



Why now is the time to migrate from Sun, SPARC and Solaris to Red Hat Enterprise Linux on IBM Systems

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The latest series of industry events continue to “Rock” Sun

- April 20 – Oracle announces Sun acquisition
- May 6 – Oracle “commits” to hardware
- June 15 – NYT reports Sun's cancellation of Rock chip project
- July 27 – Sun announces poor fiscal 4Q09 results
- August 21 – US DoJ clears the Sun acquisition
- September 3 – EC puts the deal on hold for further investigation
 - Will announce their verdict on January 19, 2010

Recent Oracle WSJ ads raise more questions in the marketplace

“For what Oracle is outlining in this advertisement to be true, Sun had to have already nuked its SPARC and Solaris development efforts starting last year and continuing through the period when Sun started shopping itself around to IBM, Oracle, and presumably also Hewlett-Packard and Fujitsu.”

Timothy Prickett Morgan, The Register – September 10, 2009

“Uncertainty surrounding Oracle Corp.'s (ORCL) acquisition of Sun Microsystems Inc. (JAVA) is pushing companies to delay replacing aging servers made by Sun.”

Avnet Chief Executive Roy Vallee, speaking at an investor conference in New York, as reported by Dow Jones – September 10, 2009

SUN CUSTOMERS Oracle Plans To:

1. Spend more money developing SPARC than Sun does now;
2. Spend more money developing Solaris than Sun does now;
3. Have more than twice as many hardware specialists selling and servicing SPARC/Solaris systems than Sun does now;
4. Dramatically improve Sun's hardware performance by tightly integrating Oracle software with Sun hardware.

**“We're in it to win it.
IBM, we're looking forward to competing
with you in the hardware business.”**

– Larry Ellison



ORACLE®

Oracle's acquisition of Sun is subject to certain closing conditions. Please refer to Oracle's SEC filings for additional risks related to the proposed acquisition of Sun.

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The Oracle/Sun news pulls all the triggers for Sun customers looking to transition off the SPARC/Solaris platform

- 1. Aging servers and/or unclear hardware product roadmap**
 - Has Sun's roadmap been reliable, can you count on where they are going?
- 2. New application requirements**
 - Do the applications you need run on Solaris? Which Solaris?
- 3. Vendor stability and viability**
 - As Sun is acquired, how will SPARC/Solaris change going forward?
- 4. Increased performance and capacity demands**
 - Has Sun kept up its price/performance with the leaders in the industry?
- 5. Budgetary pressures such as higher licensing, management, and energy costs**
 - What will happen to the cost of staying with Sun/SPARC and Solaris?
 - Can they deliver the management/energy savings that IBM/RHEL customers are experiencing? Customer examples at the conclusion of this presentation.

Which Solaris platform?

If you are running Solaris 8 or 9 today, where will you go in future?

If you are running commercial applications, will you be able to get the ones you need?

■ Solaris 10/SPARC

- Only supported on Sun and Fujitsu hardware
- **Not** a tier one platform for new ISVs
- HA cluster support is an **add-on** subscription
- Hypervisor support is an **add-on** subscription

■ Solaris 10 x86

- **Smaller** ISV community following than on SPARC
- Limited support on non-Sun x86 hardware

■ OpenSolaris

- Open source under CDDL
 - However, not compatible with GPL
- **No** ISV support
- **No** binary compatibility guarantee
- Small community compared to Linux
- **No** Support for EMC storage

“You can consider it a preview of Solaris Next, but it is not yet Solaris Next,” Roberts said. “In this release, we are very clearly positioning OpenSolaris towards deployment and as a preview for what might be in the next version of Solaris, but we’re not quite there yet. We don’t have the same level of enterprise-class, ten-to-twelve years of guaranteed support, or the same level of ISV support as we have today with Solaris 10.”

Dan Roberts
Director of product management data
center software marketing at Sun
June 2, 2009

<http://www.serverwatch.com/news/article.php/3823066>

Do the applications you need today run on Solaris?

- Solaris/SPARC has been a tier one platform for enterprise ISVs because of the previously high market penetration, which is now in decline
- Only 7700 of the total 11000 Solaris certified applications are available on the x86/x64 platform (e.g. Oracle 10g for Solaris 10/x86 became available 2 years after it was available on Solaris 10/SPARC)
- Sun lists no commercial applications as being available for OpenSolaris

What platform will ISVs target their applications for tomorrow?

