



Red Hat in a Mission Critical Standard Operating Environment

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#1

OPEN SOURCE LEADER



MORE THAN
90%
of the
**FORTUNE
500**
use
RED HAT
PRODUCTS &
SOLUTIONS. *

7,500+
EMPLOYEES

95+
WORLDWIDE
OFFICES

 **37**
COUNTRIES

S&P
500
COMPANY

NYSE:
RHT

Revenue
52
Quarters growth
1.79 B\$
FY16

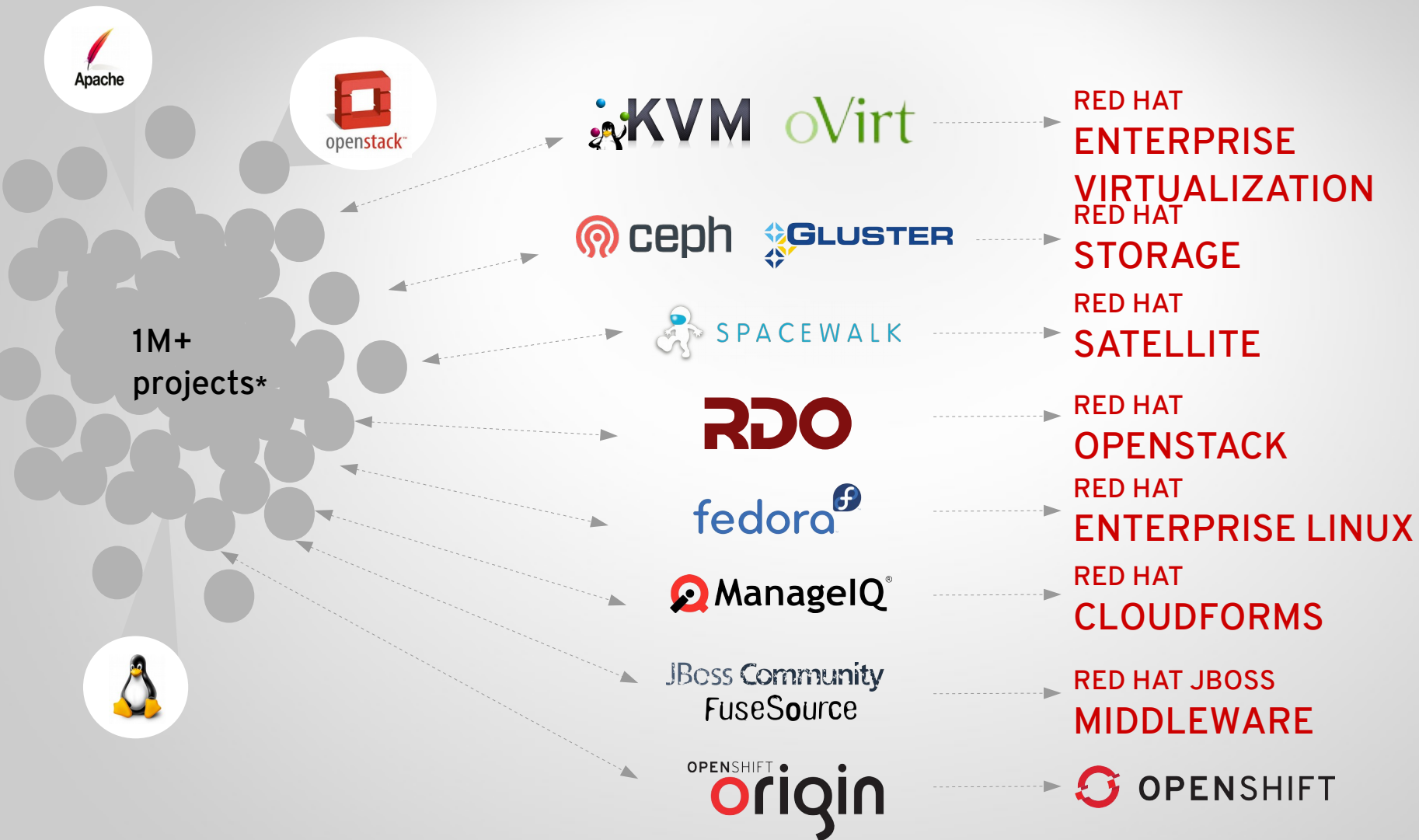


AWARD-WINNING
SOLUTIONS



AWARD-WINNING
SUPPORT

Open Source to the enterprise



PARTICIPATE
(upstream projects)

INTEGRATE
(community platforms)

STABILIZE
(supported products
platforms, and solutions)

