

**DATASHEET****RED HAT ENTERPRISE LINUX**

Red Hat® Enterprise Linux® is a high-performing operating system that has delivered outstanding value to IT environments for nearly a decade. As the world's most trusted IT platform, Red Hat Enterprise Linux has been deployed in mission-critical applications at global stock exchanges, financial institutions, leading telcos, and animation studios. It also powers the websites of some of the most recognizable global retail brands.

Red Hat Enterprise Linux:

- Delivers high performance, reliability, and security
- Is certified by the leading hardware and software vendors
- Scales from workstations, to servers, to mainframes
- Provides a consistent application environment across physical, virtual, and cloud deployments

Designed to help organizations make a seamless transition to emerging datacenter models that include virtualization and cloud computing, Red Hat Enterprise Linux includes support for major hardware architectures, hypervisors, and cloud providers, making deployments across physical and different virtual environments predictable and secure. Enhanced tools and new capabilities in this release enable administrators to tailor the application environment to efficiently monitor and manage compute resources and security.

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## CITIGROUP INNOVATES

There is a big push within Citi to drive IT optimization and consistency. By delivering a common global Linux build across the enterprise, the firm has been able to retire a number of one-off infrastructure software products and their associated costs. In the process, it has been able to negotiate enterprise-level agreements for a reduced number of third-party products that can be leveraged across both hardware platforms.

Additionally, virtualization has proven to be a successful strategy for optimizing hardware utilization. IBM mainframes have a long tradition of delivering virtualization and perform especially well for workloads that require heavy input/output, whereas the value proposition for virtualization on x86 mainly comes from the low cost of entry and the ability to scale out massively. With a common Red Hat Enterprise Linux build, Citi is able to choose the virtualization that best meets its requirements.

## CITIGROUP: RED HAT INNOVATION AWARD WINNER

By delivering a common global Linux build across the enterprise that can be leveraged across both x86 and IBM mainframe platforms, Citi has been able to retire a number of one-off infrastructure software products and their associated costs.

<http://customers.redhat.com/2010/06/17/citigroup-red-hat-innovation-award-winner/>

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## KEY ATTRIBUTES

### Stable and trusted platform

Red Hat Enterprise Linux 6 is the sixth generation of a long-term, predictable operating platform. With the flexibility to deploy on physical hardware, as a virtual host, as a virtual guest, or in the cloud, Red Hat Enterprise Linux 6 is the ideal foundation for next-generation data-centers. It ensures long-term stability while continuing to innovate and deliver enhancements – delivering the optimal combination of innovation and stability.

Key partnerships across the industry allow Red Hat to ensure the stability of the platform across the broad ecosystem of systems and applications. With embedded engineering and deep collaboration, Red Hat is on the forefront of the commercial maturation of technology. Customers benefit through the distribution of timely service packs and interim releases. The modular architecture of Red Hat Enterprise Linux allows functionality enhancements that do not affect application interfaces. Applications do not need to be rebuilt or recertified when they are updated because the application programming and binary interfaces (API/ABI) remain the same for the full life of a Red Hat Enterprise Linux release regardless of the physical, virtual, or cloud deployment model. This means that Red Hat's rich ecosystem of thousands of certified applications are kept available, avoiding delays that would otherwise occur with expensive and time-consuming retesting efforts every time a vendor upgrades its software.

Other features ensure that Red Hat Enterprise Linux is both scalable and trusted. Software RAID, storage multipath support, and network bonding provide resiliency in network and storage areas. File-system capabilities such as barriers and TRIM support allow for data safety and thin provisioning, while logical volume management provides disk abstraction. These are among the few features that have evolved to make Red Hat Enterprise Linux one of the most stable and trusted IT platforms.

### Flexibility

Red Hat Enterprise Linux offers customers a wide range of options for tailoring the operating system to their specific environments. Red Hat Enterprise Linux 6 includes new definitions of feature component groups to allow easy feature selection from a minimal install for a basic runtime environment, to a full set of feature selections including storage options, systems management, graphical interfaces, and administrative utilities. In addition to support for a breadth of infrastructure options, Red Hat Enterprise Linux 6 also includes a complete portfolio of open source applications. With supported applications ranging from web infrastructure to databases and development frameworks, Red Hat Enterprise Linux 6 installations are suitable for a broad range of workloads.