“Based on numerous polls and client conversations, we believe it’s unlikely that Sun will establish Solaris as a fully equal OS development alongside Windows and Linux. Too many ISVs have standardized their strategies on Windows or Linux (and sometimes both), and most of them have no wish to change direction.”

Gartner

Research

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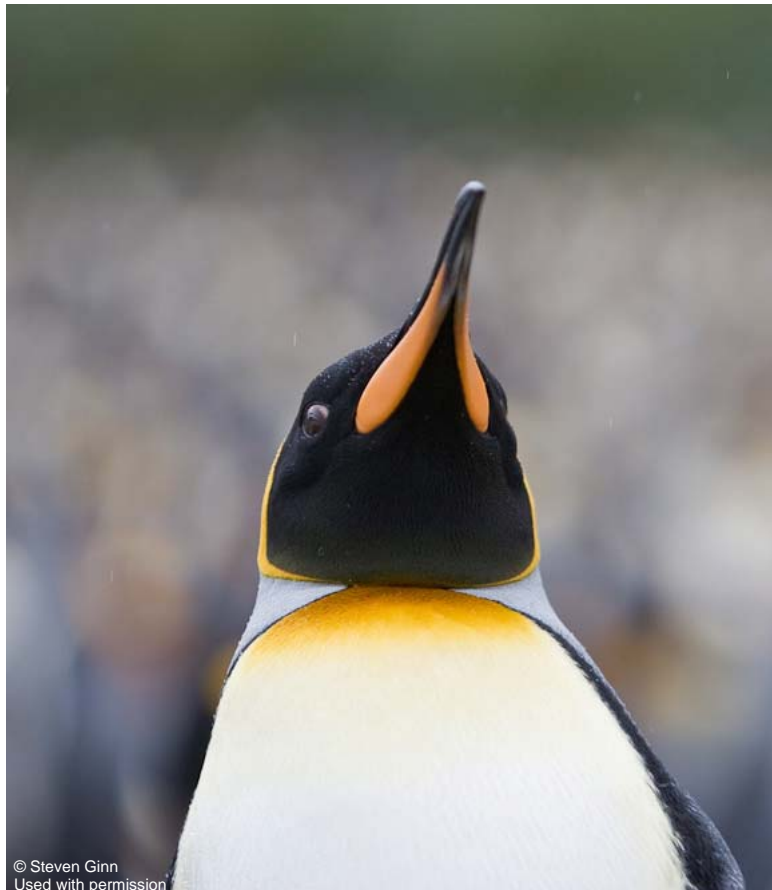
Gartner Data Center Conference Poll Findings: Unix Market Evolution

Andrew Butler

Although the Unix market is stable, the opportunities for real growth are becoming increasingly constrained. This forces Unix vendors to compete with each other for new

Why is Linux important in the new global economic reality?

Over 10 years have passed since IBM's initial public commitment to Linux



- **Linux continues to grow in share, scale, and scope, even in the downturn**
 - According to IDC, in 2Q09 Linux grew in market share, even as all server OS revenues declined¹
 - Linux continues to gain features that enable it to address broadening market opportunities
 - Robust ecosystem enables lower cost, Linux-based alternatives to proprietary solutions
- **Unique attributes of Linux enable novel simplification strategies to reduce cost**
 - Linux enables clients to choose the platform that makes the most sense
 - When consolidating IT operations during M&A activity, Linux can enable asset reuse
 - Consolidating on Linux can reduce OS licensing costs (and CALs), generating savings up to 50%
- **Linux is fundamental to the cloud**

