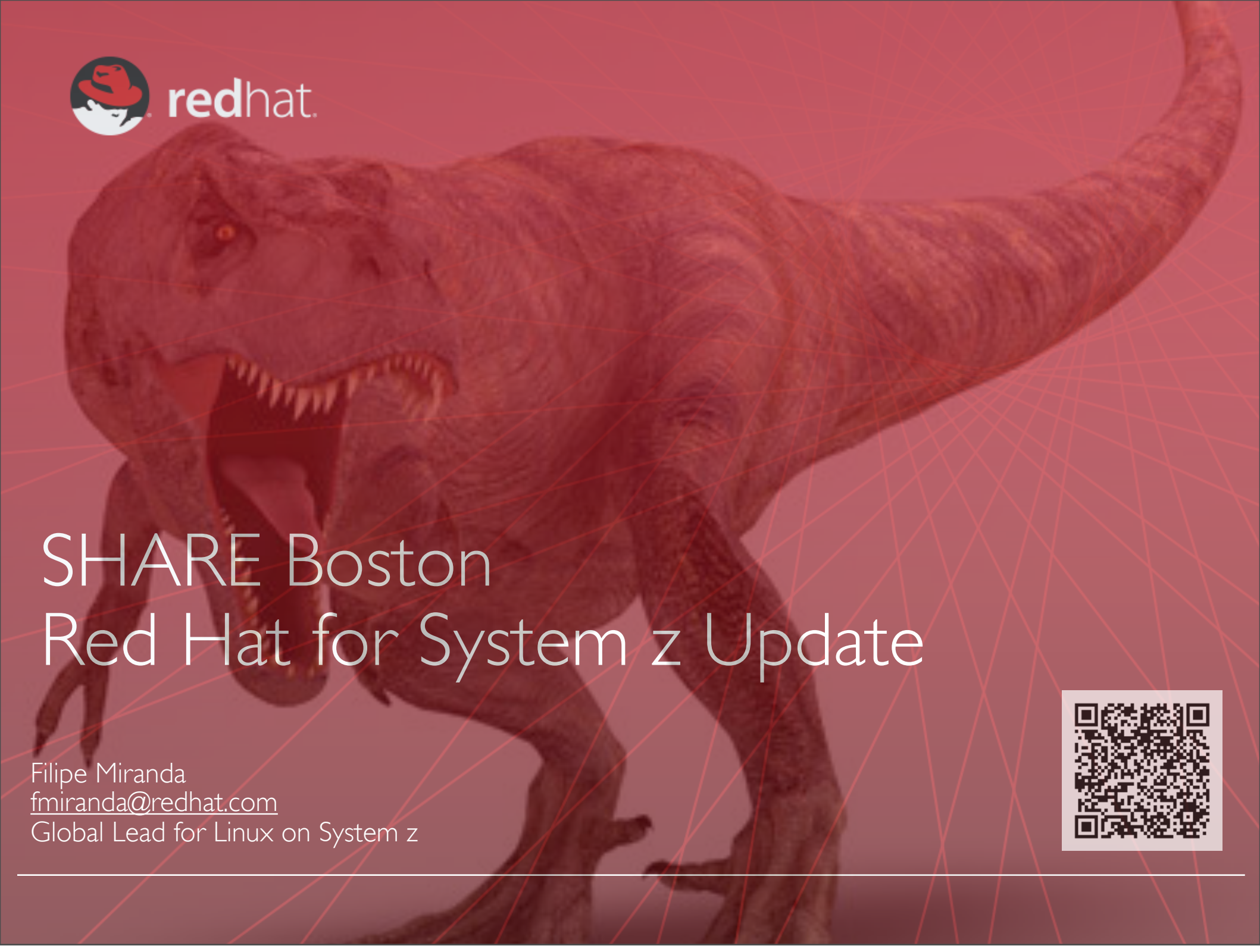

SHARE Boston
Red Hat for System z Update

Filipe Miranda
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Global Lead for Linux on System z

Agenda

Red Hat Inc.
- Red Hat in a nutshell

RHEL Growth on System z

Red Hat Alliance with IBM

New supported Hardware

Fedora for s390x

High level roadmap
- Overview RHEL 6.4
- Summary of proposed features for RHEL 6.5 and RHEL 7

Customer References

Red Hat Inc.

5300+
Employees

0$
Debts

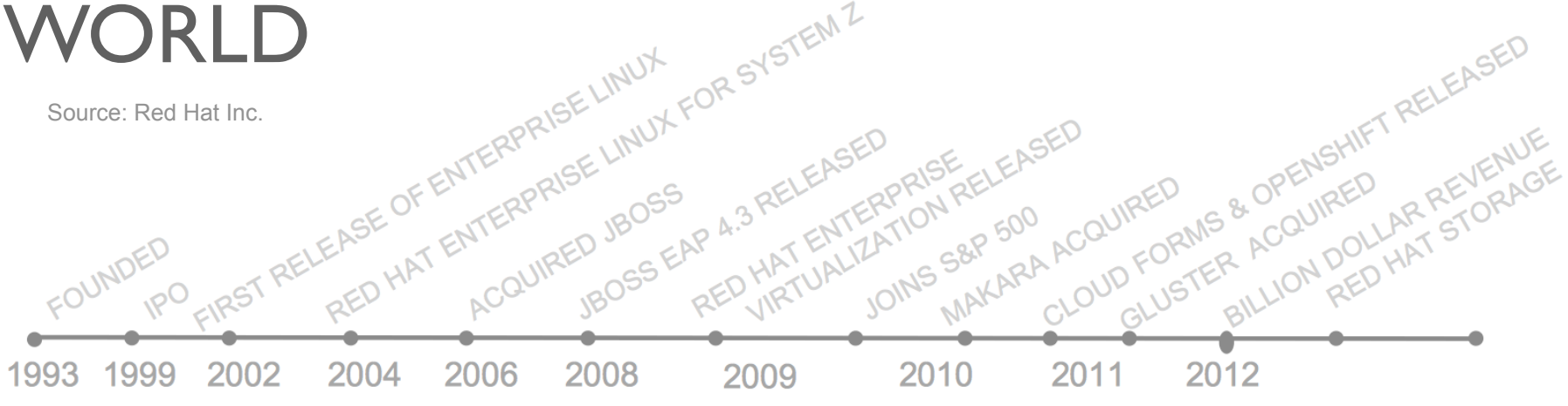
900 000+
Red Hat certified IT Specialists