THE CIO'S ALTERNATIVE



Operating System	Microsoft Windows Server, Oracle Solaris, IBM AIX, HP/UX >	Red Hat Enterprise Linux
PaaS Cloud	Pivotal CloudFoundry, IBM Bluemix, HP Helion, AWS Beanstalk, Microsoft Azure, Google App Engine, Heroku/SalesForce >	OpenShift by Red Hat
Cloud Management	VMware vCloud Automation Center, HP Cloud Service Automation (CSA), BMC Cloud Lifecycle Management, Microsoft System Center >	Red Hat CloudForms, Red Hat Cloud Infrastructure
Cloud Infrastructure	VMware vCloud Director, Citrix CloudPlatform, Eucalyptus, Rackspace >	RHEL OpenStack Platform RHEL Atomic Host
Virtualization	VMware vSphere, Citrix XenServer, Microsoft HyperV >	Red Hat Enterprise Virtualization
Storage	EMC ViPR, EMC Isilon, NetApp, IBM SONAS, Nexenta >	Red Hat Storage Server, Inktank Ceph Enterprise
Systems Management	Microsoft System Center Configuration Manager, BMC BladeLogic Server Automation, HP's Server Automation >	Red Hat Satellite
Application Server	IBM WebSphere Application Server, VMware vFabric tc Server, Oracle WebLogic Server >	Red Hat JBoss Enterprise Application Platform
In-memory data grid	IBM WebSphere eXtreme Scale, Oracle Coherence, VMware vFabric GemFire >	Red Hat JBoss Data Grid
Application integration	IBM WebSphere Integration Bus, Oracle ESB, MuleSoft AnyPoint, Sonic ESB, Tibco ActiveMatrix >	Red Hat JBoss Fuse, Red Hat JBoss Fuse Service Works
Data services and integration	IBM InfoSphere Federation Server, Progress DataXend SI, Oracle Data Integration Suite, Informatica Data Services >	Red Hat JBoss Data Virtualization
Business process, decision, and rules automation	IBM Operational Decision Manager and IBM Business Process Manager, Oracle BPM Suite, Pegasystems Business Rules, FICO Blaze Advisor >	Red Hat JBoss BPM Suite, Red Hat JBoss BRMS
Messaging	IBM WebSphereMQ, VMware vFabric RabbitMQ, Oracle AQ, Tibco EMS >	Red Hat JBoss A-MQ
Mobile	IBM Worklight, Oracle Mobile Platform, SAP Sybase Unwired Platform, Pivotal CF Mobile Service, Pegasystems (Antenna), Kony, Appcelerator >	FeedHenry by Red Hat

RED HAT SUBSCRIPTION MODEL





HP and RED HAT

Proven Partnership for Success

Market Development

Certification,
Integration,
Support

Superior Results:
Most servers and storage certified
Leading benchmark results

Superior Experience:
Over 4,000 Linux Service Professionals
x86 server Linux market share leader



Our Alliance

Superior Alignment:
Partnering to deliver the
future of computing



15 years

Open Source
and
Open Standards
Innovation



Our Customers

Superior Commitment:
More customers run RHEL on HP
servers than any other platform

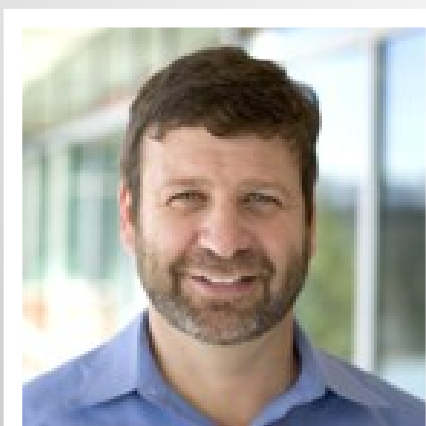
Strategic Development

An engineering partnership

Working together to create mission-critical Linux solutions

“Clients have been asking us to expand the mission-critical experience that is delivered today with HP-UX on Integrity to an x86-based infrastructure. HP plans to transform the server landscape for mission-critical computing by working with Red Hat to bring key HP technology innovations to Linux.”

*Ric Lewis, Vice President & General Manager
Enterprise Servers, Hewlett-Packard*



“Further extending the mission-critical experience to x86 environments will enable clients to leverage the application performance, scalability and security provided by Red Hat Enterprise Linux on HP for their most demanding workloads.”

Paul Cormier, Executive Vice President, Red Hat

Joint HP & Red Hat Solution Space

MISSION CRITICAL x86 SOLUTIONS

HP Superdome X
Red Hat Enterprise Linux
Red Hat
Enterprise Virtualization

INFRASTRUCTURE-AS-A-SERVICE

HP ConvergedSystem 700x
Red Hat Enterprise Virtualization
Red Hat Enterprise Linux OpenStack Platform

SAP HANA APPLIANCES

HP ConvergedSystem 500
HP ConvergedSystem 900
Red Hat Enterprise Linux

WORKLOAD-OPTIMIZED SERVERS

HP Moonshot
Red Hat Enterprise Linux
Red Hat Enterprise Linux
Atomic host

SOFTWARE-DEFINED STORAGE

HP ProLiant SL4540
Red Hat Gluster for Enterprise
Red Hat Ceph for Enterprise

The background is a deep blue, starry night sky. A faint, glowing band of light, representing the Milky Way, stretches diagonally across the center. Several constellations are outlined with thin white lines. Four planets are depicted as large, semi-transparent circles: a large yellowish-brown planet in the upper left, a smaller greenish planet in the upper right, a large yellowish-brown planet in the lower center, and a smaller greenish planet in the lower right. The text "Mission-Critical x86" is centered in a bold, white, sans-serif font.