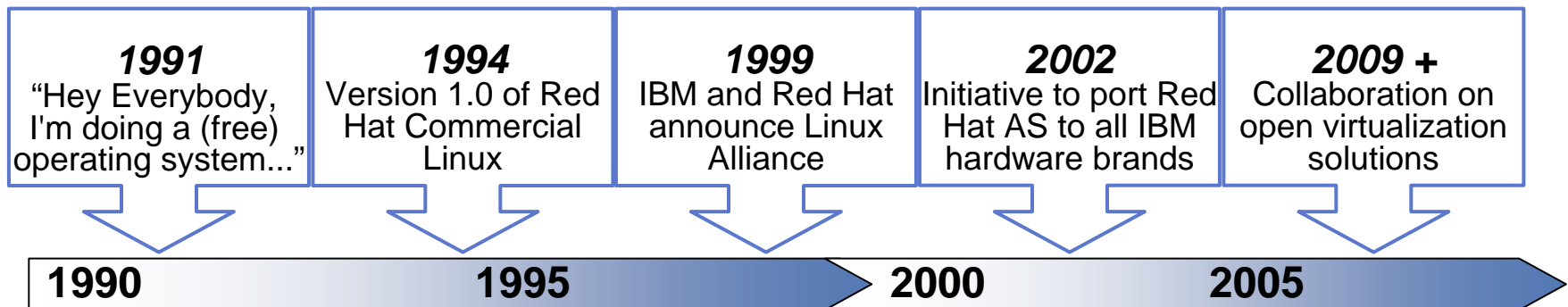
1. <http://www.idc.com/getdoc.jsp?containerId=prUS21989209>

A history and future of collaboration



- **10 years of joint development**
 - Platform support
 - Innovative feature development
 - Usability
- **Ongoing collaborative projects**
 - Open virtualization
 - Open Client for Linux
 - Linux Test Project, Real Time, System Tap
- **IBM runs Red Hat ...**
... Red Hat runs on IBM

Two industry leaders working as one to maximize the Linux advantage



Red Hat Enterprise Linux (RHEL) momentum

■ Market Leadership

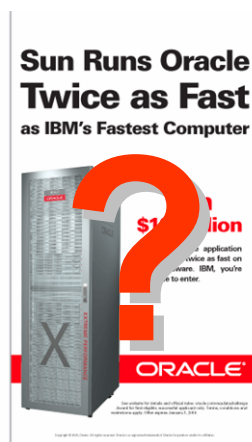
- Red Hat is the global commercial leader in the Linux market with over 89% market share in the US (Gartner, 2008)
- Red Hat ranked 11th on Forbes' annual list of fastest-growing tech companies (Forbes, February 2009)

■ Product and Service Leadership

- Red Hat Enterprise Linux is used for mission and business critical workloads by major corporations across multiple industries

■ Performance Leadership

- Red Hat Enterprise Linux provides “real” performance leadership across all IBM server platforms



“We’re in it to Win it.”

Larry Ellison, Oracle CEO

– September 10, 2009

vs.

“We’re in it to Share it.”

Jim Whitehurst, Red Hat
President & CEO



<http://www.redhat.com/stories/redhatway/>

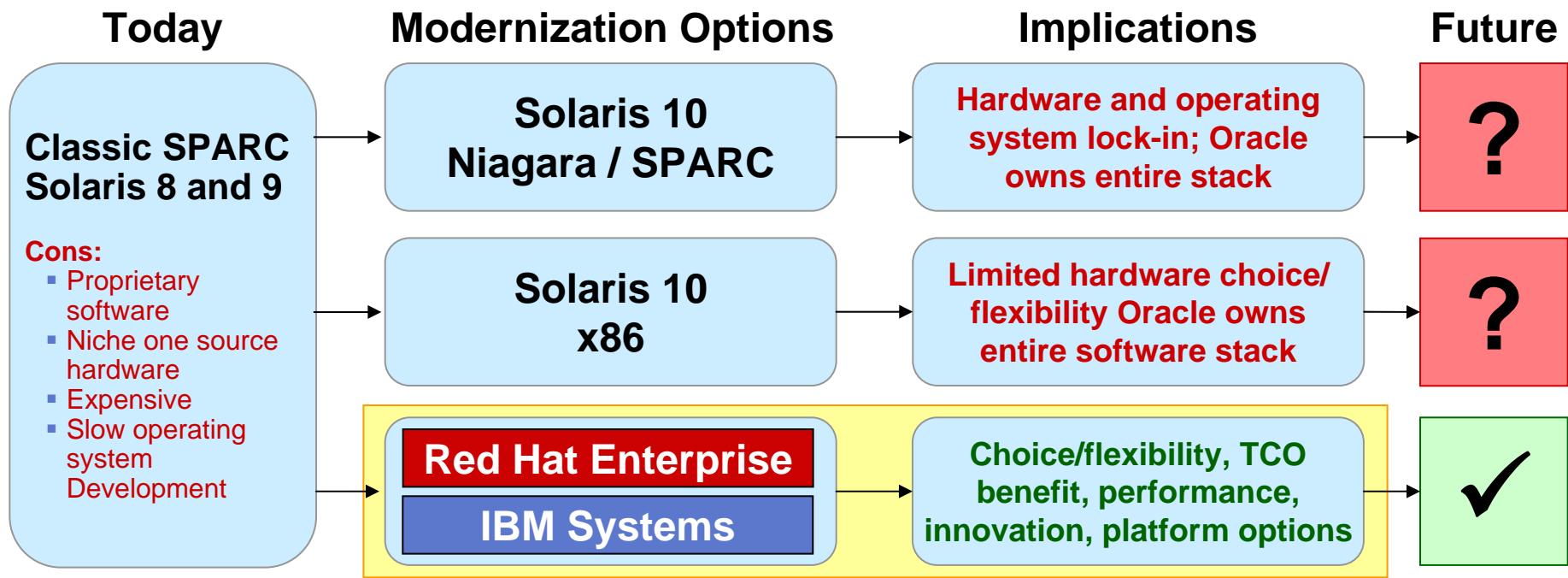
Choose the right path – Solaris to RHEL on IBM Systems