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

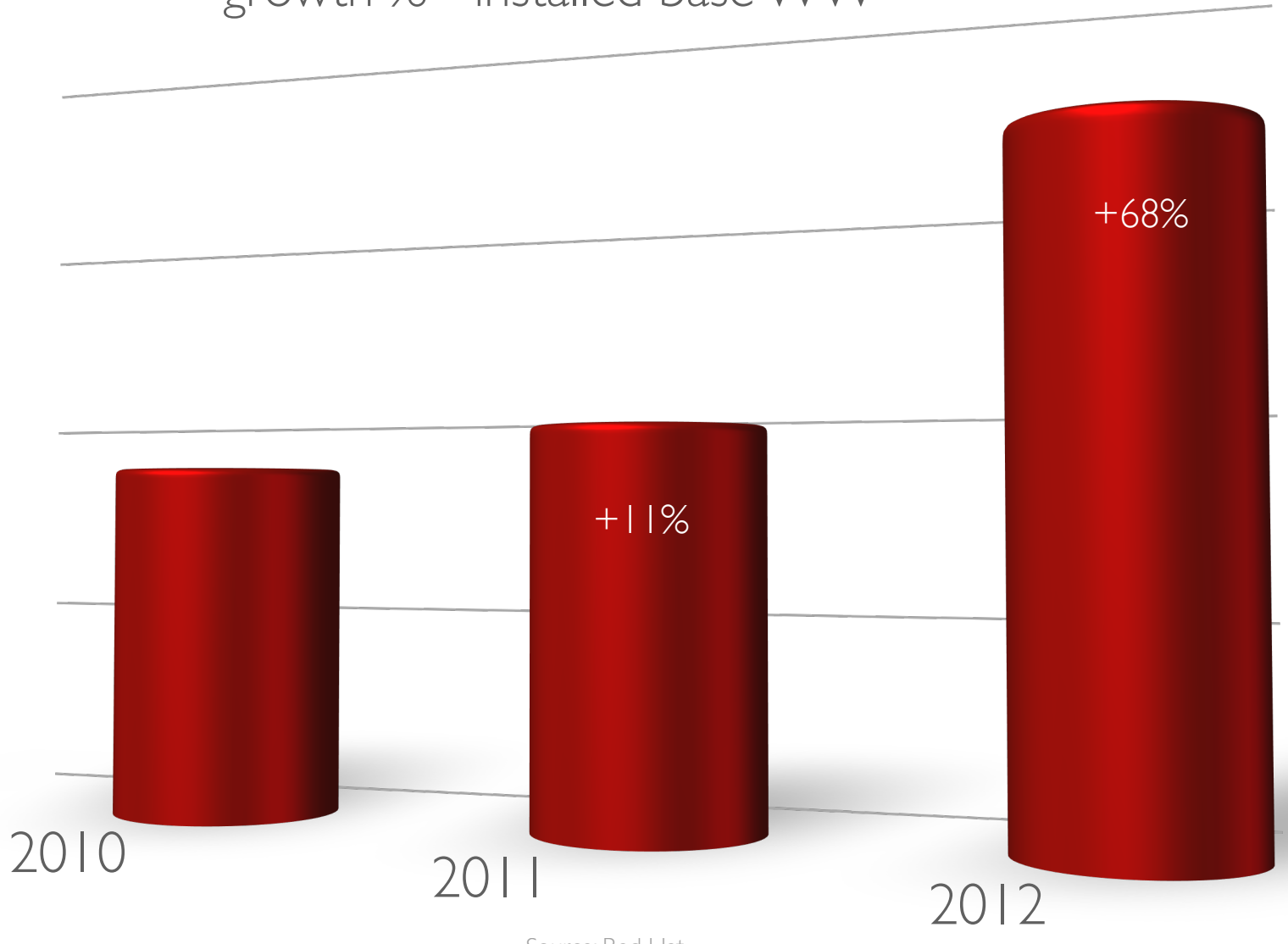
Source: Red Hat Inc.

OFFICES WORLDWIDE

MORE THAN
80%
of
FORTUNE
500
COMPANIES
use
RED HAT
PRODUCTS &
SOLUTIONS.



RHEL for System z subscriptions (IFLs) growth % - installed base WW



Source: Red Hat

More than 10 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

More than 10 years of collaboration between Red Hat and IBM

Red Hat is currently part IBM's solutions such as:

- Offered in zCloud
- Embedded as "KVM" in:
  - IBM SmartCloud
  - zBX (x86 Blades virtualization)
  - PureSystems
- Embedded in Netezza and more

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

Production 1 *(approx. 5 ½ years)*					Production 2 *(approx. 1 year)*	Production 3 *(approx. 3 ½ years)*			
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10

IBM

Version 5		Version 6		Products
32-bits	64-bits	32-bits	64-bits	
IBM zEnterprise EC12 (zEC12) 2827				
	5.8		6.3	Red Hat Enterprise Linux

hardware.redhat.com | Certifications

IBM

Version 5		Version 6		Products
32-bits	64-bits	32-bits	64-bits	
IBM zEnterprise BC12 (zBC12) 2828 Server				
	5.8		6.3	Red Hat Enterprise Linux

Red Hat Enterprise Linux for IBM System z Business Class Special Offer

Benefit from the security, performance and scalability of both technologies:
Red Hat Enterprise Linux and IBM System z BC servers to:

IBMers and Customers please contact your local Red Hat's Alliance Manager o Filipe Miranda<fmiranda@redhat.com> for more details for this special offer:

Red Hat's Alliance Managers

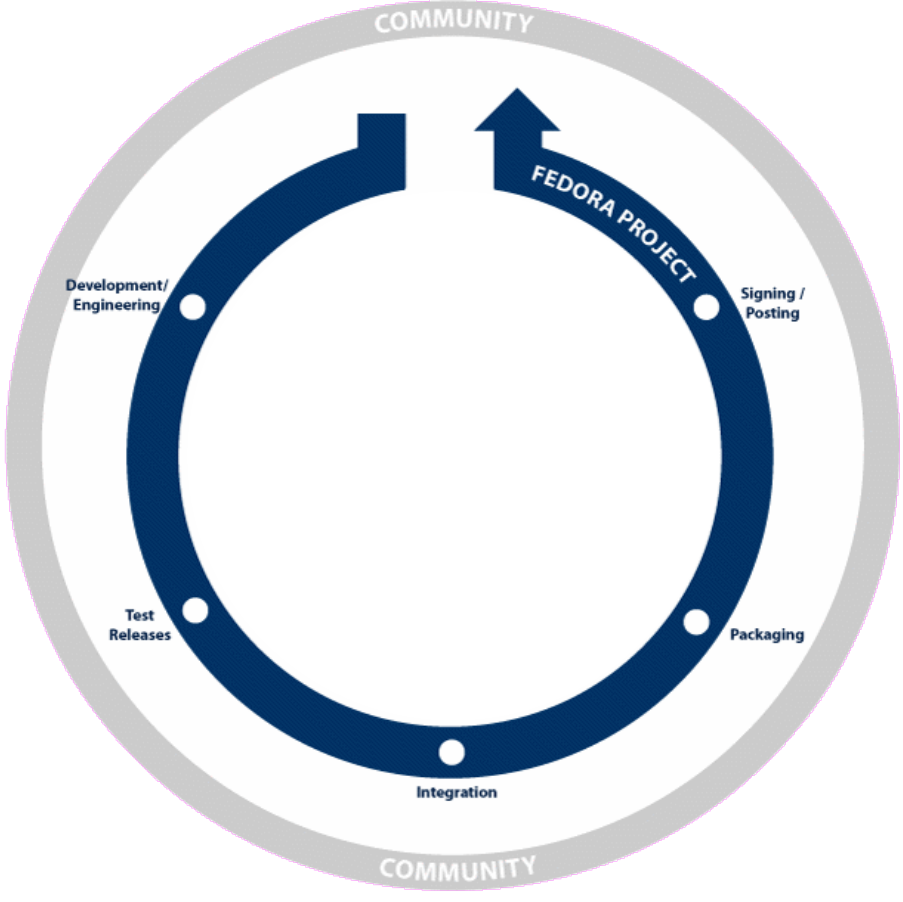
US Jennifer Miller <jmiller@redhat.com>
EMEA Sebastian Siegert <ssiegert@redhat.com>
APAC Norman Deery <ndeery@redhat.com>
LATAM Mariano Fernandez <mfernanfez@redhat.com>
BRAZIL Samuel Masini <samuca@redhat.com>

*Not valid for renewals

Red Hat Development Model
Benefit from Fedora for s390x!