Mission-Critical x86

Red Hat Enterprise Linux Lifecycle



Fully supported through standard lifecycle of 10 years from GA

Asynchronous bug fix, enhancement, and security errata for critical issues as needed

ABI stability is guaranteed for the full lifecycle

Production 1 Phase

Minor Releases, approximately two per year include

- Hardware enablement
- General bug fixes based on priority
- General features with strong justification
- ISO images & media kits

One year overlap between the Production 1 Phase of two subsequent major releases

Production 2 Phase

Transition from Production 1 to Production 3

Terminated by final, bugfix-only minor release (may include limited HW enablement such as PCI-IDs)

Scope: defects reported during Production 1

Production 3 Phase

Time between the final minor release and the end of the regular 10-year lifecycle

Critical bug and security fixes only

Extended Life Phase

Access previously released content in RHN

Access to self-help documentation, Knowledgebases in customer portal

HP Mission-Critical x86

Confidently migrate scale-up workloads from
AIX/Solaris to Red Hat Enterprise Linux (RHEL) and
HP Integrity Superdome X

Red Hat Enterprise Linux is designed for Mission-Critical

- native automatic NUMA support in RHEL 7
 - sophisticated profile-based system tuning tools
 - support for PCIe and Memory error recovery
 - +10% more performance for OLTP workloads in RHEL7
-
- Superdome X (v1.1 after HP DISCOVER) certified with RHEL 6.6 and RHEL 7
 - RHEL 7.1 certification planned for Q1/2015



**RED HAT
ENTERPRISE LINUX**

Do you miss vPars?



Red Hat Enterprise Virtualization delivers !

✓ Near-native performance

- KVM highest-performing hypervisor in spec_virt2013 ⁽¹⁾
- 30% faster than VMware ⁽²⁾
- 1M IOPS in a VM ⁽³⁾
- runs Windows and Linux guests ⁽⁴⁾

✓ Enterprise-grade virtualization features

- intelligent NUMA support, NUMA-guest support
- Hot-Add CPU, Memory Sharing/Ballooning,
- Storage / Live Migration, Snapshots
- SAN, iSCSI, NFS, POSIX & Software-defined Storage

✓ Affordable

- 1/3rd of the cost of VMware ⁽⁵⁾, no Standard/Enterprise/Enterprise Plus editions
- cost-effective unlimited All-in-One subscription available



