff productivity and reducing IT operating costs.

The benefit
Enables reliable business operations 24 hours a day. Supports flexible business growth. Improves staff efficiency by enabling faster access to corporate information.

ELK Group is a market leader in the timber-frame construction industry. The group has more than 40 years of experience in designing efficient building structures and providing complete off-site manufactured constructions. Headquartered in Schrems, Austria, ELK Group has more than 40,000 customers, employs 1,386 people at six companies in five European countries and operates four production plants in Austria, Germany and the Czech Republic. In 2011, ELK Group assembled 1,465 prefabricated houses and achieved annual revenues of €208 million ($272 million).

To serve its 300 business users across three locations, ELK Group and EDV-Design Informationstechnologie installed two IBM Power 740 Express servers at its two data centers, running the IBM AIX® operating system for production systems and Red Hat Enterprise Linux Server for IBM POWER® supporting the company’s development environment. With IBM PowerVM virtualization, ELK Group can use its server capacity more efficiently. It can also quickly bring all its systems back online if a failure occurs in one of its data centers by activating additional POWER7® cores in the remaining center. This enables ELK Group to economically implement a reliable disaster-recovery and high-availability configuration.
The need:
While running its two disparate Power Systems, Retraites Populaires was not able to leverage the requisite flexibility and on-demand capacities to allow for a smooth evolution towards new technologies while keeping the existing systems running. Moving forward, the company wanted more functionality and power from its IT infrastructure.

The solution:
Working with IBM®, Retraites Populaires implemented two Power 770 systems running i and Linux – Red Hat, which allowed the company to have a homogenized Power architecture and gain the needed technology and capacity to implement its IT strategy. The two systems ensure high availability, thereby negating performance penalties for the end-users.

The benefits:
Consolidated the hardware and software investments to lower the TCO
Performed smooth evolution of IBM i system architecture to modern Power 7 architecture
Increased flexibility with the exploitation of the virtualization technologies offered by the Power architecture

Solution components:
IBM Power Systems running i
IBM Power Systems running Red Hat Linux
WebSphere