

Modernize Your Data Center and Transform Your Business With Cisco and Red Hat



Solution Brief
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Highlights

Modernize Your Infrastructure and Transform Your Business

- Cisco and Red Hat can help you prepare your data center for the future with solutions that deliver agility, security, and reliability at reduced total cost of ownership (TCO).

Be More Responsive to Business Needs

- Cisco Unified Computing System™ (Cisco UCS®) servers with Intel® Xeon® processors at the core of your data center deliver the versatile, energy-efficient performance, scalability, and availability required for modern cloud and big data initiatives.

Choose a Trusted, Open Software Platform: Linux

- Trusted by companies around the world, industry-leading Red Hat Enterprise Linux (RHEL) starts with the economics of an open source foundation and then adds innovation to provide optimal application operation with enterprise-class service and support.

Industry leaders Cisco and Red Hat can help you modernize your data center in preparation for big data and cloud initiatives that can transform your business—all with intelligent Intel® Xeon® processors.



Imagine the possibilities: an environment in which all IT resources are part of an elastic, scalable, flexible, and self-service infrastructure that can be put into action at any moment—an environment in which your IT department is empowered to accelerate business initiatives, and business decisions are made with real-time data. Cisco and Red Hat are ready to modernize your data center as a first step in transforming your business.

You are probably assessing cloud and big data technologies as solutions to increase your agility and competitive edge. In the Gartner Data Center Conference Poll conducted in December 2013, 87 percent of all respondents reported that they have adopted a cloud computing strategy. And the article “The Advantages of Digital Maturity” (MIT Sloan Management Review, November 2012) shows that companies using big data analytics (along with social and mobile initiatives) were 26 percent more profitable, with 9 percent more revenue and a 12 percent higher valuation than their competitors. You can’t expect to get the results you seek with old, traditional, siloed infrastructure. To move your data center into the future, you need an infrastructure that is as elastic and agile as you want your business to be. Cisco and Red Hat can help you modernize your infrastructure and data center best practices to gain the most out of your cloud and big data initiatives.

Challenges with Aging RISC/UNIX Infrastructure

Data centers are full of aging RISC/UNIX servers that cannot support today's business needs. Costs associated with the purchase, maintenance, and servicing of these servers continue to escalate. In addition, very few public or private cloud environments are based on RISC/UNIX servers, because the systems are expensive, inflexible, and burdened with complex system management frameworks.

Reduced Cost Effectiveness

RISC/UNIX server acquisition and maintenance costs are now a significant component of IT budgets. On average, the platforms have a 65 percent higher total cost of acquisition than servers based on x86 architecture. In fact, high operating and maintenance costs in

combination with per-core software licensing costs often place RISC/UNIX systems at a significant disadvantage compared to x86-based systems. Figure 1 shows how the savings in Oracle licensing costs alone can pay for an entire x86-architecture solution. In addition, the price of energy and data center space continues to rise, making efforts to power, cool, and house these systems burdensome. With fewer college graduates experienced in UNIX administration, skilled personnel are harder to find and expensive to employ. These factors, together with flat or shrinking IT budgets, are proving that continued reliance on RISC/UNIX architectures no longer is cost effective.

Performance and Flexibility Are Necessary to Remain Competitive

Successful businesses are faced with a variety of challenges. More users

Decreased Operational Costs

"Ordinarily, expanding from two to three data centers would be expected to increase operational costs by 50 percent. Our operational costs will actually decrease by 40 percent when we expand from two to three data centers. A major reason is the space, power, and cooling savings from consolidating from 84 to 30 racks."

—Shreyas Shah, Senior Director, Global Information Technology, Avago Technologies

http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/Avago_Case_Study.pdf

are generating increasing amounts of data that must be processed and accessed, with demands for additional performance capacity frequent and unpredictable. In many instances, today's aging and proprietary RISC/UNIX infrastructure fails to deliver the performance, flexibility, and agility required to support the modernization of applications and the dynamic demands of the business. At a time when data centers are moving to cloud or infrastructure-as-a-service (IaaS) platforms, flexible, standard, nonproprietary platforms and solutions are needed more than ever.

Modernize with Cisco and Red Hat

Modernization is the first step toward supporting hybrid cloud and big data initiatives in your organization. First you will want to standardize on flexible, industry-standard infrastructure that is integrated, easy to manage, and easy to scale.