Fedora

- Most current, sets direction for RHEL technologies
- Community Supported
- Released ~6 mo cycles



Fedora for System z Project Page
http://fedoraproject.org/wiki/Architectures/s390x

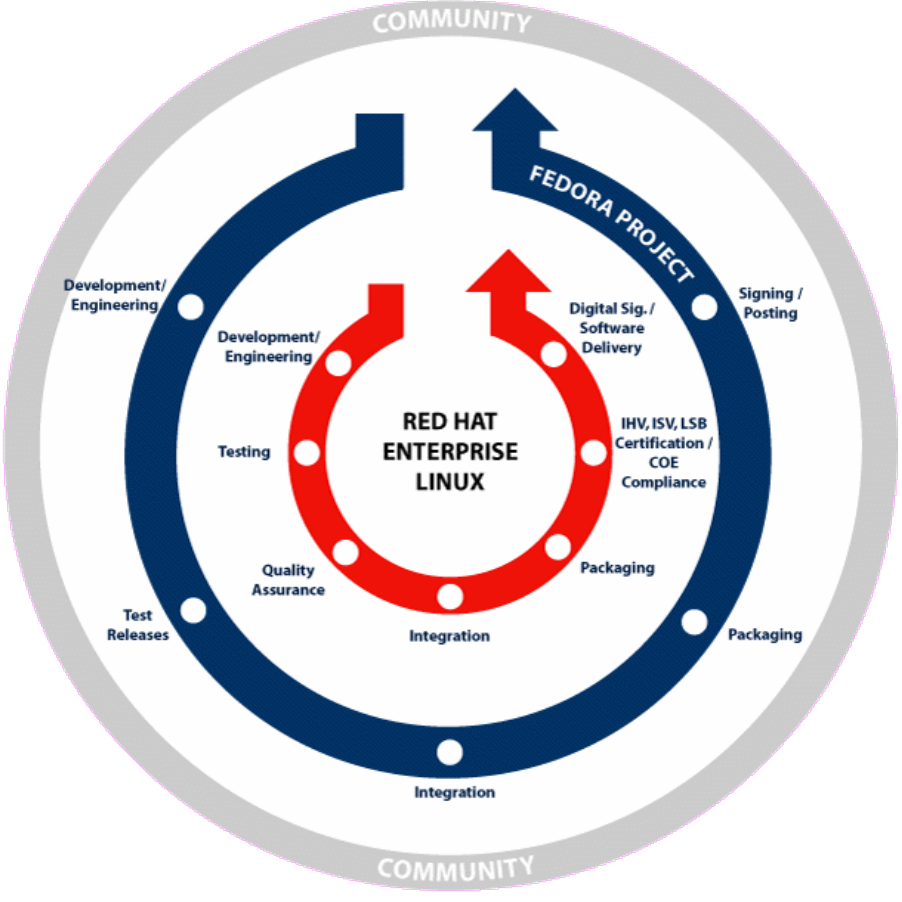
Become a contributor
Talk to package maintainers

http://fedoraproject.org/join-fedora

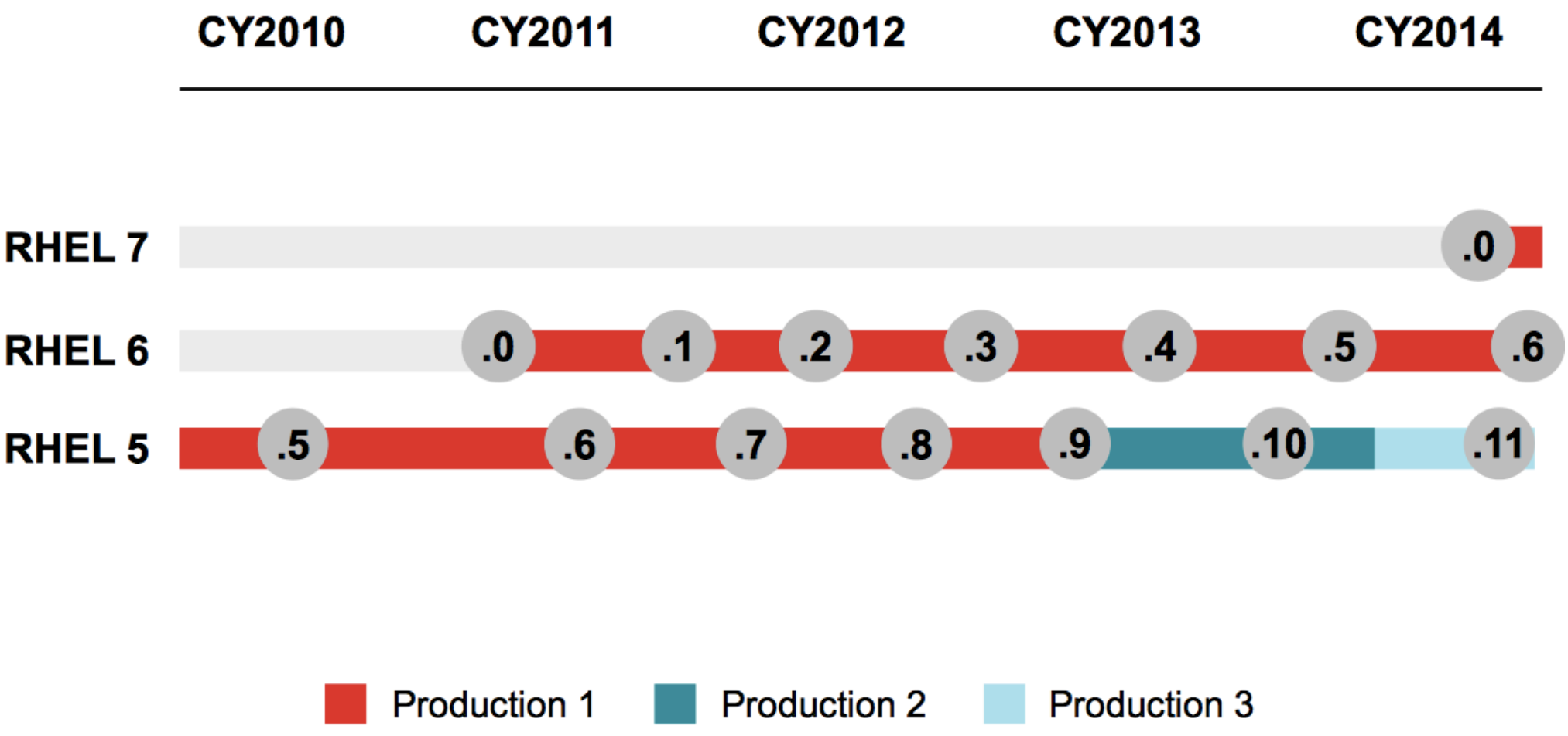
Red Hat Development Model
The same for all architectures

Red Hat Enterprise Linux

- Stable, mature, commercial product
- Extensive Q&A, performance testing
- Hardware & Software Certifications
- 10yr maintenance
- Core ABI compatibility guarantee
- Major releases ~2-3yr cycle
- Minor releases ~6-8mo cycle



Red Hat Enterprise Linux High Level Roadmap*



*All dates are approximate and subject to change

Red Hat Enterprise Linux 6.4
GA: Feb 21 2013

Currently Available

New features for System z
General New Features
Bugfixes

Support of new crypto hardware

This feature provides support for new crypto hardware: CryptoExpress4

The z90crypt device driver has been updated to support the new Crypto Express 4 (CEX4) adapter card.

Data Routing for FCP

Enable FCP to pass data directly from memory to SAN (data routing) when memory on the adapter card is blocked by large and slow I/O requests.

Improved performance by increasing the I/O rate and throughput for short and fast I/O requests when memory on the adapter is blocked by large and slow I/O requests will satisfy customer expectations regarding performance

The zfcp device driver has been updated to add data structures and error handling to support the enhanced mode of the System z Fibre Channel Protocol (FCP) adapter card. In this mode, the adapter passes data directly from memory to the SAN (data routing) when memory on the adapter card is blocked by large and slow I/O requests.