*“There was a low barrier to exit from Solaris over the last 5 years to Linux. And in fact you can talk to any customers and they were able to **move very smoothly** and **without hardly breaking a sweat** in getting to the Linux environment.”*

Scott McNealy

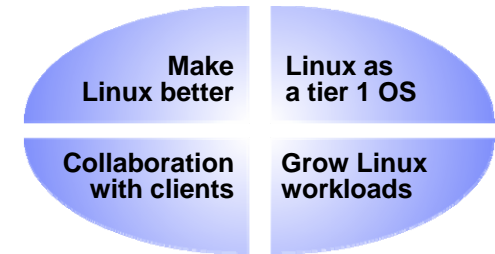
Source: Sun Q2 FY06 Quarterly Earnings Call, Jan 24, 2006 at 50:30 to 50:47. Available at <http://wcddata.sun.com/webcast/archives/VIP-2238/>



IBM collaborates with the Linux community

■ IBM

- Has been an active participant since 1999
- Is one of the leading commercial contributors to Linux
- Has over 600 full-time developers working with Linux and open source



**Who Has Contributed to Linux?
(2005 – 2009)**

Company Name	Number of Changes	Percent of Total
None	26,644	18.2%
Red Hat	17,981	12.3%
Unknown	11,164	7.6%
IBM	11,151	7.6%
Novell	11,046	7.6%
Intel	7,782	5.3%
Consultant	3,657	2.5%
Oracle	3,513	2.4%
Linux Foundation	2,345	1.6%
SGI	2,317	1.6%
Parallels	1,939	1.3%
Renesas Technology	1,925	1.3%
Academia	1,712	1.2%
Fujitsu	1,592	1.1%
MontaVista	1,564	1.1%
MIPS Technologies	1,537	1.1%
Analog Devices	1,467	1.0%
HP	1,415	1.0%
Freescall	1,375	0.9%
Google	1,261	0.9%

■ Linux Kernel and Subsystem Development

- Kernel Base Architecture Support
- GNU
- Security
- Systems Management
- RAS
- Virtualization
- Special Projects
- Filesystems, and more

■ Expanding the Open Source Ecosystem

- Apache and Apache Projects
- Eclipse
- Mozilla Firefox
- OpenOffice.org
- PHP
- Samba, and more



■ Foster and Protect the Ecosystem

- Software Freedom Law Center
- Free Software Foundation (FSF)
- Open Invention Network, and more

■ Promoting Open Standards and Community Collaboration

- The Linux Foundation
- Linux Standards Base
- Common Criteria certification
- Open Software Initiative, and more