Red Hat Enterprise
Virtualization Manager



Red Hat Enterprise Linux
Hypervisor



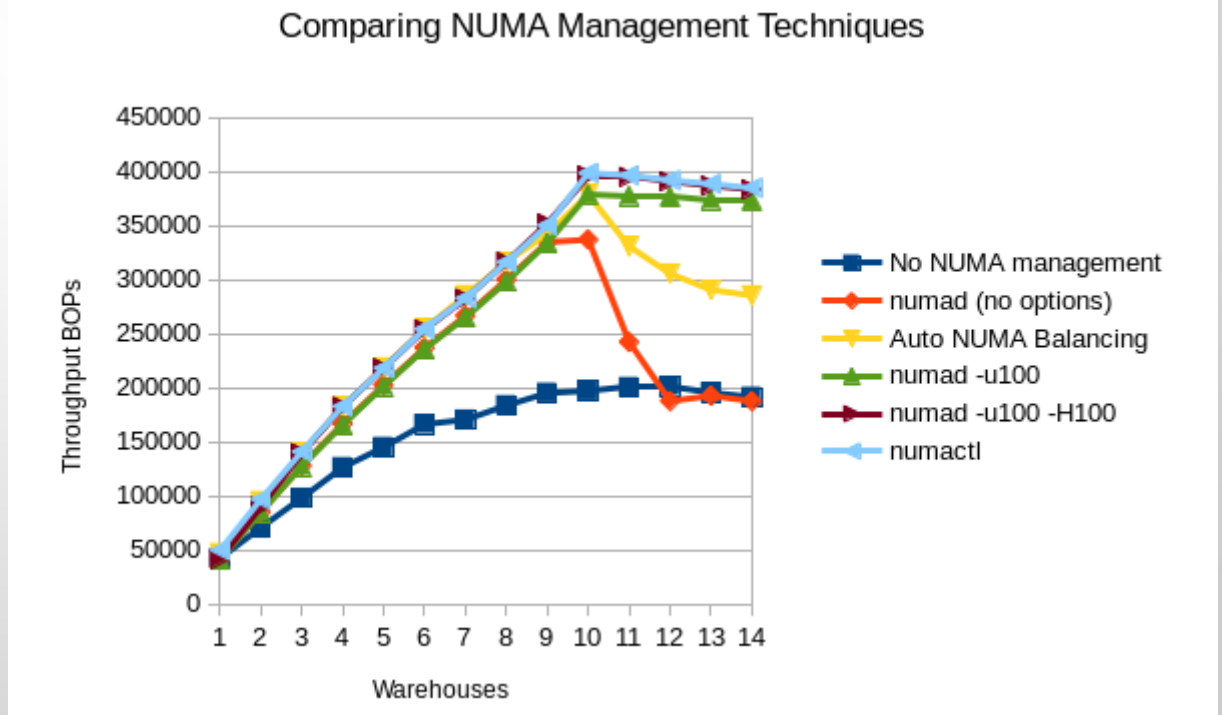
Enterprise SAN

NUMA Optimizations

Dark blue line: no NUMA management

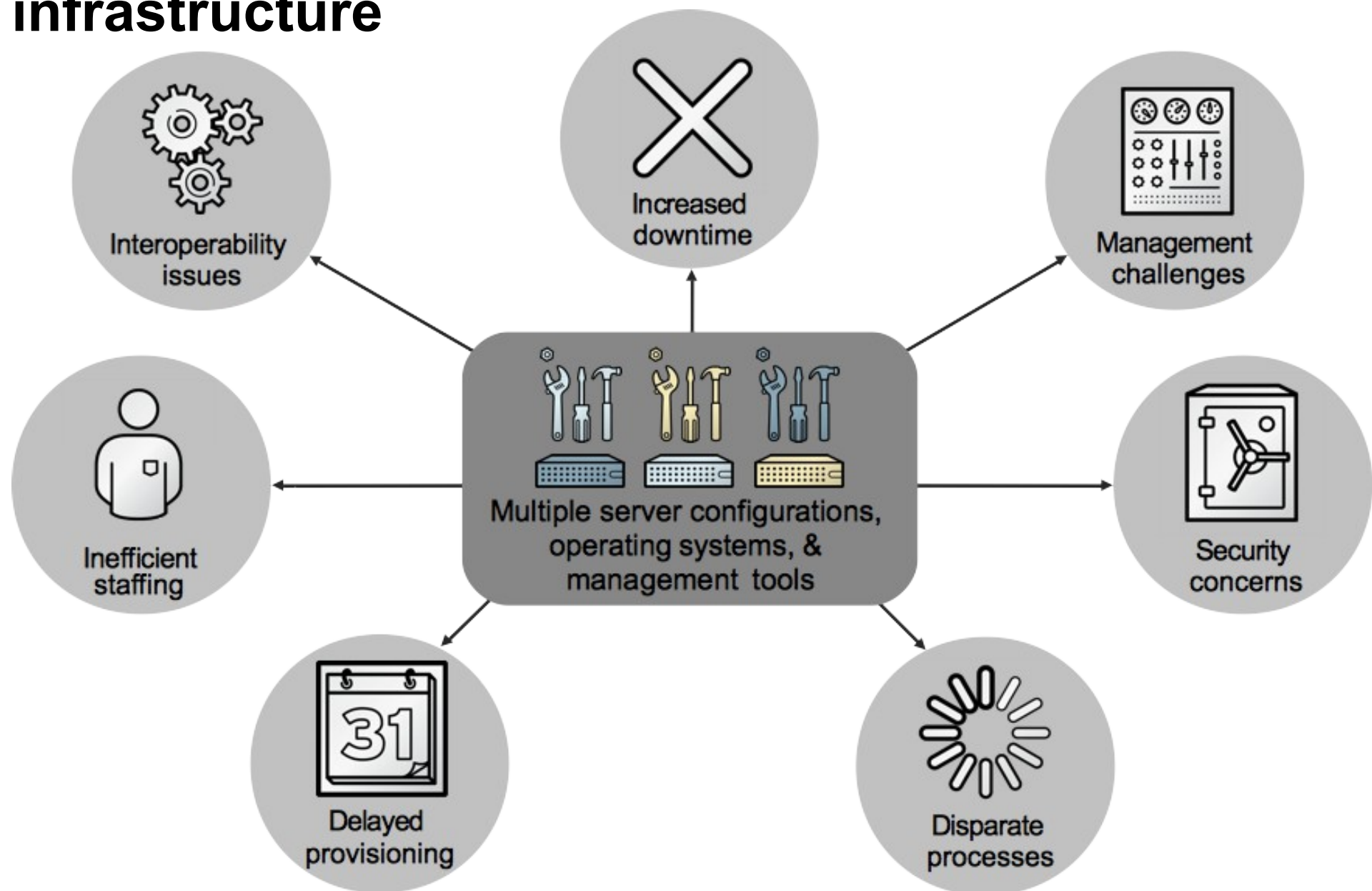