Support of the Transactional Execution Facility

Support of the Transactional-Execution Facility (available with IBM zEnterprise EC12) in the Linux kernel helps eliminate software locking overhead that can impact performance and offer increased scalability and parallelism to drive higher transaction throughput.

Support of Runtime Instrumentation Facility

Support of the Runtime Instrumentation Facility (available with IBM zEnterprise EC12) provides an advanced mechanism to profile program code for improved analysis and optimization of the code generated by the new IBM JVM.

kdump and kexec Kernel Dumping Mechanism for IBM System z Fully Supported

The kdump/kexec kernel dumping mechanism is enabled for IBM System z systems as a fully supported feature, in addition to the IBM System z stand-alone and hypervisor dumping mechanism. The auto-reserve threshold is set at 4 GB; therefore, any IBM System z system with more than 4 GB of memory has the kdump/kexec mechanism enabled. Sufficient memory must be available because kdump reserves approximately 128 MB by default. This is especially important when performing an upgrade to Red Hat Enterprise Linux 6.4. Sufficient disk space must also be available for storing the dump in case of a system crash.

Optimization of, and Support for, the zlib Compression Library for System z

Optimize the existing compression library zlib for System z by using dedicated SSE instructions and optimized compile options. The compression library zlib is used by Java (decompression of class files), Cognos (PDF generation), TSM (backup) and for Linux installations (binaries compressed in RPMs)

This feature significantly improves performance for applications using the compression library zlib.

Fibre Channel Protocol End-To-End data consistency checking

Data integrity between a host adapter and a storage server has been improved implementing the zFCP-specific part of The T10 Technical Committee introduced an enhancement to the SCSI standard (SPC-4, SBC-3) to protect against errors in user data blocks.

This RAS item provides improved service and control of data flow between adapter and storage device by introducing the zFCP specific part of the enhanced SCSI standard for E2E data consistency checking

Flash Express Support for IBM System z

Storage-Class Memory (SCM) for IBM System z is a class of data storage devices that combine properties of both storage and memory. SCM for System z now supports Flash Express memory. SCM increments can be accessed through Extended Asynchronous Data Mover (EADM) subchannels. Each increment is represented by a block device. This feature improves the paging rate and access performance for temporary storage, for example for data warehousing.

Enhancements to the s390-tools

BZ#847087
This update adds the necessary user space tools to allow Linux to access Storage Class Memory (SCM) as a block device on IBM System z systems using sub-channels of the Extended Asynchronous Data Mover (EADM) Facility.

BZ#847088
The lszcrypt utility has been modified to support the IBM Crypto Express 4 feature.

Red Hat Enterprise Linux 5.10
Under Development

Only bugfixes

706571 769677 772915 782127 783162 785695 786024 787685
809462 820262 820263 828128 840841 851463 854905 855934
857816 859527 861178 862421 862767 862865 863247 864011
866331 866420 869646 870059 872244 872531 876436 876484
878209 879147 883459 885917 903338 906837 914391 916235
921856 924011 949814 952451 962821 964334 975510 ~~713115~~
~~717841~~ ~~746052~~ ~~772602~~ ~~783945~~ ~~785682~~ ~~834110~~ ~~846557~~ ~~854109~~
~~856575~~ ~~856576~~ ~~857985~~ ~~860828~~ ~~864494~~ ~~865219~~ ~~868756~~ ~~868773~~
~~870539~~ ~~871578~~ ~~871896~~ ~~872479~~ ~~872798~~ ~~874833~~ ~~880459~~ ~~880463~~
~~913006~~ (edit)

This information is provided for discussion purposes only and is subject to change for any or no reason.

Red Hat Enterprise Linux 6.5
Under Development

A few new proposed features for System z

libhugetlbfs support for System z

System z performance counters in perf tool

Linux support for concurrent Flash MCL updates

Crypto adapter resiliency

Fuzzy live dump for System z

Safe offline interface for DASD devices

Include Apache Solr

Provide PCHID mapping

Support of VEPA mode (Virtual Ethernet Port Aggregator)

and more !

This information is provided for discussion purposes only and is subject to change for any or no reason.

Red Hat Enterprise Linux 7.0
Under Development

A few new proposed features for System z

Enhance d DASD statistics for PAV and HPF

DASD: add sanity check to detect path connection error

Multiple netiucv paths for communication between z/VM- guests

Compiler - Architecture level set for IBM System z196 and newer

Support for new storage device on System z

Support of new crypto hardware

Crypto adapter resiliency

Support of VEPA mode (Virtual Ethernet Port Aggregator)

Cross Memory Attach for System z

Provide PCHID mapping

Fuzzy live dump for System z

and more, the list is huge, this is just to have an idea...

This information is provided for discussion purposes only and is subject to change for any or no reason.

Newest Customer References of Red Hat Enterprise Linux on IBM System z

Overview

The need

To meet increased demand from a growing customer base, Algar Telecom needs strong, flexible IT systems that deliver high availability and reliability for a diverse range of telecommunications services.

The solution

Algar Telecom consolidated more than 90 standalone servers to Linux virtual servers running on IBM® z/VM® on a single IBM zEnterprise® 196 server, featuring the IBM zEnterprise BladeCenter® Extension.

The benefit

Provides a reliable, flexible platform for core business systems that has cut data center costs by 70 percent, reduced maintenance effort by 65 percent and boosted operational efficiency by 30 percent.

Algar Telecom gives its growing business a signal boost

With a reliable, secure IBM platform that supports growth and better service delivery

Algar Telecom is a telecommunications company headquartered in Uberlândia, Brazil. A division of the Algar Group, Algar Telecom operates the CTBC brand and maintains a strong presence in 87 municipalities. The company provides more than 800,000 customers with mobile and fixed voice telephone and broadband, as well as corporate communication and pay-tv services.

Solution components

Hardware

- IBM® zEnterprise® 196
- IBM zEnterprise BladeCenter® Extension
- IBM zEnterprise Unified Resource Manager
- IBM BladeCenter HX5
- IBM Power® 780
- IBM Storwize® V7000

Software

- IBM AIX® 6.1
- IBM z/VM® 6.2
- Red Hat Enterprise Linux

Services

- IBM STG Lab Services

Simplified management and greater flexibility

To further simplify and reduce its hardware infrastructure's complexity, Algar Telecom deployed 24 Integrated Facility for Linux (IFL) engines on its z196 to run virtualized Red Hat Enterprise Linux servers on IBM z/VM® technology.

The City and County of Honolulu creates a customized cloud

Using IBM System z and reducing licensing costs by up to 68 percent

Overview

The need

The City and County of Honolulu needed to increase transparency to support citizen access to government information. The city's goals were to improve community involvement, services and efficiency.

The solution

Honolulu deployed an Integrated Facility for Linux (IFL) engine running Linux on IBM System z®, an IBM XIV® Storage System, and IBM Maximo® Asset Management and IBM Tivoli® software.

The benefit

The city's new platform helped to reduce database licensing costs by 68 percent, reduce time to deploy applications from one week to a few hours and increase property tax revenue by USD$1.4 million.

A city that evokes the image of a high-rise skyline in the middle of paradise, Honolulu, Hawaii has recently been undergoing a technological transformation. In November 2011, the Center for Digital Government recognized Honolulu as the top digital city in the US in the large-city category. This recognition is impressive, considering that in November 2004, the city evaluated its IT and network systems as being underfunded and out of date.

Improving transparency through optimized systems

To begin its new transparency project, the city needed to open up its previously closed information to citizens. To approach this issue, the city turned to the expertise of IBM Business Partner, Sirius Computer Solutions. Moving forward with a new plan, the city deployed an IFL engine running Linux on the city's IBM System z10® Enterprise Class (z10™ EC) mainframe. This enabled the city to migrate applications and database instances from its servers to the mainframe system, which helped reduce application deployment time from a week to only hours. In addition, when upgrading one of the facilities applications, the city was able to reduce database licensing costs from USD$250,000 to USD$80,000 by moving the application database to System z running Linux.