In addition to feature flexibility, Red Hat Enterprise Linux also offers deployment flexibility, with support for a wide range of hardware from industry-standard servers to mainframes, and new subscription options for extending its lifecycle with Extended Update Support (EUS) and Extended Lifecycle Support (ELS).

Customers also get operational flexibility through automated deployment features such as the kickstart tools, automatic system updates, and auditing capabilities of Red Hat Network. Red Hat Network, and its on-premise version Red Hat Network Satellite, helps organizations lower their per-system deployment and management costs, reduces unplanned downtime by automating and centralizing routine tasks, and creates a consistent environment.

## Integrated virtualization

Red Hat is a driving force behind the development of open source virtualization technology.

Red Hat's approach to virtualization is easy to adopt because it is delivered as an integral part of the Red Hat Enterprise Linux platform. Based upon kernel-based virtual machine (KVM) technology, Red Hat's virtualization capabilities are integrated into Red Hat Enterprise Linux and leverage the latest hardware virtualization capabilities provided by Intel® and AMD® processor platforms. The modular design of Red Hat Enterprise Linux allows customers to choose when and where to use virtualization. For additional flexibility, customers can deploy both Red Hat Enterprise Linux and Microsoft® Windows® as fully supported guests in a Red Hat Enterprise Linux virtualized environment. Red Hat Enterprise Linux also supports multiple virtualization use cases, from hardware abstraction for existing software stacks, to datacenter consolidation, to virtualized clusters and private clouds.

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Red Hat Enterprise Linux powers many of the world's most demanding financial institutions

*“Our technology partnership with Red Hat is key to us staying competitive in the market. We look to Red Hat for technology leadership through updates and support that help us to improve our tuning so that we can give our customers the best possible experience.*”

Joe Panfil,  
managing director of  
Enterprise Technology  
Services at CME Group

[http://customers.  
redhat.com/?s=CME](http://customers.redhat.com/?s=CME)

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Beyond core virtualization, Red Hat Enterprise Linux offers leading support for advanced virtualized I/O capabilities through SR-IOV and NPIV standards. A standard virtualization management infrastructure, libvirt, developed by Red Hat and adopted by other operating systems, provides a flexible interface for defining, managing, and monitoring virtual machines.

## Scalability and performance

Red Hat Enterprise Linux 6 has been designed to deliver performance and scalability without sacrificing data integrity. It allows scaling to 4,096 CPUs and 64 terabytes of RAM, providing a solid foundation for supporting upcoming generations of hardware. Within this broad framework, Red Hat Enterprise Linux 6 provides support for a variety of networking infrastructures, such as Infiniband and Ethernet, and for storage infrastructures, such as FCoE and iSCSI, as well as for traditional NAS, SAN, and DAS devices.

Red Hat Enterprise Linux also offers high performance and scales from desktops to workstations, from blades to rack environments, from single CPU systems to the largest SMP servers and mainframes. As hardware upgrades continue to offer additional processing and storage capabilities, Red Hat Enterprise Linux allows customers to take advantage of those advances by selecting those scale-up and scale-out strategies and platform architectures that meet their business requirements.

Red Hat continues to collaborate with its partners to deliver advanced functionality to customers. For example, improvements in virtualization performance make it practical to deploy any application workload, even I/O-bound applications, on the Red Hat Enterprise Linux 6 platform. The most dramatic improvements in recent virtual machine performance are made possible by I/O optimizations, including support for new hardware capabilities, such as 10-gigabit SR-IOV adapters and NPIV. These have reduced overhead for I/O-bound environments to less than five percent, which opens the door to a whole new class of applications, such as database, transaction processing, and file servers.

Red Hat, in cooperation with its hardware partners, is enabling reliability, availability, serviceability (RAS), and scalability features that have been recently introduced to mainstream architectures, and which minimize down time, increase availability, and protect data.

Red Hat Enterprise Linux-powered systems have achieved leading results on industry-standard benchmarks as diverse as SpecWeb, which measures web serving; TPC-H for large-scale data warehouses; and SpecVirt for server consolidation. Red Hat Enterprise Linux 6 is a foundation for getting the most from new server hardware on diverse workloads and across the IT infrastructure.