Light blue line: manual

Other: numad



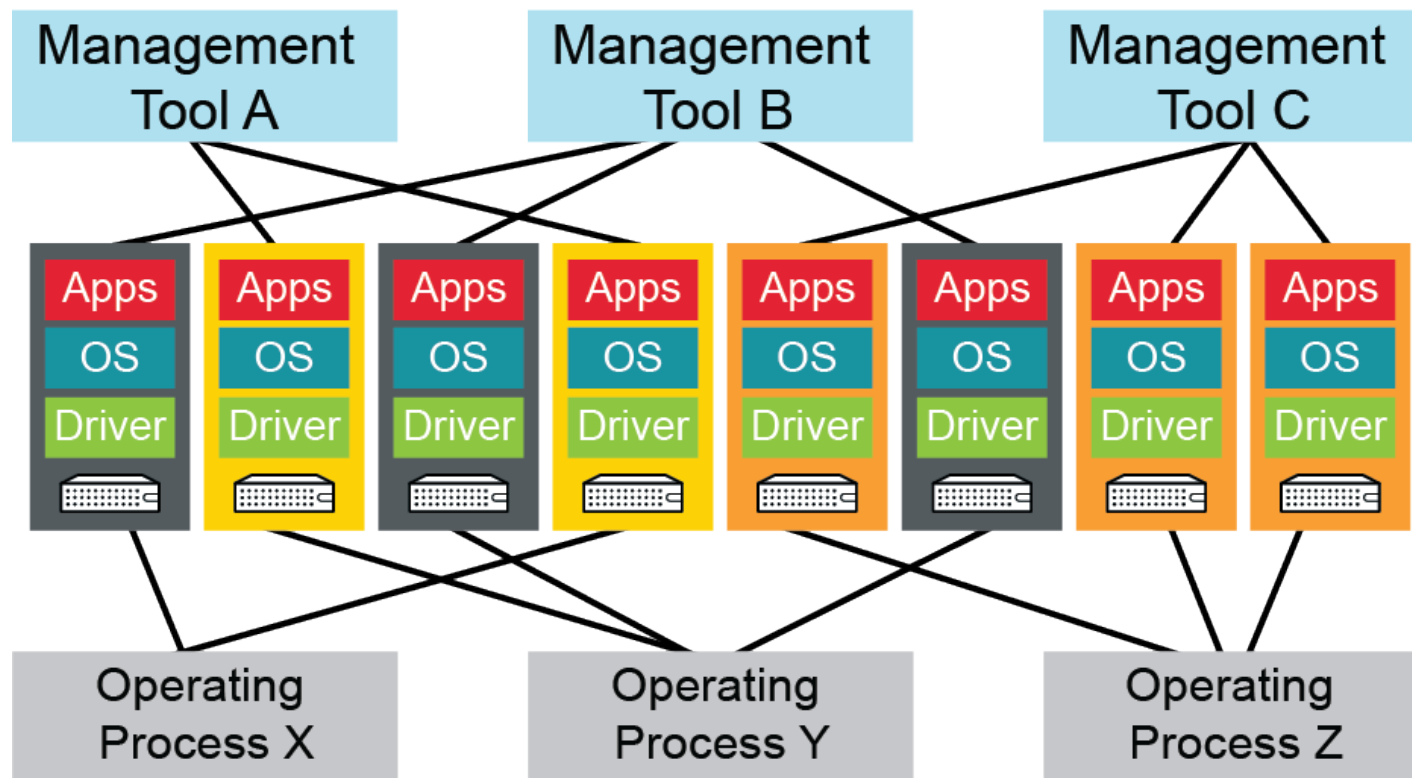
System saturated with 10 Warehouses

A large portion of the burden is complex infrastructure



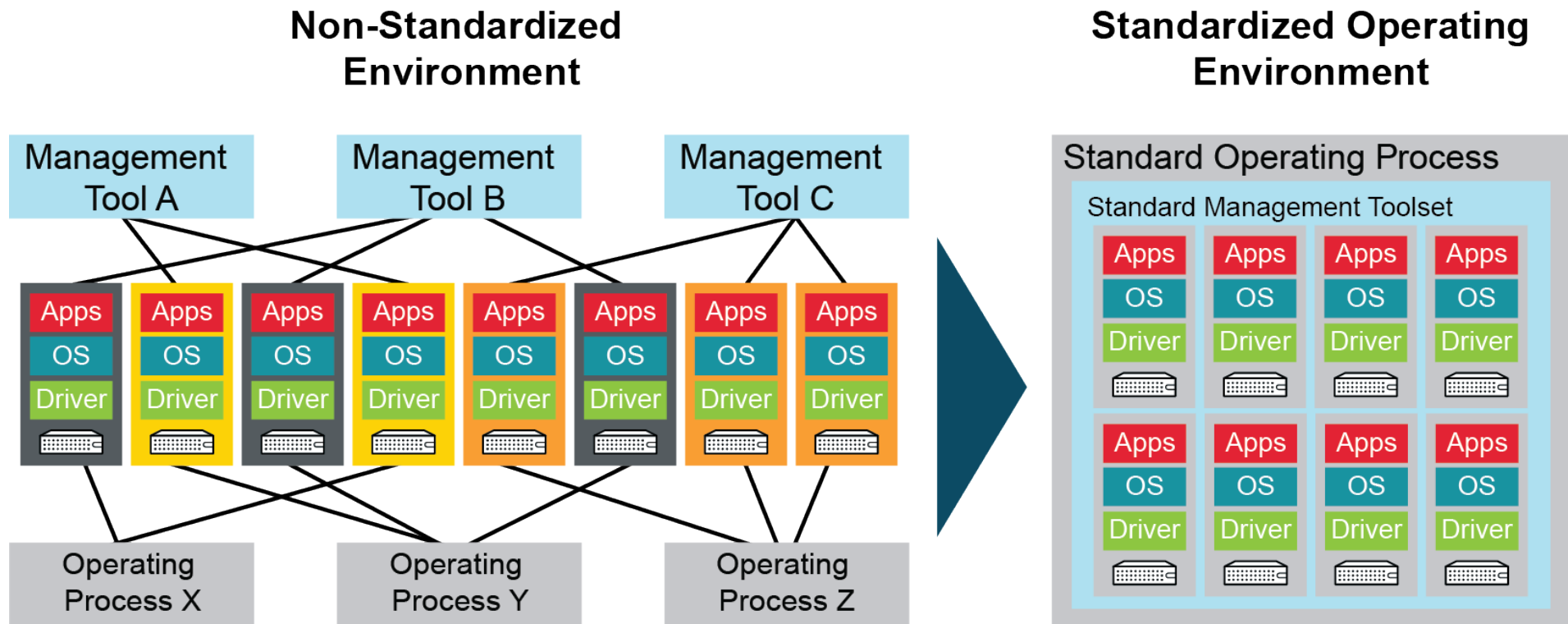
This complexity wasn't designed in...