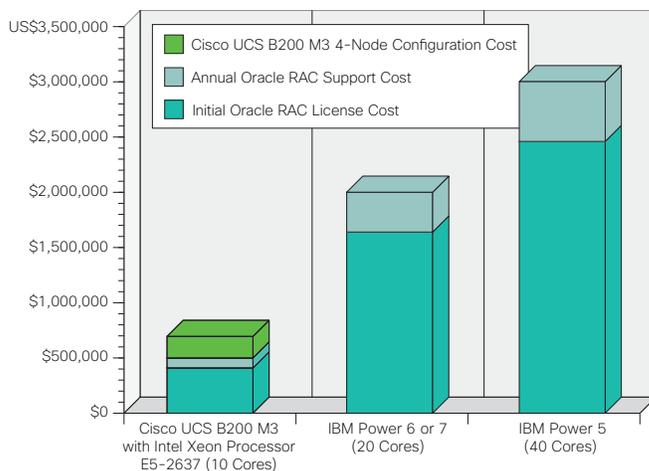


Figure 1. Cisco UCS Cost, Including Hardware, Software, and Support, Is Less Than Half the Cost of Oracle RAC License Costs Alone on an IBM Power Based System (Sources: [Oracle Price List](#) and [Oracle Core Factor Pricing](#))

Cisco UCS

Cisco Unified Computing System™ (Cisco UCS®) is the first truly unified data center platform that combines industry-standard x86-architecture servers, networking, virtualization awareness, storage access, and embedded model-based management in a single system that unifies infrastructure and management. Cisco UCS is cost-effective, intelligent infrastructure that simplifies and accelerates the deployment of enterprise-class applications and services, providing an infrastructure that is as nimble and fast as your business has to be.

Cisco UCS enables your business to be more agile and competitive while simultaneously reducing the total cost of ownership (TCO). The advantages of Cisco UCS are recognized across the industry: 75 percent of Fortune 500 companies having invested in Cisco UCS, and IDC declared that Cisco is the number-one x86-architecture blade server vendor in the Americas (IDC Worldwide Quarterly Server Tracker 2014Q1, Vendor Revenue Share).

Powered by Intelligent Intel Xeon Processors

Cisco UCS is powered by intelligent Intel Xeon processors that enable you to be more responsive to business needs with enhanced virtualization, automation, and orchestration. Each new generation of Intel Xeon processors delivers even more performance to promote rapid innovation and new insights—as Cisco proves over and over again with world-record results on industry-standard benchmarks.

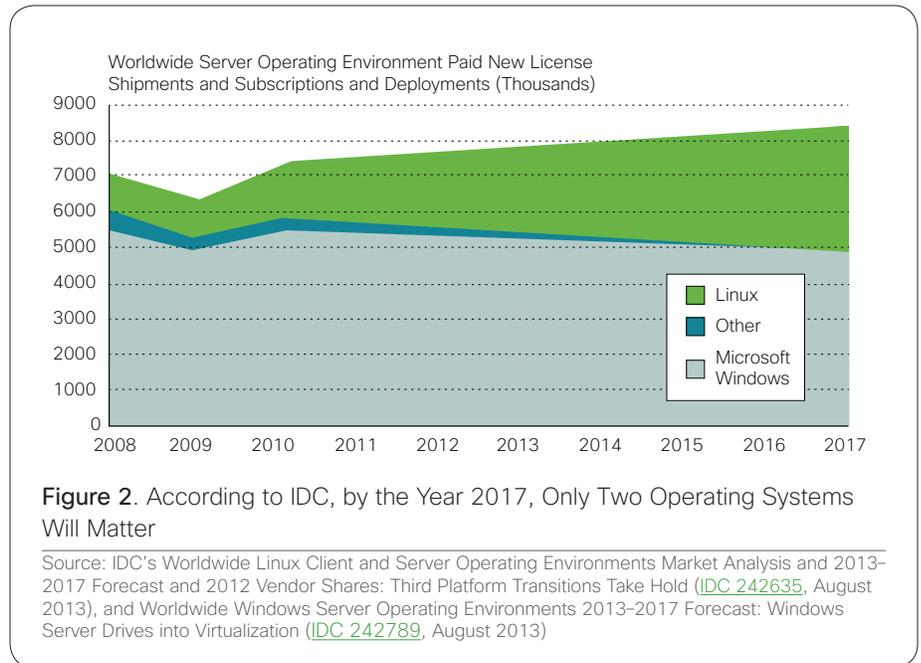


Figure 2. According to IDC, by the Year 2017, Only Two Operating Systems Will Matter

Source: IDC's Worldwide Linux Client and Server Operating Environments Market Analysis and 2013-2017 Forecast and 2012 Vendor Shares: Third Platform Transitions Take Hold (IDC 242635, August 2013), and Worldwide Windows Server Operating Environments 2013-2017 Forecast: Windows Server Drives into Virtualization (IDC 242789, August 2013)

Cisco can help you analyze the costs and benefits of Cisco UCS compared to your existing infrastructure to give you a clear view of how your data center can better support your business.