Increasing citizen involvement with a customized cloud

Another goal made possible by the city's new IBM deployment was an increase in citizen involvement. Using Linux and IBM z/VM® operating systems on the z10 EC system, the city created a customized cloud environment. This provided a scalable self-service platform on which city employees could develop open source applications, and it empowered the general public to create and deploy citizen-centric applications.

One of the more innovative applications supporting citizen involvement is CitySourced Honolulu 311, an application created by IBM Business Partner CitySourced that enables citizens to photograph and pinpoint the location of problems—such as broken street or traffic lights or abandoned cars—and report them to the city.

RED HAT AND IBM FORM THE FOUNDATION FOR ENERGY-EFFICIENT MALAGA SMART CITY PROJECT

smartcity málaga

SOFTWARE

Red Hat Enterprise Linux for System z

HARDWARE

IBM system z10 2097-E12 servers with four IFLs and 48GB of memory

MIGRATION

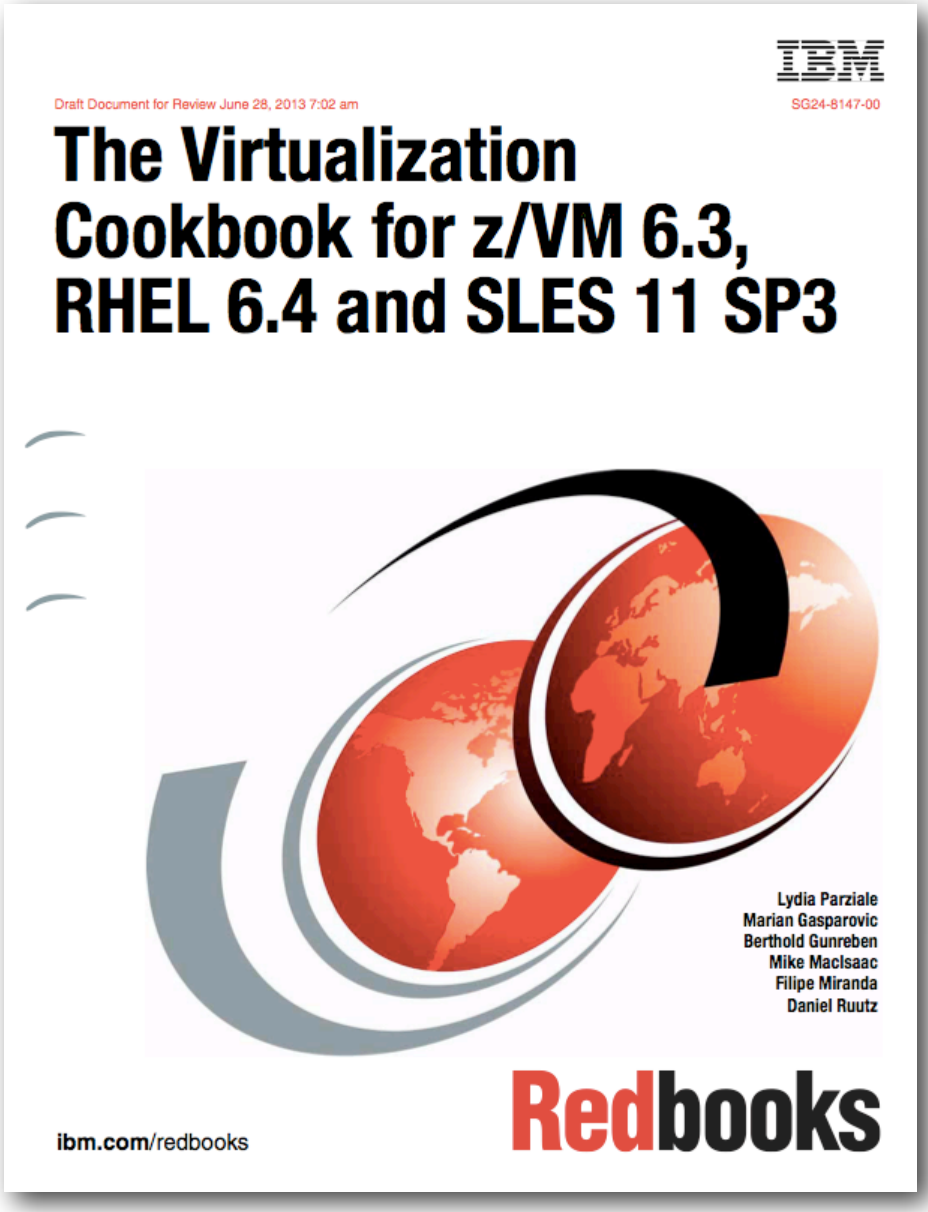
New infrastructure based on IBM System z

The Smart City project, Europe's largest eco-efficient city initiative, comprises 11 companies headed by Endesa, and aims to rationalise users' energy consumption and cut CO_2 emissions using new technologies. Red Hat® Enterprise Linux® is at the heart of the project ensuring reliability, availability, and serviceability (RAS) for IBM's IT systems and infrastructure.

"Thanks to the blend of Red Hat and IBM solutions, the Smart City infrastructure is the most reliable on the market, resulting in the best availability-to-cost ratio. It also ensures data security and safe access to the various components of systems.

ANGEL MOREU GALUP
MAINFRAME EXECUTIVE, IBM

The NEW Virtualization Cookbook (GA ~mid-Sept) features step by step on how to install and use Red Hat Satellite Server.



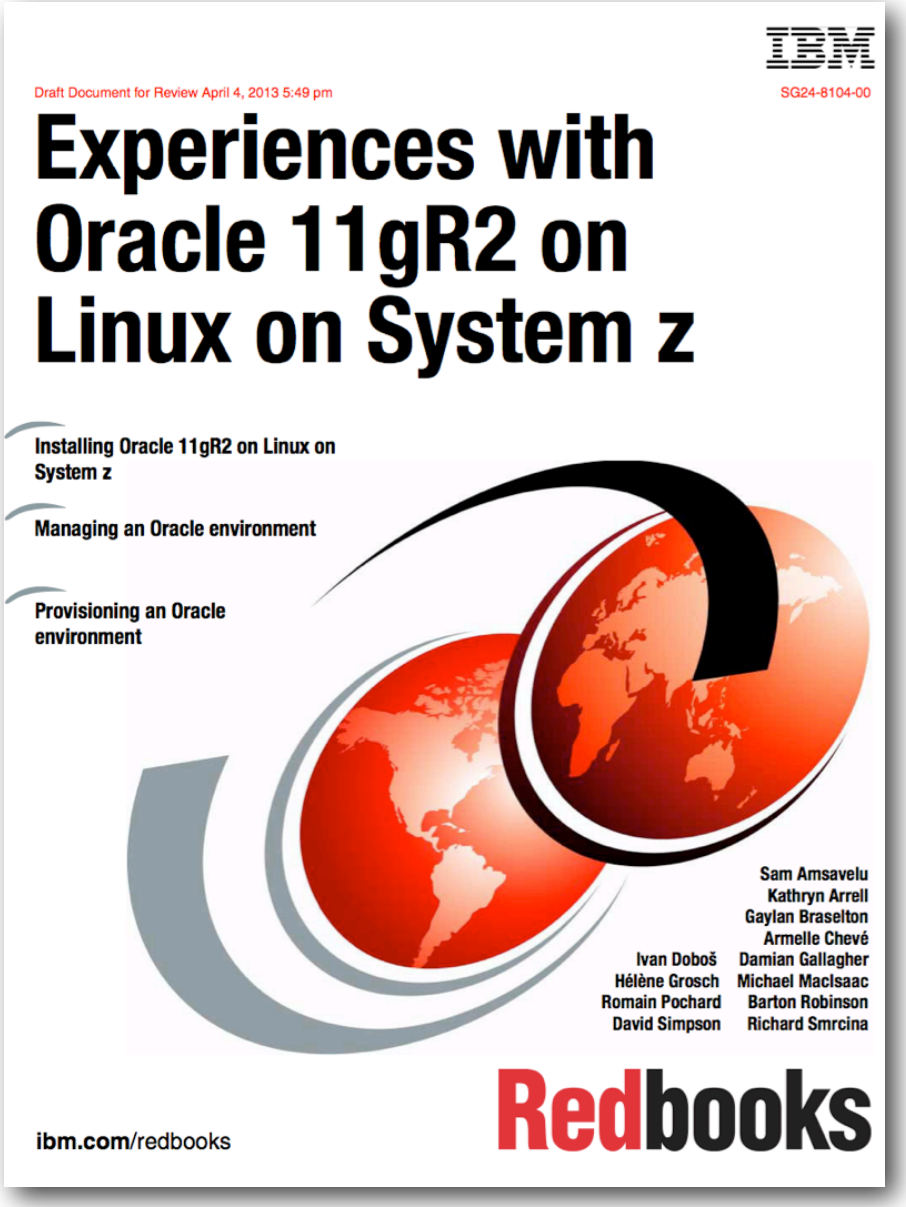
redhat.