Non-Standardized Environment



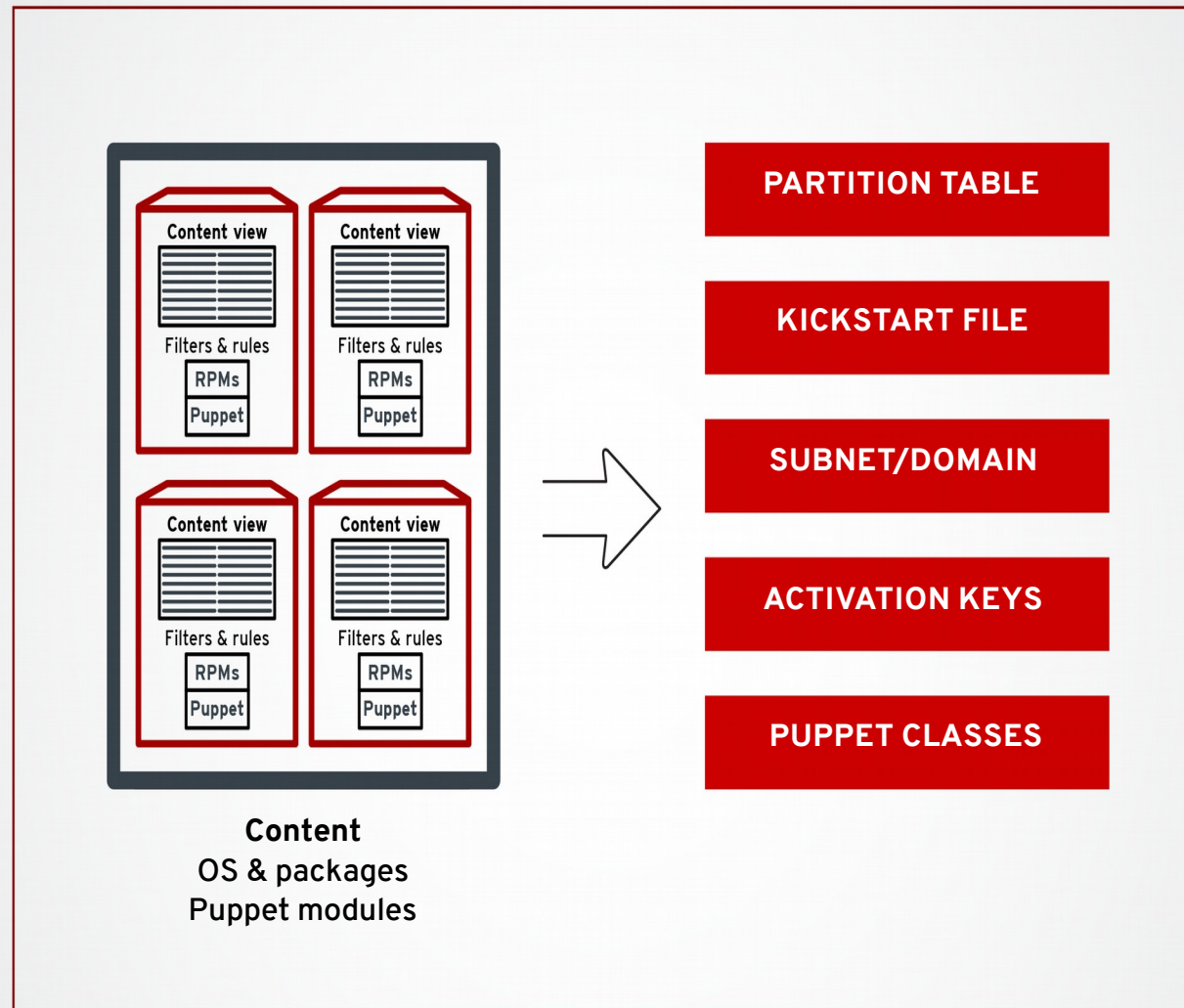
...it grew organically over time

What if you could bring rationality back?



