



DYNAMIC IT: EXPAND YOUR CAPABILITIES WITH RED HAT OPEN SOURCE

OVERVIEW

Today, the CIO and IT manager face challenges that cannot be overcome by technical features alone. According to the State of the CIO Survey, 2006 (www.cio.com) the CIO and IT manager must meet a host of demands. Reduce costs. Drive business innovation. Enable competitive advantage. Improve customer satisfaction. Grow revenue.

IT is no longer just a side show in the corporate structure. Today, IT is central to corporate success and profitability. But the IT manager faces the same barriers to success as always. A backlog of projects. An inadequate budget. A shortage of planning time. Unrealistic expectations, or worse, unknown expectations.

Every CIO faces a dilemma. How can I do more with less?

For the CIO, creative thinking and innovation are the solutions. Today's CIO must join the open source revolution-or be left behind. Red Hat open source solutions provide a way out of this dilemma. Now is the time to be using open source solutions everywhere. Now is the time to understand the power and applicability of open source. Now is the time to assess what a virtualized enterprise IT environment can do for you. Improve flexibility. Speed of response. Asset utilization.

And the way for a CIO to successfully embark on the open source road is to partner with the world's open source leader.

WHY RED HAT?

Red Hat open source solutions are designed, created, integrated, tested, and maintained by Red Hat. We do not merely rebadge third party open source products. We define product functionality and market and strategic focus.

Named among the fastest growing companies by Business 2.0 and Forbes, Red Hat is the most trusted open source adviser to the Global 2000. We do this work every day. We eliminate the complexity, doing the work of integration so you don't have to. We certify and support the technology so you can focus on serving your customers. We know the value of open source and how to use it to transform your organization. And we have been doing it since 1993-before the introduction of the Linux kernel v1.0 and just when the world wide web was inaugurated.

Our customers have already found a way to respond to the tremendous expectations put on them. Now it's your turn.

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DYNAMIC IT: EXPAND YOUR CAPABILITIES WITH RED HAT OPEN SOURCE

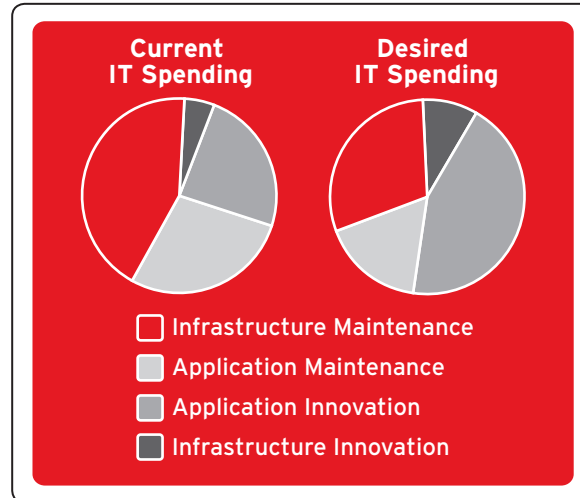


A SHIFT IN PRIORITIES

Today, nearly 75% of spending goes to infrastructure and application maintenance, leaving few resources for fostering the innovation that is needed to succeed in today's highly competitive environment.

Getting to the desired spending model, where maintenance takes a backseat to innovation, is the goal of every CIO.

And virtualization is the key.



THE VIRTUAL ENTERPRISE

Picture your infrastructure as a pool of resources that are being deployed to meet the needs of your business, moment to moment. Heavy load on your ERP system? Shift spare capacity to help. Unexpected web traffic? Dynamically allocate resources to reduce response times. Red Hat's virtual platform uses the total capacity you've purchased to meet your service objectives, unlocking value from your IT investment.

Need to deliver a new application, service, or server? Do it in seconds. Not hours or days. Free your people to innovate, instead of managing infrastructure.

Red Hat's virtual platform builds disaster recovery into your infrastructure. It allows you to achieve continuous availability at low cost with commodity hardware. Has your site in London gone down? Shift the workload instantaneously using spare capacity in other locations, without expensive and unreliable duplication of resources.

Only Red Hat open source makes this vision a reality.

It's accessible now. You can put it to work today without an army of experts for system integration. And since it's universal, you need buy only as much as you need. One server or an entire architecture. Regardless of what you're running now.



CASE STUDY: EURONEXT

Atos Euronext Market Solutions (AEMS), the leading global provider of IT solutions for exchanges, clearing houses, banks and intermediaries, migrated the IT infrastructure of its LIFFE CONNECT® trading platform to Red Hat Enterprise Linux.