Danke
Thank you
Grazie
Obrigado
Gracias

Filipe Miranda
fmiranda@redhat.com

Featured ISV Partner

Oracle Database 11.2.0.3.0 certified on Red Hat Enterprise Linux 6 for IBM System z

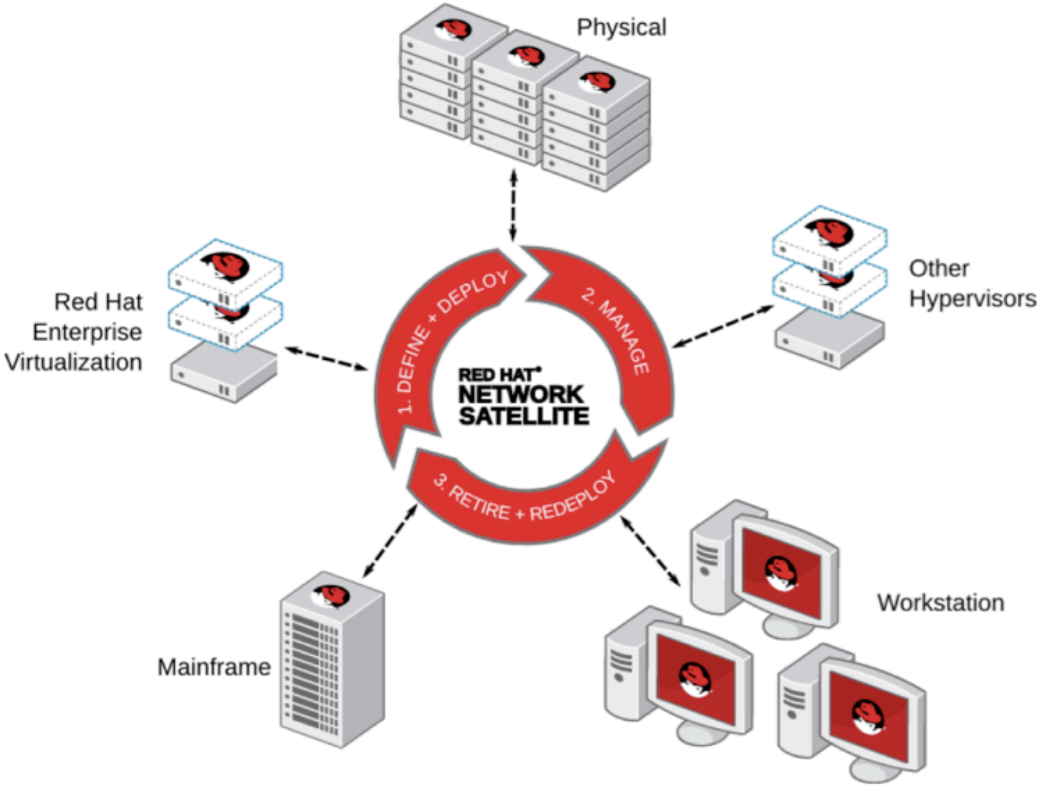


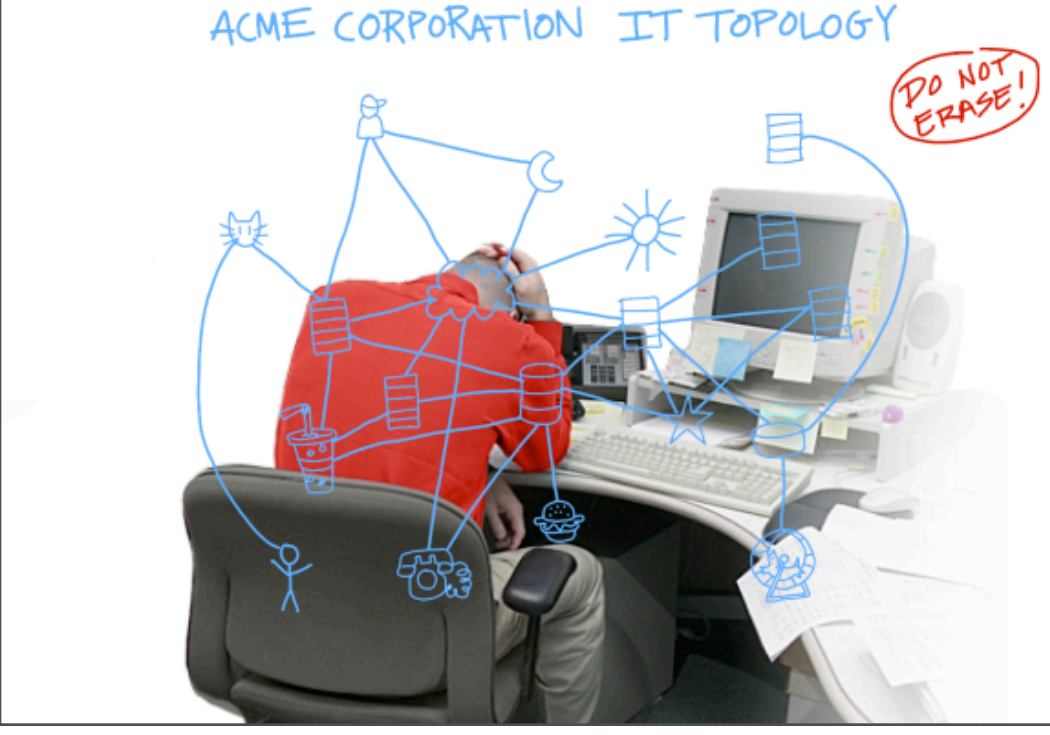
IBM Source: http://goo.gl/6OphH