Red Hat Enterprise Linux

By 2017, there will be only two operating systems that matter in the market: Linux and Microsoft Windows (Figure 2).

Trusted by companies around the world, industry-leading Red Hat Enterprise Linux (RHEL) uses the economics of open source software as a foundation and then innovates to provide optimal application operation with enterprise-class service and support. Together with Cisco UCS, Red Hat Enterprise Linux delivers outstanding performance, scalability, reliability and security for cloud and big

data deployments as well as enterprise applications.

More Servers per Administrator

"For the size and scale of our environment, I have a relatively small staff managing it. On the network side, I only have four network engineers managing 30,000 network devices. And on the 400 servers we have, I only have four server administrators. So we're running a very efficient shop."

—Sumon Acharjee, Director, Information and Communication Technology, Sheridan College

(http://www.cisco.com/c/dam/en/us/solutions/collateral/data-center-virtualization/sheridan_college_case_study.pdf)



Migrate

After you have standardized on Cisco UCS and Red Hat Enterprise Linux, you need to migrate your applications and update your processes to this new, agile, high-performance infrastructure. While migrating, you will also be standardizing processes to reduce costs and increase IT staff efficiency.

Consolidate

During this entire process, you will most likely be consolidating multiple older RISC-based servers onto a single, more powerful infrastructure. This consolidation will enable you to save hardware, software, power,

and staffing costs. With intelligent automated management, each of your administrators will be able to manage more servers and still have time to focus on strategic initiatives that will enable your business to grow and be more competitive.

Intelligent Infrastructure Today and into the Future

Cisco UCS and Red Hat Enterprise Linux come together to create unique solutions that can simplify and accelerate deployment of enterprise-class applications and services running in bare-metal, virtualized, and cloud-computing environments. This infrastructure provides extreme flexibility to businesses. Cisco UCS with its built-in, policy-based automation and deep integration with Red Hat Enterprise Linux management and orchestration tools help IT departments transform operations, making staff more efficient and effective. These solutions deliver scalability, agility, security, and reliability at a reduced TCO.

Outstanding Performance and Availability

Cisco UCS with intelligent Intel Xeon processors delivers cost-effective

scalability, high performance, advanced reliability, and the data protection that businesses expect for their most data-intensive enterprise applications. Intel Xeon processors are designed to meet business performance needs, with reliability, availability, and scalability features often greater than what is available with current RISC processors. Cisco UCS has a comprehensive server product line that enables scale-up and scale-out application architectures to fully support business needs. Some of

Outstanding Performance

“Our most important driver was performance. Performance testing delivered improvements that were up to 20 times faster with the Intel Xeon platform than we had been able to achieve on our existing RISC-based systems. We went from almost 100 percent CPU utilization to barely achieving 20 percent. The Cisco Unified Computing System and architecture gives us a lot of room to grow.”

—Paul Di’Vittorio, Director of Private Cloud Architecture, EMC

http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/cisco_emc_risc_migration_case_study.pdf

Red Hat Accelerates Applications

“We’re seeing performance that is easily twice as fast as we experienced under AIX. We also reduced our total hardware and operating system licensing costs by 25-30%. The case in favor of Red Hat Enterprise Linux over AIX is an open and shut one.”

—Tim Nolan, Manager, Linux Engineering, Travelers

the world's most successful companies, across a variety of industries, have transitioned their most critical business applications and database deployments to Cisco UCS. You too can transform your mission-critical computing environment so that it is ready for the challenges of both today and the future.

Lower Cost and Complexity

Cisco UCS uses high-performance, cost-effective industry-standard Intel Xeon processors. In addition, the Cisco unified fabric reduces the total number of interface cards, cables, and chassis switches needed by up to two-thirds, lowering cost and complexity. Virtual networks are now visible and managed in exactly the same way as physical networks, but with massive scalability and flexibility. Cisco UCS represents a radical simplification compared to traditional systems, reducing capital and operating costs while increasing

business agility and improving performance.

