



# Migrating from HP-UX to Red Hat Enterprise Linux with Confidence

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# Red Hat Enterprise Linux Adoption Increasing

RISC



Many migrating to x86

UNIX



Many from UNIX migrate to x86 and Red Hat Enterprise Linux



Server OS trending to Linux

Red Hat 60% of paid Linux



97% server units shipped worldwide

More applications, hardware, and device drivers on Red Hat Enterprise Linux

# Preferred by ISVs, Deploy with Confidence

Open source

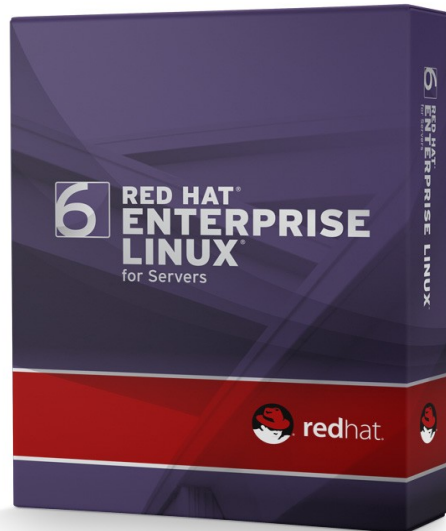
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ISV developers porting



HP-UX less likely



## Red Hat Enterprise Linux

- Deploy on multiple platforms with performance & reliability/availability features of enterprise UNIX
- Retain IT staff and skills

# Why Migrate to x86 and Red Hat Enterprise Linux



Increase choice of hardware, software, peripherals



Legal, corporate compliance



Hardware refresh



Lower TCO, increase ROI



Need to quickly adapt to change



Cloud readiness



Running Oracle, SAP, or SAS



EOL of database, operating system, hardware maint.



Migrate to commodity, but retain skills



HP-UX like tools, might as well migrate to standard OS

# Reduce TCO

Lower-cost  
system admin



Skills  
taught in  
all education  
levels



Used in  
governments  
around the  
world



Subscription only



- Access to all shipping versions
- Steady stream of enhancements
- Proactive security updates
- Additional hardware/software support

Predictable IT costs



*“With Red Hat’s open source subscription model, we can scale up and down easily without worrying about price per CPU creating unexpected extra costs.”*

*-- Antonio Mastrolorito,  
Chief IT architect,  
Lufthansa Cargo*

# Increase Choice



- 1000's of software and hardware vendors
- One of the largest technology certification ecosystems in the world

Red Hat Enterprise Linux certified on broad portfolio of platforms — from desktop to mainframe



- Apps certified on RHEL supported on KVM, VMware, Hyper-V
- Application isolation with cGroups, SELinux sandboxes



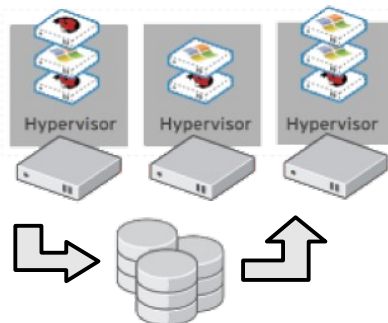
# Outstanding Benefits

## SCALABLE



- Systems to 108 cores, 2 TB RAM, 16 I/O slots
- Designed to scale to 4096 cores and up to 64 TB RAM
- Industry benchmarks show near-linear scaling to 64+ cores.

## Flexible



- Resource management: cGroups
- Integrated hypervisor
- Migrate VMs regardless of hardware