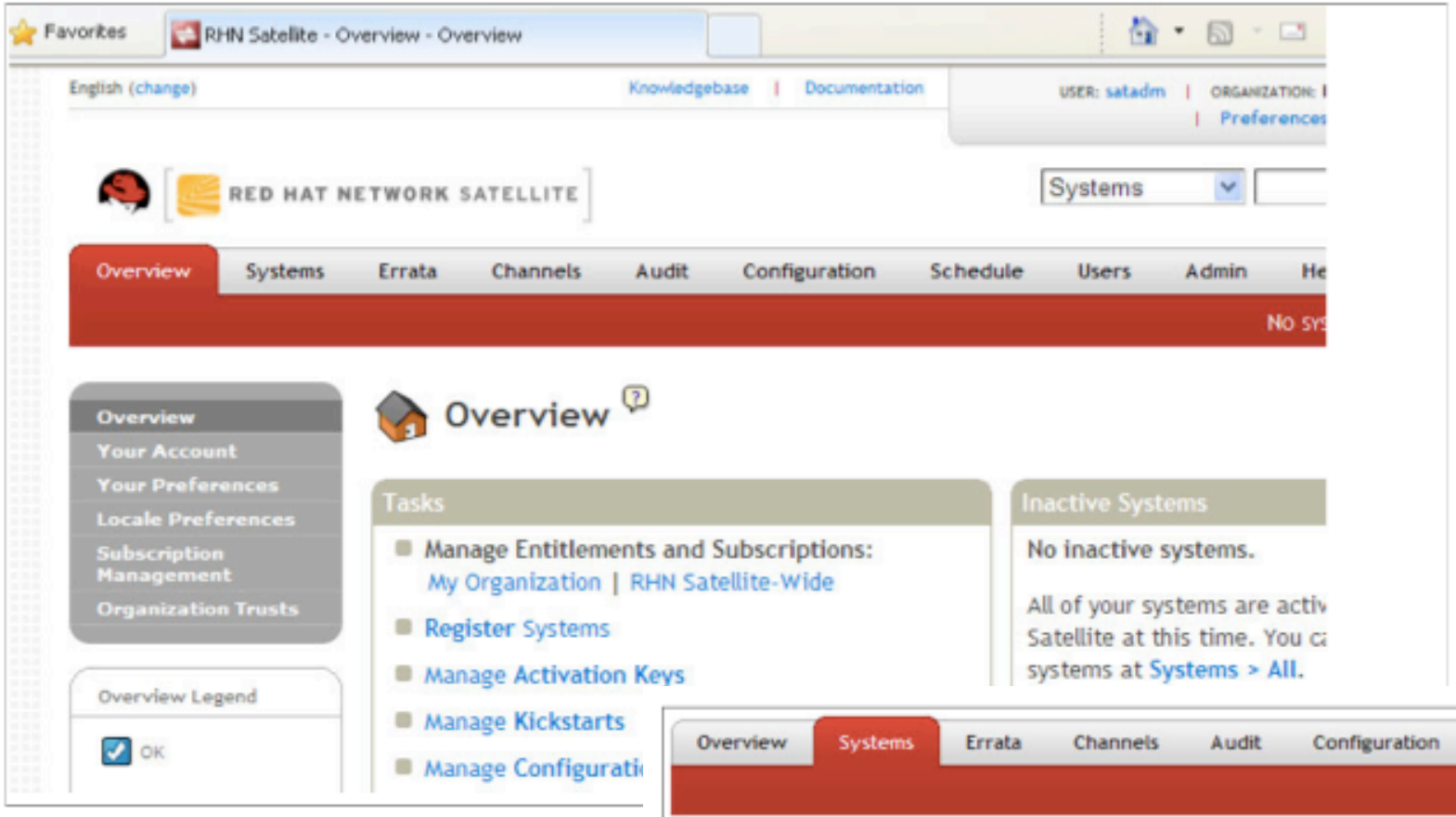
RHN Satellite Overview

Manage the lifecycle of all Red Hat systems from x86 to Mainframe from a centralized console.

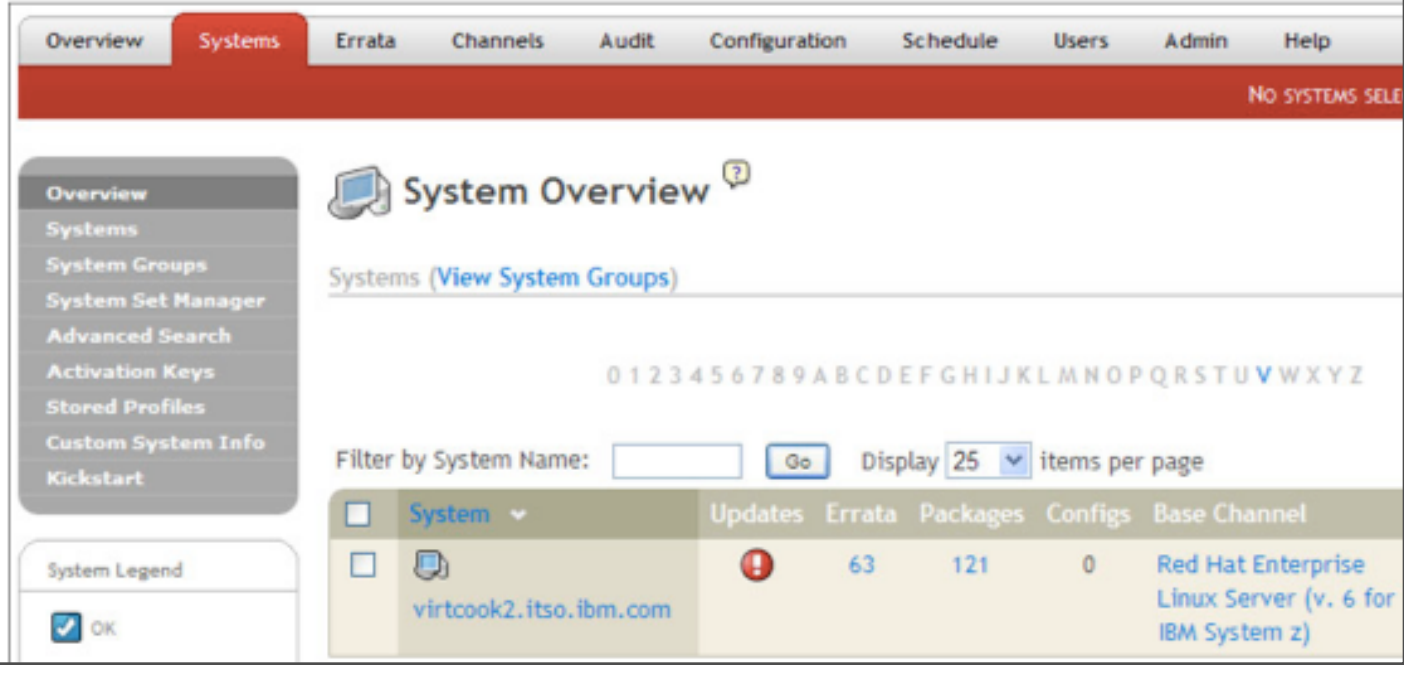
Simplify updates, change of configuration files, security alerts, deploy systems, run remote commands, audit systems, and more