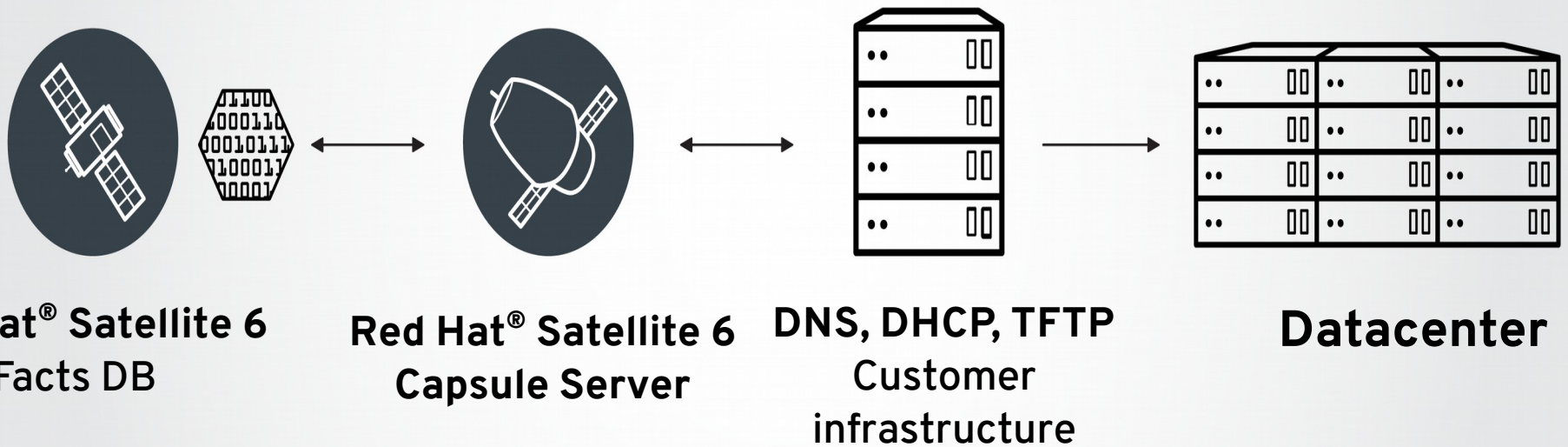
**Choose the best platform and
deploy it in a standardized manner.**

How to build a system from start to finish



DISCOVERY

- Auto-identification of non-provisioned hosts
- Policy Based Provisioning



HP Mission-Critical x86

Red Hat Solution Stack

Customer Example (Chemical Industry) – Bayer AG

- AIX to RHEL Migration
- Critical SAP landscape
- Moved from proprietary IBM UNIX servers to standards-based HP x86-servers
- **Goal achieved:** Maintaining / exceeding the current performance and availability level at significant lower TCO
- **Outcome:** reliable core business services now also available with standards-based Mission-critical HP x86 technology and Enterprise-hardened Open Source technology from Red Hat

“ Red Hat Enterprise Linux offers the stability, flexibility, and performance necessary to power the next generation of computing applications... ”



SVEN MEISSNER
OPERATION MANAGER
BAYER BUSINESS SERVICES IN
LEVERKUSEN

HP Integrity Superdome X and Red Hat Enterprise Linux

Scalability and Performance

- Synthetic benchmarks
- Tuning for large core counts
- Collaborate on upstream integration