IBM's Sun Migration program gains momentum with Linux

IBM with Linux

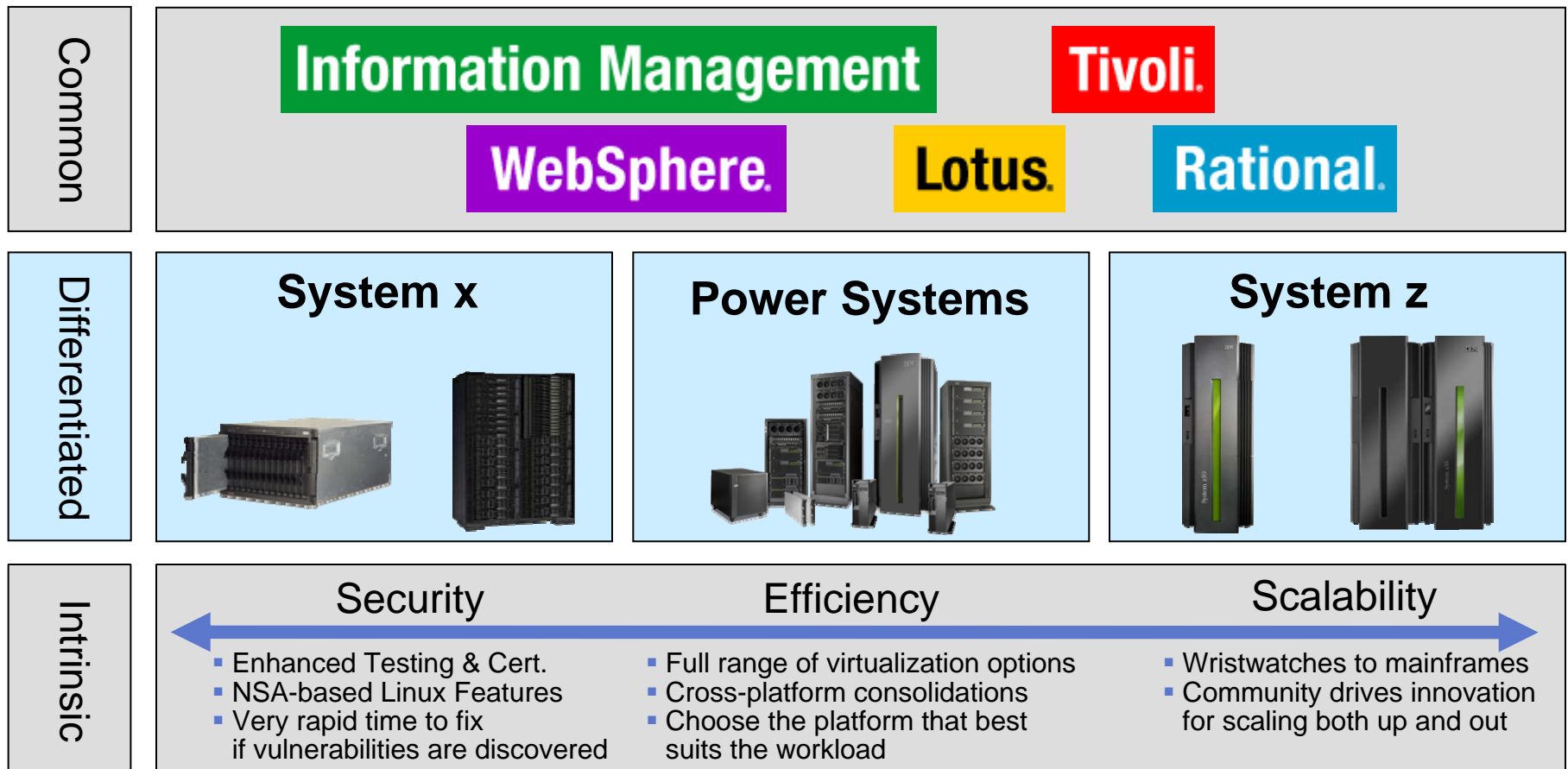
- About 40% of IBM wins among Sun's top customers included Linux (since Oracle's announcement of the acquisition)
- Almost one third of Sun to IBM assessments by IBM's Migration Factory were for Solaris to Linux on IBM servers in 2Q/3Q 2009
- In 2009, on track to double migrations from Solaris to Linux on IBM servers
- Top sectors for Linux engagements include: Financial Services and Government

Overall IBM

- 1,800+ customers migrated from competitive platforms to IBM, in past three years
- 400+ Sun wins in Sun accounts year to date 2009
- IBM is adding an average of 10 Sun customers every week
- During IBM's 3Q 2009 earnings conference call, IBM CFO Mark Loughridge told analysts *"In hardware, we gained 5 points of share in Power Systems, and 2 points of share in System x. That's lot of share – and we're taking it from both Sun and HP."*

Red Hat Enterprise Linux on IBM provides flexibility and choice

Match the platform to the workload, without adding complexity



Why migrate to Red Hat Enterprise Linux with IBM?