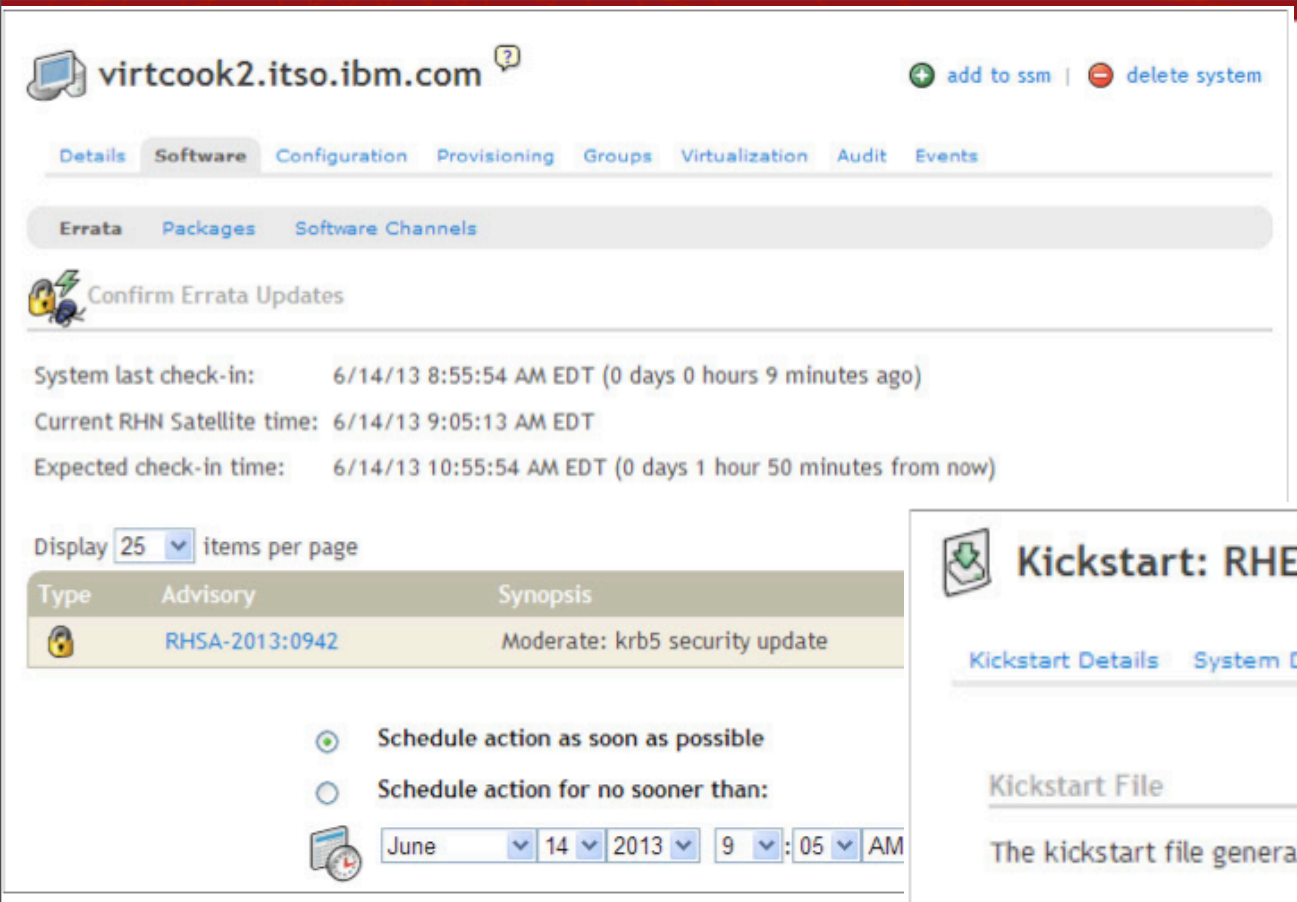




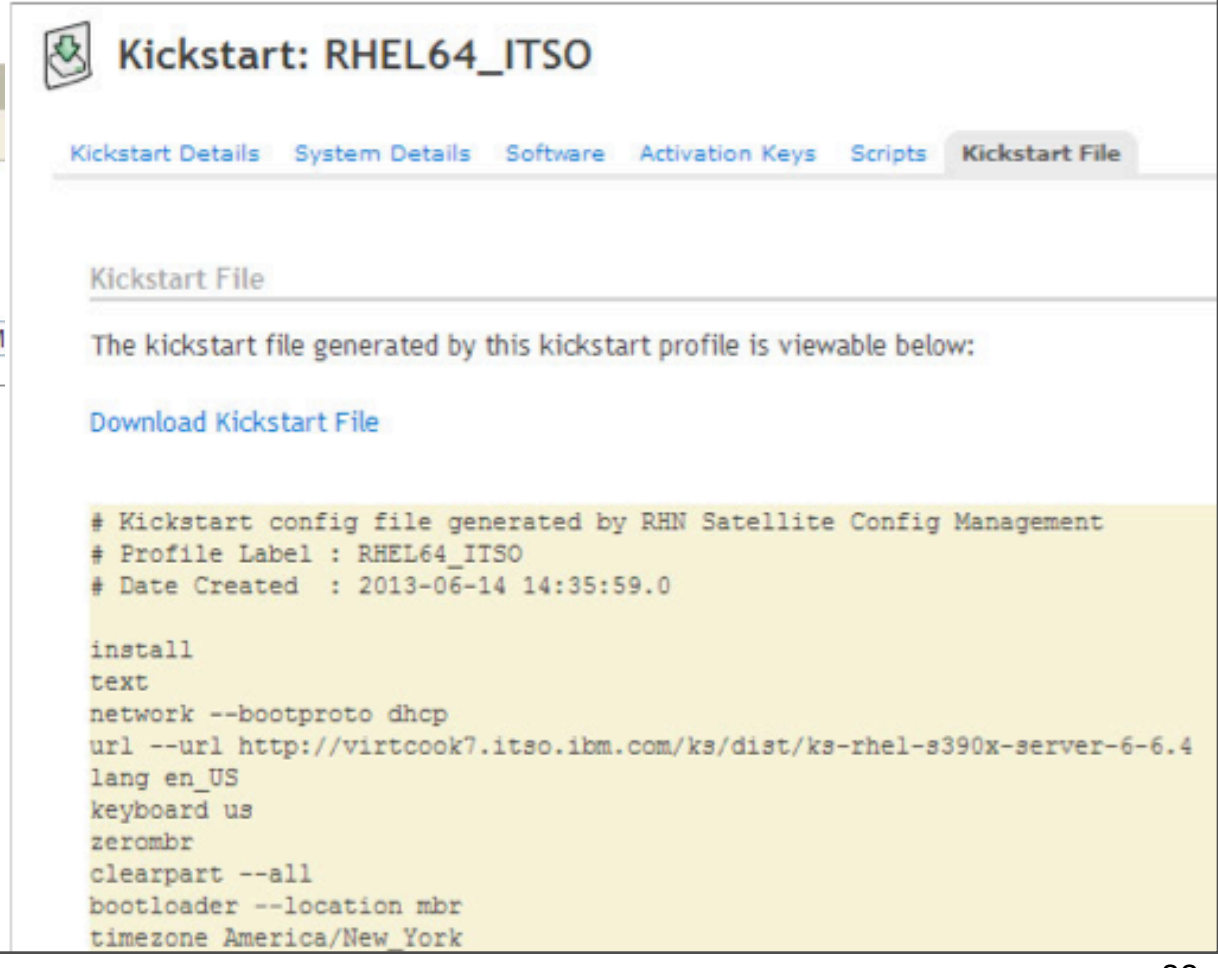
Dashboards to facilitate graphical administration of your IT infrastructure



Alerts to identify new updates and bugfixes



Create system profiles (kickstarts)



Schedule maintenance windows easily

SALT RIVER PROJECT MIGRATES TO RED HAT ENTERPRISE LINUX ON IBM MAINFRAMES FOR FLEXIBILITY AND PERFORMANCE

FAST FACTS

Industry:	Utilities, Government
Geography:	Arizona
Challenge:	Searched for a replacement for proprietary software for its IBM mainframe servers that could provide greater flexibility, manageability, and utilization opportunities
Migration Path:	HP-UX to Red Hat® Enterprise Linux®
Software:	Red Hat Enterprise Linux, Red Hat Network Satellite
Hardware:	IBM® System z® mainframe servers
Benefits:	Experienced cost savings, boosted performance, stable and reliable management, consolidation, and valuable technical support after migrating to Red Hat Enterprise Linux on IBM System z