Reliability, Availability, Serviceability

- Advanced Error Handling
- Optimized Crashdump

Scale-up Virtualization

- 240 vCPU, 6TB Guests
- NUMA aware VM's
- Migration of Large VM's



MISSION-CRITICAL

LARGE SQL DATABASE

SAP HANA

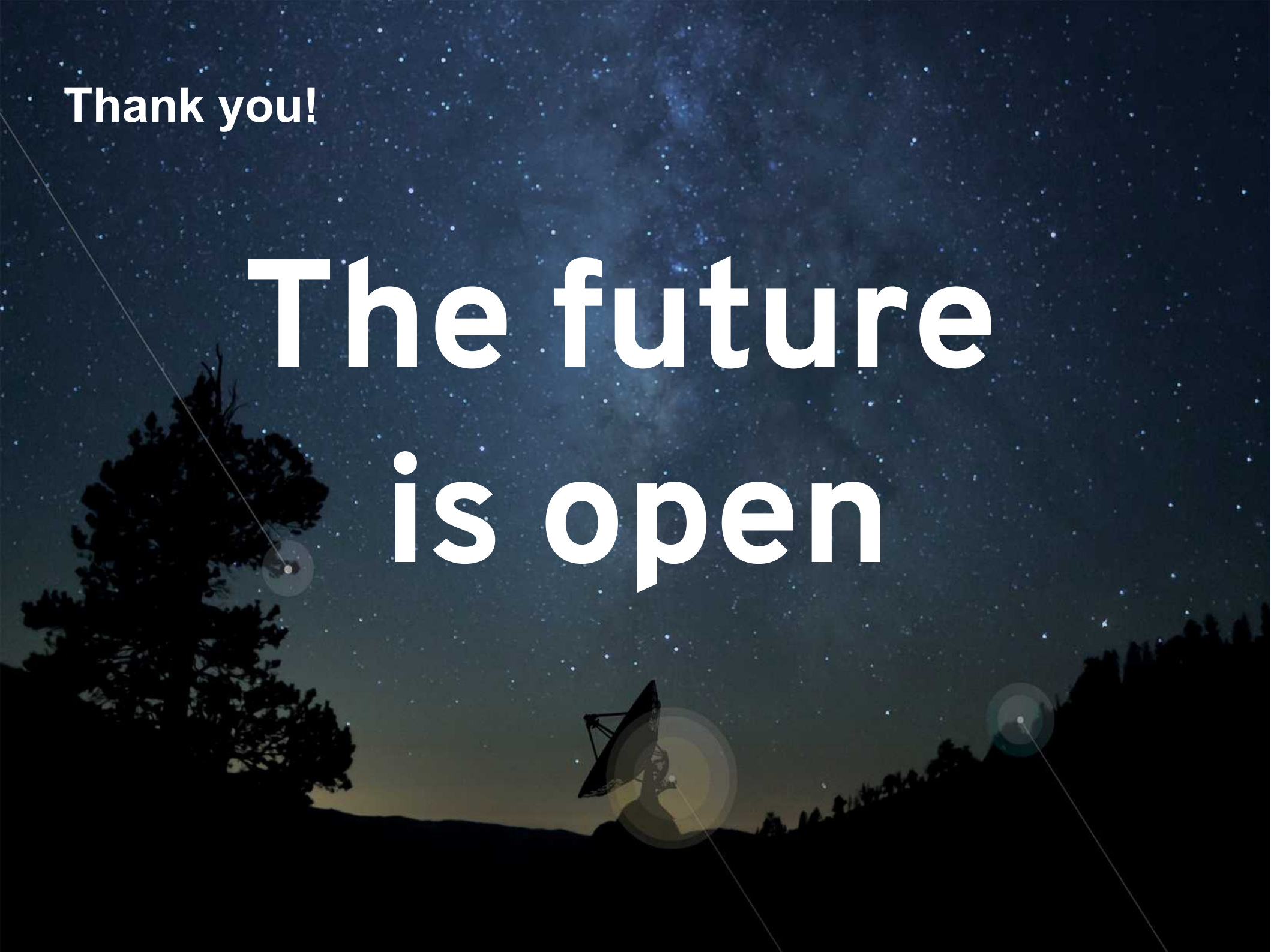
TRADITIONAL EDW & DATABASE

LEGACY UNIX SCALE-UP APPS

With Migration Services!

Thank you!

**The future
is open**



Useful links

Joint Red Hat HP portal: <http://redhat-hp.com/home>
Red Hat certification matrix: <http://www.hp.com/go/rhelcert>
HP OneView for RHEV: <http://www.hp.com/go/ovrhev>
HP Red Hat product page: <http://www.hp.com/go/proliantrhel>
HP Red Hat partnership page: <http://www.hp.com/go/redhat>
Latest benchmarks: <http://h18004.www1.hp.com/products/servers/benchmarks/new.html>
QuickSpecs: http://h18004.www1.hp.com/products/quickspecs/12248_div/12248_div.html

Superdome X site (see the documents link):

<http://www8.hp.com/us/en/products/integrity-servers/product-detail.html?oid=7161269#!tab=features>

Running Linux on Integrity Superdome X

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA5-4775ENW&cc=us&lc=en>

Live error recovery on Superdome X

<http://h20324.www2.hp.com/SDP/Content/ContentDetails.aspx?ID=4376>

Advanced error recovery on Superdome X

<http://h20324.www2.hp.com/SDP/Content/ContentDetails.aspx?ID=4407>

New HP Integrity Superdome X is the 16-socket leader on the SPECjbb2013-MultiJVM benchmark

http://pit.houston.hp.com/PIT/ESSN/Document_Storage/BenchmarksPerformance/HP_Integrity_Superdome_X_4S_8S_16S_SPECjbb2013_PerfBrief.pdf

SAP HANA-The certification is also now available on the SAP Hana Page

[http://global.sap.com/community/ebook/2014-09-02-hana-hardware/enEN/appliances.html#categories=RHEL 6.5 for SAP HANA](http://global.sap.com/community/ebook/2014-09-02-hana-hardware/enEN/appliances.html#categories=RHEL%206.5%20for%20SAP%20HANA)



Backup Slides

RED HAT & YOUR BUSINESS: OPERATING SYSTEMS



Linux Revenue & Shipments – 2013

	LINUX CLIENT/SERVER OS REVENUE			LINUX SERVER OS SHIPMENTS (PAID)		
	REVENUE (\$M)	SHARE (%)	2012-13 GROWTH (%)	SHIPMENTS (000)	SHARE (%)	2012-13 GROWTH (%)
Red Hat	980.2	72.9	18.6	1,733	66.2	13.7
SuSE	243.1	18.1	0.0	624	23.8	14.2
Oracle	90.4	6.7	4.7	70	2.7	18.9
Other	31.3	2.3	9.9	191	7.3	13.3
TOTAL	1,345	100	13.5	2,618	100	13.9

Source: Worldwide Linux Client and Server Operating Environments 2014-2018 Forecast and 2013 Vendor Shares. Doc #253012. December 2014

	W/W NEW SERVER SHIPMENTS BY OS		
	UNITS	SHARE (%)	2013-18 CAGR (%)
Windows	5,598,533	62.5	3.3
Linux	3,219,885	36.0	6.2
Unix	128,292	1.4	-5.5
Other	8,994	0.1	1.4
TOTAL	8,955,704	100	4.3

Worldwide New Server Shipments by Operating System – 2013

Source: Worldwide Virtual Machine 2014-2018 Forecast. Doc #252841. December 2014



Source: IDC, 12/2014

Red Hat Enterprise Linux provides a robust, efficient, and safe solution at a low cost and, when combined with other Red Hat offerings, has helped us provide better services to our customers.

—EFRAÍN CARBALLO, director of technology services, Banco Azteca