## Security

Security for Red Hat Enterprise Linux begins with a core feature known as Security-Enhanced Linux (SELinux). Co-developed between Red Hat and the U.S. government's National Security Agency (NSA), SELinux delivers a strong and flexible MAC framework to enforce role-based access control and multi-level security. SELinux support has been woven into all parts of the platform, including virtualization, to provide critical guest separation regardless of the guest operating system. With extensive application policies and a complete review of system privileges, Red Hat Enterprise Linux 6 makes using SELinux easier than ever.

In addition to SELinux, Red Hat Enterprise Linux includes system firewalls, audit capabilities, and system package and file integrity verification tools for a complete security architecture that covers deployment models ranging from Internet-facing servers to trusted computers. Backing up the core technology is the Red Hat Security Response Team, recognized as industry leaders for addressing security vulnerabilities. In summary, Red Hat Enterprise Linux provides an unmatched security environment for customers and their applications.

## Agility across physical, virtual, and cloud

Red Hat Enterprise Linux 6 allows businesses to deploy physical, virtual, and cloud computing within their datacenters. With KVM integrated directly into the kernel, Red Hat Enterprise Linux 6 technologies span all environments, reducing complexity, increasing efficiency, and minimizing administration overhead while leveraging operating platform skills. Integrated virtualization enables interoperable physical and virtual deployments, while fine-grained control of compute resources (CPU, memory, networking, and I/O) allow businesses to manage application or guest service-level agreements (SLAs). In addition, power management enhancements reduce system carbon footprints.

## Red Hat Enterprise Linux Add-Ons

Add-Ons to Red Hat Enterprise Linux allow you to tailor your application environment with workload extensions to suit your particular computing requirements.

### Availability

- High Availability Add-On: Provides an infrastructure for improving application availability
- Resilient Storage Add-On: Provides support for cache-coherent clustered file systems and includes the High Availability Add-On
- Load Balancer Add-On: Supports TCP and UDP traffic balancing

### Scalability

- Scalable File System Add-On: Provides support for file systems up to 100 terabytes
- High Performance Network Add-On: Supports RDMA operations over 10-gigabit Ethernet, also known as RoCE

### Management

- Smart Management Add-On: Offers Red Hat Network management and provisioning capabilities

### Lifecycle management

- Extended Update Support Add-On: Extends the support period of an update for 18 months and delivers overlapping release support to give enterprise customers more flexibility



## RED HAT ENTERPRISE LINUX BENEFITS

With Red Hat Enterprise Linux, you receive:

- **The applications you need**  
Thousands of certified applications from independent software vendors (ISVs).  
[redhat.com/partners/isv](https://redhat.com/partners/isv)
- **Your choice of hardware platforms**  
Hundreds of certified hardware systems and peripherals from leading original equipment manufacturer (OEM) vendors and independent hardware vendors (IHVs) spanning multiple processor architectures. Support for the latest hardware architectures and standards.  
[redhat.com/partners/hardwarepartners](https://redhat.com/partners/hardwarepartners)
- **The leading operating system**  
Excellent performance, security, scalability, and availability, with audited industry benchmarks.
- **A stable platform built for the long term**  
Every major version provides stable application interfaces and seven years of product support, with an option for up to 10 years of lifecycle support.
- **Interoperability**  
A product family that enables seamless interoperability of systems from the laptop, to the datacenter, to the mainframe, and interoperability with existing UNIX and Microsoft Windows deployments.
- **Comprehensive service offerings**  
Up to 24x7 support with one-hour response time available from Red Hat and selected ISV and OEM partners.  
[redhat.com/support](https://redhat.com/support)
- **Red Hat Consulting**  
Red Hat Consulting will maximize cost savings and overall return on investment (ROI) and help you plan and execute successful IT initiatives. Red Hat Consulting has a proven track record of helping customers fully utilize the value of their Red Hat Enterprise Linux investment across unique and varying environments.  
[redhat.com/consulting](https://redhat.com/consulting)
- **Red Hat Training**  
Red Hat offers a variety of learning styles, delivery methods, certifications, savings programs, and customized solutions to maximize return on your Red Hat Enterprise Linux investment.  
[redhat.com/training](https://redhat.com/training)