AEMS decided to move to Red Hat Enterprise Linux after establishing that it could facilitate the next step in performance and cost reduction more effectively than other proprietary software platforms.

The migration to a Linux solution was based on the requirement for open and flexible architecture, with higher performance and fully manageable total cost of ownership with no proprietary lock in.

A DYNAMIC INFRASTRUCTURE

In most IT shops today, server deployments are rigid and inflexible. A server is budgeted by a specific group, it runs a specific application, and it is locked down as securely as possible. The cycle of budget, deploy, and lock-down is repeated endlessly—each deployment an island to itself. Over time, the total IT infrastructure grows organically to the point that there is a huge capital investment, resources are woefully underutilized, and there is very little operational flexibility. The IT department is forced to be guardians, rather than those who deliver innovative new solutions to clients.

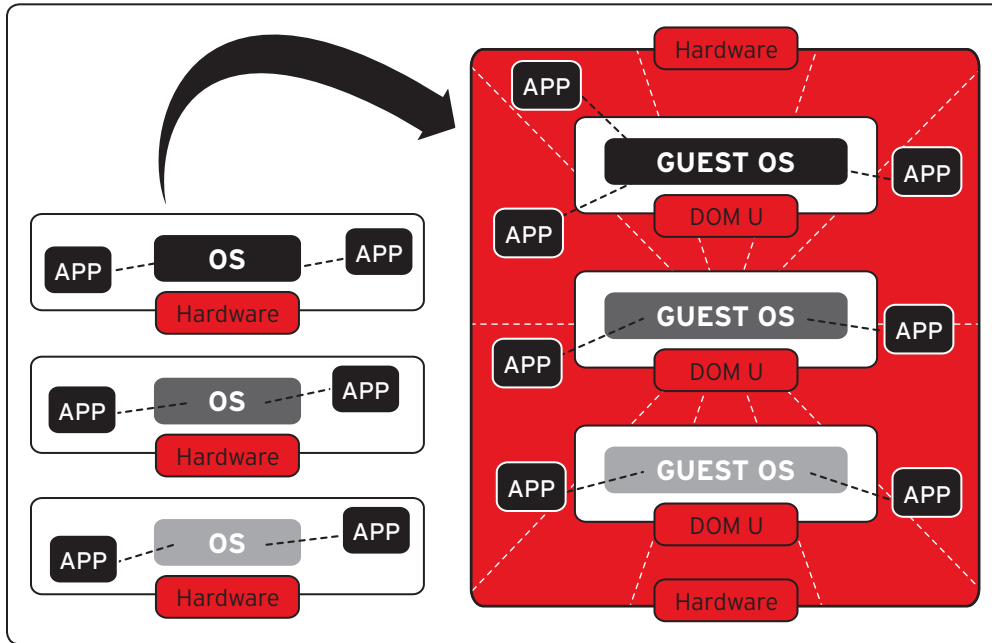
Virtualization changes everything. By enabling the IT infrastructure to become dynamic and flexible, the traditional chain linking an application and its underlying hardware is broken.

The virtualized IT department can aggregate hardware and software purchases to meet total organizational requirements. Processing and data services are supplied to clients on demand.

SOLVING TODAY'S IT CHALLENGES

Virtualization provides many benefits:

- Reduced hardware costs
 - Server consolidation allows the workloads of several systems to be run on the same physical system.
- Improved service levels and flexible resource control
 - Applications can be moved dynamically to systems with available capacity when demand increases, or additional CPUs and memory can be added with a mouse click. They can be relocated prior to a planned shutdown to ensure continued availability.



- Reduced management costs and increased efficiency
 - Virtualized systems are quick and easy to create and provision. Applications can be encapsulated and locked down.
- Physical/environmental cost reduction
 - Fewer servers means reduced power and cooling demands and lower real estate costs.
- Shared resources
 - Not only is server utilization optimized, but so are the network and storage infrastructures. Fewer components, less to go wrong, less to manage.
- Maintenance cost reduction
 - Due to consolidation, a virtualized infrastructure of servers and storage is more cost effective to maintain. Applications running on old, expensive servers can be easily virtualized onto a new, lower cost system.

The result? The CIO can meet higher and higher service level demands in his day-to-day business. Bring new high-value projects on-line quickly. Within budget.