Greater I/O Bandwidth

Achieve greater IT productivity and a superior price-to-performance ratio for lower TCO with Cisco UCS servers. Cisco UCS servers deliver world-record performance for mission-critical workloads. With an integrated 10-Gbps unified fabric, Cisco UCS meets the bandwidth demands of today's multicore processors and eliminates the cost of separate networks for each type of traffic while increasing workload agility, reliability, and performance.

Faster Deployment Times

Cisco UCS is intelligent infrastructure that is self-aware and self-integrating. When new components are added to the system, they are automatically placed in resource pools, making deployment fast and easy. The system is built from the foundation so that every aspect of server identity, personality, and connectivity is abstracted and can be applied through software. Servers are configured automatically, eliminating the manual, time-consuming, error-prone assembly of components into systems. Every aspect of the infrastructure can be configured dynamically, making each server ready to power any workload at any time.

Achieve 1-to-100 (or Greater) Staff-to-Server Ratio

Cisco UCS eliminates the manual, time-consuming, error-prone assembly of components into systems

because every aspect of the Cisco UCS infrastructure can be configured automatically and dynamically, making each server ready to power any workload at any time. Gone are the days of sticky notes from one administrator to another, communicating important configuration information for individual system configuration. Cisco UCS Manager enables, encourages, and supports immediate, real-time, and efficient cooperation between administrative roles, with cross-role visibility. This visibility provides a path to the preprovisioning of critical elements in the deployment process. The inherent cooperative nature of Cisco UCS Manager removes the traditional data center management silo barriers, which historically have reduced staff efficiency.

Beyond Efficiency: Making IT More Productive

Cisco UCS helps organizations go beyond efficiency: it helps them become more effective through technologies that promote simplicity rather than complexity. The result is secure, flexible, agile, high-performance, self-integrating information technology that delivers reduced staff costs with increased uptime through automation and more rapid return on investment (ROI).

Cisco and Red Hat Modernization Services

Not all modernization projects are the same. Proper planning and a sound methodology are required to help

Cisco Support: Depth of Experience

"We received great support from Cisco Services in helping us test and deploy the implementation on schedule. They also helped us take advantage of features that we otherwise would not have known how to optimize for our needs. We were pleasantly surprised with Cisco's expertise and depth of experience with Cisco Unified Computing, Oracle, and data center technologies."

—Paul DiVittorio, Director of Private Cloud Architecture, EMC

ensure a successful outcome. Using an abundance of experience garnered from assisting customers worldwide, Both Cisco® Advanced Services and Red Hat modernization services consultants can help you exploit the significant architectural innovations of Cisco UCS running Red Hat Enterprise Linux and help ensure that you get the best ROI from your migration effort.

Cisco and Red Hat modernization services provide a flexible approach that adapts to the complexity and importance of the applications you're migrating. These services build on strong relationships with enterprise software vendors, including Oracle and SAP, as well as trusted service delivery partners with vast experience in migrating commercial off-the-shelf and custom applications.

Cisco Advanced Services and Red Hat migration services use proven, industry-leading methodologies and practices to migrate RISC processor-based applications running on proprietary UNIX systems to the award-winning Cisco UCS running open Red Hat Enterprise Linux. Complete sets of services are available to help you confirm ROI and reduced TCO, perform test migrations, and migrate applications based on your criteria and needs.

Cisco and Red Hat: Your Trusted Data Center Partners

Cisco and Red Hat are in a unique position to help you migrate your mission-critical applications to state-of-the-art platforms with greater choice, higher efficiency, and innovation that can propel your data center far into the future:

- **Choice:** Cisco and Red Hat believe in open ecosystems so that you have investment protection through an open architecture. Using industry-standard, x86-architecture servers together with the number-one commercial, open source, enterprise Linux distribution, this solution gets your modernization effort started right.
- **Efficiency:** With dramatically faster deployment times and a standardized and proven methodology for transitioning to a modern architecture, the Cisco and Red Hat solution can help you make this transition efficiently, with lower capital and operating expenses.
- **Innovation:** By modernizing your data center using innovative solutions from Cisco and Red Hat, you help your data center become a truly elastic resource that can expand and contract as your business needs change.

Together, Cisco and Red Hat provide a comprehensive, cost-effective approach to modernize your data center.



For More Information

For more information contact your local account representative or use the following resources:

- To learn more about Cisco migration services, visit <http://www.cisco.com/go/migratetoucs>.
- To learn more about Red Hat modernization services, visit <http://www.redhat.com/en/technologies/linux-platforms/enterprise-linux/migrate>.



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