*Proven performance, solid security, migration assistance, lower TCO
Benefits you can count on from IBM and Red Hat*

- **RHEL is tuned to support underlying reliability, availability, and serviceability capabilities of IBM hardware**
 - RHEL on Power Systems enables a system to attempt recovery if a PCI adapter fails (Extended Error Handling support)
 - RHEL on System z eliminates most I/O-related downtime because it natively utilizes multi-path I/O support via z/VM
- **RHEL takes advantage of IBM servers' built-in performance capabilities**
 - RHEL on Power Systems and System z enables dynamic addition and removal of CPU and memory resources as needed while the OS is running (CPU hot sparing and dynamic memory addition and removal)
 - IBM published highest TPC-C performance result ever achieved by an x86-64 with IBM System x3950 M2 running DB2 and RHEL

1 of 4

Why migrate to Red Hat Enterprise Linux with IBM?

*Proven performance, solid security, migration assistance, lower TCO
Benefits you can count on from IBM and Red Hat*

- **RHEL capitalizes on virtualization, consolidation and scalability capabilities across IBM hardware**

- RHEL on System z enables unmatched levels of workload consolidation in single footprint through sophisticated hypervisor technologies (LPAR, z/VM)
- RHEL on Power Systems supports advanced virtualization that gives flexibility to allocate from 1/10 of a processor to the entire capacity of the machine to a partition and transfer partitions between Power Systems servers to avoid downtime (Live Partition Mobility)
- RHEL on System x enables clients to run larger systems and virtualize more efficiently with Linux-exclusive ability to scale up to 96 cores (16 sockets, 6 cores each)

Why migrate to Red Hat Enterprise Linux with IBM?

*Proven performance, solid security, migration assistance, lower TCO
Benefits you can count on from IBM and Red Hat*

- **IBM and Red Hat can reduce risks when migrating from Sun Solaris to RHEL on IBM systems**
 - IBM's Migration Factory has a proven process and track record of successfully migrating hundreds of clients from Solaris to RHEL
 - Red Hat offers RHEL migration planning services, Solaris vs. RHEL training guides
- **Customer can build superior IT infrastructure solutions with IBM and Red Hat**
 - DB2/RHEL has lower TCO than Oracle/Solaris and DB2 9.7 has tools that can make migrations from Oracle easier and provide better management
 - DB2/RHEL provides storage savings up to 50% due to compression rates of up to 83%

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Why migrate to Red Hat Enterprise Linux with IBM?

Proven performance, solid security, migration assistance, lower TCO benefits you can count on from IBM and Red Hat

- **Both Red Hat and IBM stay at the leading edge of Linux security innovation, with development teams in-house**
 - Red Hat was the first distribution to commercially support SELinux, jointly developed by Red Hat and IBM
 - Red Hat and IBM collaborated to obtain full EAL4+ certification on System x, Power Systems, and System z

Customer incentives – select the ones best for you

IBM offers:

- **Power Rewards and zRewards**
 - Buy a Power Systems or System z server, move workload from Sun to IBM servers and earn \$8k per SPARC core in points
 - Points are used for services, software, and now can be applied to IGF options
- **IBM's STG Migration Factory**
 - No charge Server Makeover Analysis, custom analysis for SAP, Oracle available
 - No charge Migration Assessments for qualified clients
 - Comprehensive migration assistance
- **IBM Global Financing (IGF)**
 - Competitive Buyback – offering Fair Market Value buybacks of competitive OEM gear
 - Short Term Rental – offering to meet customers immediate needs for capacity/transitions
 - Total Solution Financing available

Red Hat offers:

- **Solaris Clients Training Discounts**
 - Discount on RH Certified Engineer
 - Seminar: “OS for IT” for select clients
 - Solaris to RHEL training guides
- **Red Hat Professional Services**
 - Strategic Migration Planning.
 - Discount for qualified clients

Power Rewards Example

- **Buy a Power server and move workload from three 4-core Sun Fire V490 servers**
 - Earns up to 96,000 points (12 cores X 8,000 points per core)
 - Use 94,000 points:
- **Receive up to \$109,200* of services**

* Based on US List Price of Services. Prices subject to change without notice. Prices from Resellers may vary.