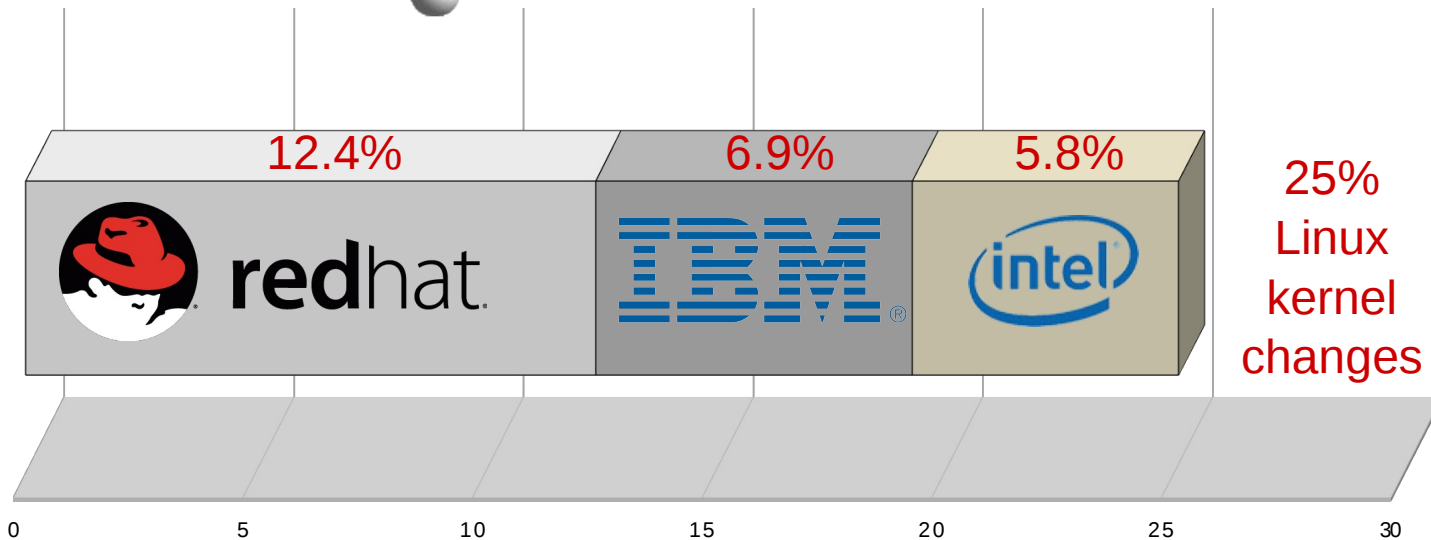
## Reliable

Self healing, automatic isolation of CPU/RAM

Improved hardware awareness multi-core & NUMA

Energy efficient power management features

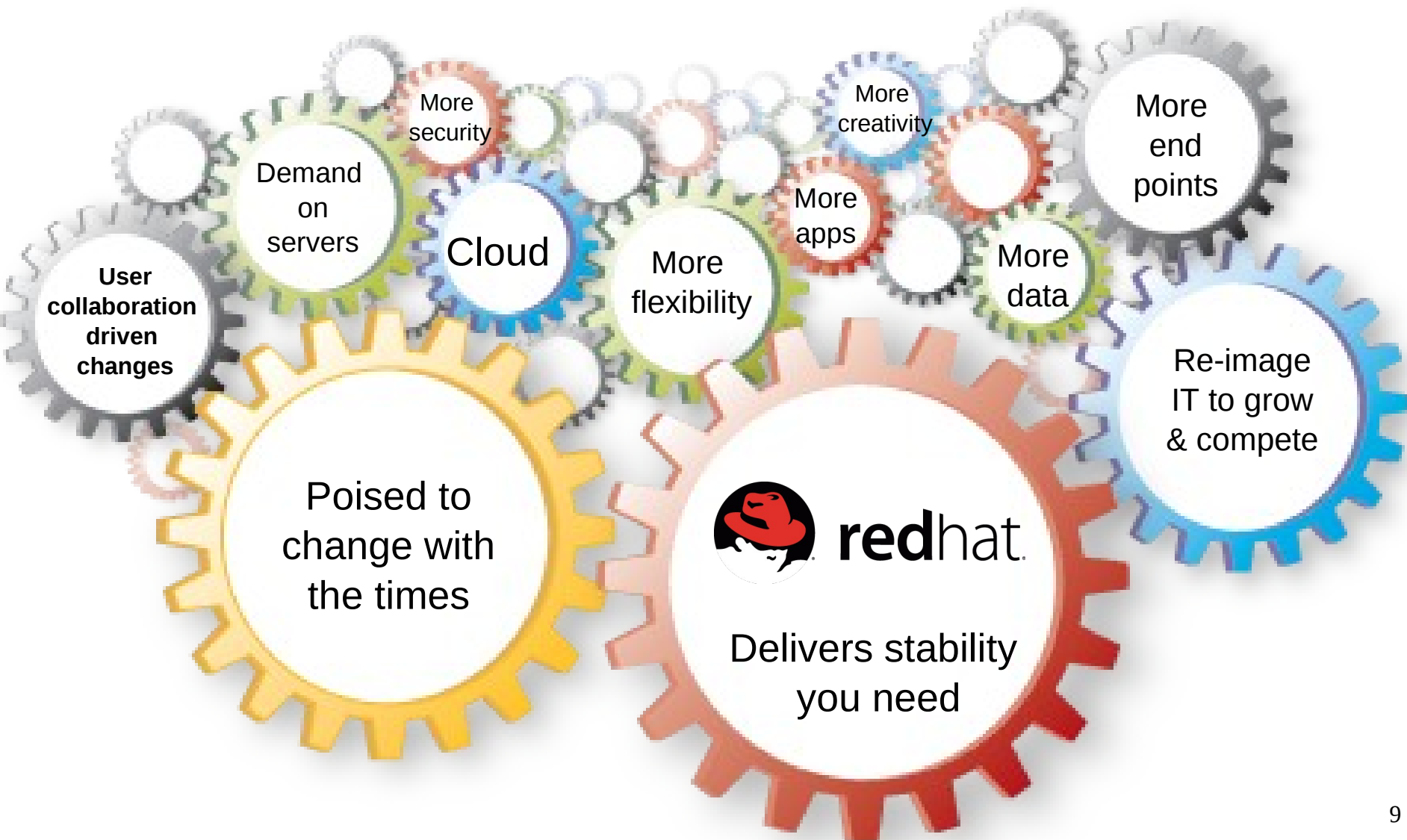
# Community-Based Innovation



Engineering & collaboration benefit everyone!



# Innovation With Stability



# The **Strongest** Future



Adoption  
rising

mainframe



Technologies often available first



Silicon  
prototyped



more



Cloud  
foundation



Strong  
industry  
support &  
commitment

# A More **Personal** Relationship

License/support/  
maintenance  
agreements



Contact only when **broken**

## Subscription Model

- Maintenance, support, information for entire lifecycle
- Work with people who write and test code
- Leverage Red Hat expertise for planning, testing, migrating, maintaining, upgrading



Contact  
**encouraged!**

# Long-Term, Worldwide Support

New technology delivered at  
**no additional cost**

Up to 10 years support



**On-going** service & support

Access to **unique** knowledge,  
technical **experience**,  
**global** portal

# Similarity to HP-UX

- POSIX compliant APIs
- Similar tools
- All major HP-UX application supported
- Retain investment in skills — quickly transfer skills to Red Hat Enterprise Linux
  - Red Hat Training
  - Red Hat Strategic Migration Guide
  - Reference book: UNIX to Linux® Porting: A Comprehensive Reference, Mendoza, Alfredo, Skawratananond, Chakarat, Walker, Artis, Prentice Hall, 2006.
  - IBM technical resources for Linux programmers and system admins
  - Linux Journal



# Similar Tools

Functionality	Red Hat Enterprise Linux	Similar to HP-UX
Package Management	RPM Package Manager, front-end with Yum	Software Distributor (SD-UX), traditional package management commands