## SERVER OFFERINGS

- Red Hat Enterprise Linux Server
- Red Hat Enterprise Linux Server (up to 1 guest)
- Red Hat Enterprise Linux Server (up to 4 guests)
- Red Hat Enterprise Linux Server (unlimited guests)
- Red Hat Enterprise Linux for IBM System z
- Red Hat Enterprise Linux for IBM POWER
- Red Hat Enterprise Linux for HPC Compute Nodes
- Red Hat Enterprise Linux for HPC Head Nodes
- Red Hat Enterprise Linux for SAP applications

## DESKTOP OFFERINGS

- Red Hat Enterprise Linux Desktop
- Red Hat Enterprise Linux Workstation

## FEATURE SUMMARY

Feature	Red Hat Enterprise Linux 6
Architecture	x86, x86-64, IBM Power, IBM System Z
Storage support	FC, FCoE, iSCSI, NAS, SATA, SAS, SCSI
Network support	10M/100M/1G/10G Ethernet, Infiniband
Virtualization	Integrated
ISV certifications	ISV application certifications are valid for virtualized and non-virtualized deployments
High availability	Subscription Add-Ons
Resilient storage	Subscription Add-Ons
Scalable file system	Subscription Add-Ons
Load balancer	Subscription Add-Ons
Smart management	Subscription Add-Ons
High-performance network	Subscription Add-Ons
Extended update support	Subscription Add-Ons

## RED HAT ENTERPRISE LINUX 6 TECHNICAL LIMITS

Architecture	CPU	Memory
x86	32	16GB
x86_64	128/4096	2TB/64TB
Power	128	2TB
System z	64	3TB

### FileSystems (max filesystem size)

ext3	16TB
ext4	16TB
XFS®	100TB
GFS2	100TB

Please consult  
Hardware Catalog for  
supported systems

For details:  
[redhat.com/rhel/compare](http://redhat.com/rhel/compare)

## **MANAGING RED HAT ENTERPRISE LINUX WITH RED HAT NETWORK SATELLITE**

To obtain the maximum value from their Red Hat Enterprise Linux subscriptions, customers use Red Hat Network Satellite to update, configure, and provision their systems.

Red Hat Network Satellite is an easy-to-use systems management platform that provides lifecycle management for small, medium, and large infrastructures. It provides powerful systems administration capabilities, such as update management, configuration management, provisioning, and monitoring for all deployments. It can manage all Red Hat Enterprise Linux systems, whether they are physical or virtual, from its web-based interface. Red Hat Network Satellite provides efficient management of Red Hat Enterprise Linux, managing a thousand systems as easily as one. For third-party management frameworks, there is extensive support for web-based enterprise management (WBEM).

## **ROAD TO THE CLOUD**

Choosing Red Hat as the standard for applications is the first step in moving toward a service-oriented IT model that includes cloud capabilities. As a host or a guest, Red Hat Enterprise Linux delivers the core technologies to deploy both private and public clouds. The application management, tuning, and security environment is consistent whether the workload is deployed on a physical system, as a virtual guest on any of the leading hypervisors, or with a public cloud provider. In shared and virtualized environments alike, the features and capabilities of Red Hat Enterprise Linux make it the ideal host and guest operating system.

## **REFERENCE ARCHITECTURE LIBRARY**

The Red Hat Enterprise Linux reference architecture library includes comprehensive solutions that help customers get the most out of their Red Hat Enterprise Linux-based environments. These reference architectures explain the capabilities of a given solution and provide instructions for implementing best practices for such things as provisioning, management, configuration, and performance tuning. They also include information about interoperability with other products. Find the solution that best suits your environment by visiting [redhat.com/rhel/resource\\_center/reference\\_architecture.html](http://redhat.com/rhel/resource_center/reference_architecture.html).

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**ABOUT RED HAT**

Red Hat was founded in 1993 and is headquartered in Raleigh, NC. Today, with more than 60 offices around the world, Red Hat is the largest publicly traded technology company fully committed to open source. That commitment has paid off over time, for us and our customers, proving the value of open source software and establishing a viable business model built around the open source way.

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