Bank of New Zealand

A bank moves from Sun to System z10 with Red Hat Enterprise Linux to reduce their carbon footprint and address datacenter cost and capacity concerns

■ The Challenge

- A data center with 200 Sun servers was at capacity
- Bank of New Zealand needed to grow, reduce emissions and costs, become more open, and become carbon-neutral by 2010

■ The Solution

- Consolidate 200 Sun servers down to just 1 IBM System z10 mainframe running Red Hat Enterprise Linux

■ The Benefits

- Bank of New Zealand reduced power consumption by close to 40%, heat output by 33%, datacenter footprint by 30%
- Just one administrator needed per 100 virtual servers
- New environments are deployed in minutes, not days
- Bank of New Zealand expects 20% ROI over life of platform



“Deploying IBM mainframes with Red Hat Enterprise Linux to address our carbon footprint and cost savings concerns was a very big deal, especially at the senior management level.”

Lyle Johnston
Infrastructure Architect
Bank of New Zealand

<http://www.ibm.com/press/us/en/pressrelease/26621.wss>

IBM Linux win at large “US Federal customer”

*Agency chooses to IBM over HP for their most demanding data warehouse
Customer currently also operates Power Systems (AIX) infrastructure*

■ The Challenge

- Business need to replace legacy Sun Solaris servers and would only consider Linux bids
- ‘Very large’ Oracle RAC DB was nearing capacity and performance limits

■ The Solution

- IBM Power Systems p575 (x14) configured in a secure, highly-available environment including Sybase IQ and RHEL

■ The Benefits

- Increased scalability and availability, while reducing costs
- The agency migrated to the IBM solution without downtime or interruptions to availability



Many Public Sector clients are looking to Linux-based server platforms as a lower cost, more open computing environment

City of Burbank, CA

The city reduces costs and risk by replacing a large assortment of Solaris and Windows-based servers with two IBM BladeCenters running RHEL and AIX

■ The Challenge

- Complex infrastructure with Sun, HP, and IBM servers
- Desire to upgrade from Oracle EBS 10.7 to 11.0
- Current systems were isolated server/application
 - Oracle EBS, Oracle Forms, Oracle DB
- No disaster back up capability
- Desire move to Linux and SAN connect to storage

■ The Solution

- Consolidate 5 racks of servers down to two IBM BladeCenter E, with dynamic failover across two sites
 - Mix of Intel- and Power-based blades
 - Mix of Red Hat Enterprise Linux, AIX, Windows operating systems, with RHEL as target platform going forward
- IBM System Storage DS4300

■ The Benefits

- Simplified infrastructure for a broad range of needs
- Excellent performance, lower TCO, more flexibility
- Improved availability and disaster recovery capabilities