Auto Installer	Kickstart	Ignite-UX and Software Package Builder
Logical Volume Manager	LVM, LVM2 (snapshots)	Logical Volume Manager (LVM or VxVM)
Software Updates	Software Updater	Update-UX and SoftwareAssistant (SWA)
Default GUI	Gnome	Gnome
Init Scripts	System V style for start, stop, checking services	System V style, ksh, bash
General Admin Tools	vmstat, top, iostat, netstat	Same
Military-Grade Security	Common Criteria Certification (EAL 4+)	Common Criteria Certification (EAL 4+)

## Similar Tools (Continued)

Functionality	Red Hat Enterprise Linux	Similar to HP-UX
Native Multipathing	Included	Included
Dynamic Tracing	SystemTap	ktracer
Resource Management	Resource Management	HP Process Resource Manager (PRM)
High Availability	High Availability Add-On	HP Serviceguard
File Systems	ext2, ext3, ext4, ReiserFS, FAT, ISO 9669, UDF, NFS, support for encrypted FS	NFS, CDFS, PCFS, VxFS, UDFS, UFS, CFS
Development Tools	Compile with GNU tools on HP-UX, then move to Linux	GNU tools, HP developer tools, Eclipse
Networking	IPV4, IPV6	Same
Integrated Firewall	Netfilter	IPfilter
Cluster File System	GFS2 (Resilient Storage Add-On)	CFS (Serviceguard)



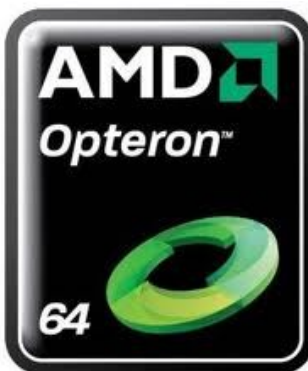
## Intel and AMD



Collaborating on Nehalem-EX and beyond

Red Hat Enterprise Linux fully supported at announcement

Highly optimized to utilize latest virtualization and power management features



AMD-V & Opteron 6000 Series developed in collaboration with Red Hat

Red Hat Enterprise Linux takes advantage of AMD-V 2.0

## HP and IBM



Over 11  
years

More Red Hat certified server models than any other vendor

*“As time has progressed and our customer requirements are clear about stable and robust environments, Red Hat Enterprise Linux personifies all of that in all of Linux”*