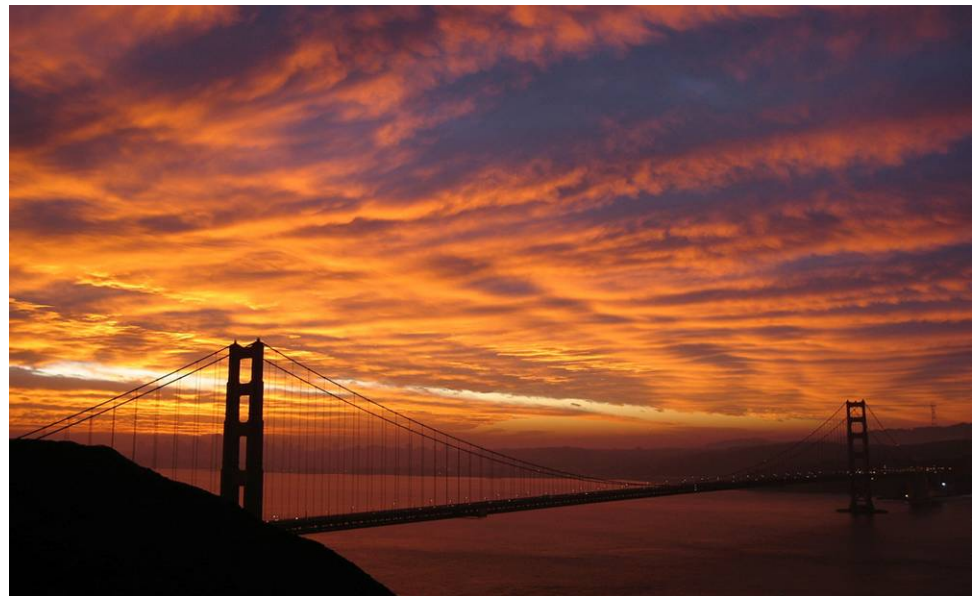


“Moving all three tiers of our Oracle EBS solution to BladeCenter enabled cost savings and improved performance. The number of blade and connectivity options available help us to meet future IT challenges.”

Mahesh Saraswat
Database Administrator III
City of Burbank, CA



Questions and answers



BACKUP SLIDES

IBM's Linux strategy is aligned with our clients' needs

Key drivers

- **Linux for Business-Critical Workloads**
 - Demand for a lower-cost, enterprise-grade OS
 - Demand for support of Linux on highly reliable and highly available platforms
 - General acceptance and ISV support of Linux for core datacenter workloads
- **Linux in the Mid-Market**
 - Microsoft license agreements drive excessive cost for small business
 - Increased need for enterprise-grade applications and middleware for smaller businesses
- **Project Big Green Linux**
 - Rising energy costs
 - Incremental datacenter expansion leading to sprawl, with increased management costs
 - Ever increasing capacity requirements
- **Emerging Technologies**
 - Growing need for solution to the complexity problem, as complexity is a key driver of cost
- **Linux on the Desktop**
 - Need for cost reduction but increased productivity
 - Usage paradigms outgrowing one-size-fits-all approach

Adding business value with cross-platform solutions – Linux running on IBM Servers

- **The key findings of this ROI study show that clients benefit using IBM Power Systems and IBM System z to consolidate their Linux workloads**
 - Consolidation and virtualization reduced annual IT infrastructure costs by \$17,700 per 100 users per year
 - The use of fewer server footprints, made possible by the use of scaleable servers, resulted in overall power/cooling savings of 50%
 - In summary, a three year ROI of nearly 500% and a payback of just over 6 months!
 - Foreign language versions now available in Japanese, Korean, Chinese and Russian



IDC
Analyze the Future

WHITE PAPER

Adding Business Value with Cross-Platform Solutions: Linux Running on IBM Servers

Sponsored by: IBM

Jean S. Bozman Al Gillen
Randy Perry Eric Hatcher
October 2008

EXECUTIVE SUMMARY

IBM has successfully executed a Linux and open source strategy that allows it to leverage the capabilities of its IBM Power Systems (formerly called IBM System i and IBM System p) and IBM System z mainframes with modern software solutions. This strategy has enabled IBM to efficiently build and deliver cross-platform operations through advanced virtualization and consolidation of Linux workloads running on those systems. Customers have a choice in the way they deploy Linux workloads across their enterprises; some have elected to invest in scalable IT infrastructure platforms, in some cases at a higher initial cost than that of Linux solutions that are deployed on volume servers, which are servers that are priced less than \$25,000.

This IDC White Paper is based on research data collected at a dozen customer sites in the United States, Canada, and Europe, all with mixed server platforms, to find the technical and business outcomes from deploying cross-platform Linux solutions on IBM servers. This white paper presents the key findings of a return on investment (ROI) analysis that was conducted by IDC this year at these customer sites. It documents customers' decisions regarding hardware, software, and IT staffing, including the ROI that was seen in the year following the initial deployment. Details about the study's findings, based on data analysis and on in-depth interviews with respondents to capture both capital expenditures (capex) and operational expenditures (opex), are described in the ROI Analysis section of the paper. The examination of the components within this ROI analysis shows the business value provided by the systems that were acquired, deployed, and operated by the customers.

The scalable systems involved in these cross-platform Linux deployments can operate as communicating hubs in a high-bandwidth corporate network of multiple systems, including all types of servers and server blades running Linux. By adopting this cross-platform approach for Linux workloads, IBM is demonstrating the business benefits of workload consolidation, "green IT," and high availability — which is integral to these scalable servers — by leveraging virtualization software to deploy new "virtual servers" as business requirements change, over time.

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<http://ibm.com/linux/migrate.html>