*— Scott Farland, VP Industry Standard Servers and Software, HP*



Over 12  
years

Tuned to support built-in performance of System z, x, Power

Run one OS over IBM's entire portfolio, major IBM software

IBM Cloud based on Red Hat Enterprise Linux

# Cisco, Dell, Fujitsu



Unified Computing System Virtual Interface Card  
integrated with KVM

Creates logical network infrastructure for large-scale cloud

Reduce cost and time, lower TCO

Dell contributed to Red Hat Enterprise Linux 6 kernel

Integrated device drivers, tight integration of storage,  
intelligent power management



Guest on On-Demand Virtual System Service cloud

## SAP and SAS



- Over 10 years
- Full-time engineering presence at SAP to optimizing and certify SAP applications on Red Hat Enterprise Linux
- Red Hat Enterprise Linux for SAP Applications
- SAP software in Red Hat test suite



- First Linux supported by SAS in 2002
- Both offer subscription-based model
- Mentoring SAS on tuning and file systems for optimal performance and throughput
- Red Hat uses SAS for regression testing

# Migration Steps

- Examine existing infrastructure & determine equivalents
  - Compilers, APIs, utilities
  - Apache, sendmail, Gnome, DNS, provisioning, etc.
  - 3-5 weeks
- Determine equivalents for third-party apps
  - Symantec NetBackup runs on RHEL
  - Veritas Cluster supported or can use Red Hat Resilient Storage Add-On
  - Vast majority of business applications supported on Red Hat Enterprise Linux
  - 2-8 weeks



# Migration Steps (Continued)

- Measure organizational readiness & overall migration risks
  - Server sizing, SLAs, server refresh cycles, skills gaps, training, IT processes & practices, IT governance, etc.
  - 3-5 weeks
- Develop strategic migration plan, roadmap, cost estimate
  - Produce detailed migration roadmap, scope of activities, detailed cost estimate
  - 3-5 weeks
- Implement plan & employ support strategies
  - Workshops, training, service offerings
- HP-UX to Red Hat Enterprise Linux Strategic Migration Planning Guide



# Migration Services and Skills Training

- Red Hat Migration Services
  - Decades of experience in FS, Healthcare, Telecom, Government
  - Maximize cost savings and efficiencies during transition
  - Speed time to production
  - Drive faster ROI
- Training
  - On-site and workshops provide fast knowledge transfer
  - Red Hat Dedicated Enterprise Engineers
  - Red Hat Consulting
  - Infrastructure Consulting Services





# Migration Services and Skills Training

## ■ HP Red Hat Migration Service

- Streamline transition from RISC/UNIX to x86 and Red Hat Enterprise Linux
- End-to-end services: Strategy, Design, Transition, and Operation

## ■ IBM Migration Factory

- Years of migration experience, experience with both AIX and Red Hat Enterprise Linux
- Competitive server assessments, migration services, trade-in credits, etc.



# NYSE Euronext Migrates and Saves



World's leading exchange group

Obtaining a high performing, low-cost global trading platform with virtually zero downtime

Migrate/integrate HP-UX, AIX, and Solaris platforms to simplify and optimize infrastructure

Red Hat Enterprise Linux on HP ProLiant servers, JBoss Enterprise middleware

A high-speed, low-cost platform, moved with no business interruptions. Capable of scaling for growth and delivering exceptional performance even in extreme trading scenarios

# Lufthansa Cargo Migrates and Saves



One of the world's leading cargo carriers

Create flexible global shipment infrastructure, integrate with existing components

Needed a new, highly scalable, cost-efficient, and vendor-agnostic industry-standard platform

Red Hat Enterprise Linux, JBoss Enterprise Application Platform, Oracle Database

A flexible platform that saves over 50% in software licensing; avoids vendor lock-in. The former mainframe application now runs on just 4 standard x86 CPUs.

# It's Time to Migrate

- Red Hat offers sensible, low-risk alternative to HP-UX
- Red Hat Enterprise Linux is successfully replacing UNIX workloads across the enterprise and in the cloud
- Reduce operating costs
- Hardware vendor neutrality
- Increased flexibility
- A far better alternative to Microsoft Windows
  - Limited new training — retain investment in skills
  - Better scalability
  - Runs on more platforms, cloud platform of choice
- More information: [www.redhat.com/migrate](http://www.redhat.com/migrate)
- Schedule an assessment today

Red Hat Webinars:

[http://www.redhat.com/migrate/unix\\_to\\_linux/hpux-to-rhel/index.html](http://www.redhat.com/migrate/unix_to_linux/hpux-to-rhel/index.html)





**Questions?**