REDEFINING AVAILABILITY AND FLEXIBILITY

These capabilities combine to create a uniquely powerful IT environment for Red Hat customers. Consider some practical implications:



• Flexible IT

- When a company department requests a new server for a new application, the traditional steps are expensive and lengthy. But with Red Hat virtualization, the process is streamlined.

• Disaster tolerance

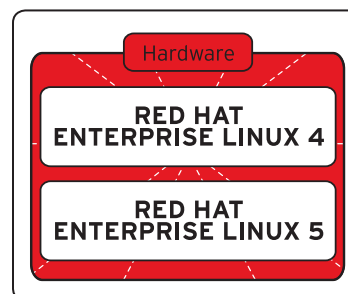
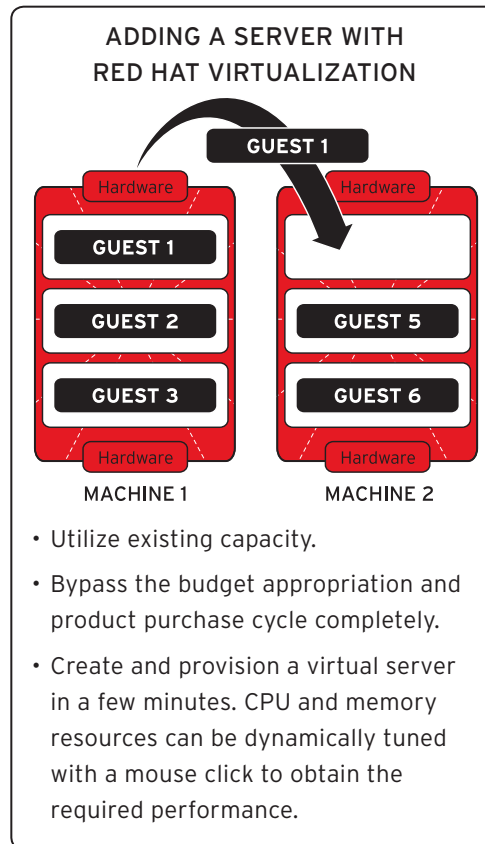
- To create a disaster-tolerant system the traditional way, it is generally necessary to exactly duplicate the environment at two sites. The same hardware, software, storage, even configuration and registry information, with carefully synchronized updates, so that the application can be safely restarted on the redundant hardware when a site fails. But this is extraordinarily hard to achieve. In most cases the complexity of today's systems makes creation of a disaster-tolerant configurations impractical for all but the most deep-pocketed customer. And customers rarely test their disaster-tolerant systems. When they do, things don't seem to work properly.

With Red Hat virtualization, the server environment is virtual and inherently consistent, regardless of the underlying physical hardware. So the complete operating system and application environment can be relocated in its entirety. An exact copy, running on any architecturally-compatible system, but without the expensive management overhead of hardware and software duplication.

Life cycle management

- Hardware systems often reach end-of-life before the applications running on them do. Maintenance costs go up. Performance falls far behind new systems. But moving the application to a new physical system immediately triggers operating system upgrades, application rebuilds, expensive and time consuming certification cycles.

With Red Hat virtualization, the old operating system and its applications can be fully encapsulated and deployed virtually on a new system. New low-maintenance hardware, lower cost footprint, latest performance levels, all provided seamlessly for a mature, stable software stack.



THE STATE OF RED HAT VIRTUALIZATION

Red Hat delivered these virtualization capabilities with its recent Red Hat Enterprise Linux 5 product. Integrated, mature, and ready for mainstream deployment.



But we also went a lot further. Our customers want to virtualize all their IT resources—processing and data. So we created the Red Hat Enterprise Linux Virtualization Platform, designed to deliver these capabilities. Designed specifically for mainstream customers looking for a complete virtualization infrastructure, Virtualization Platform is layered on the standard Red Hat Enterprise Linux product and includes sophisticated clustering capabilities that enable customers to virtualize their data and dramatically improve application availability.

Technologies such as failover of applications and virtual guests, distributed storage management, distributed file system, and distributed application synchronization are all fully integrated. GUI and script-based management capabilities allow customers to monitor and manage the environment. New or redundant virtual servers can be deployed in seconds, anywhere in the virtualized computing fabric, all with seamless access to application data. Because the platform is built with standard Red Hat products, there is complete compatibility among virtual and non-virtual systems.

Illustration 1 shows the Red Hat Virtualization architecture, with physical hardware aggregated into a single pool from which operating system environments and applications can draw the required resources.

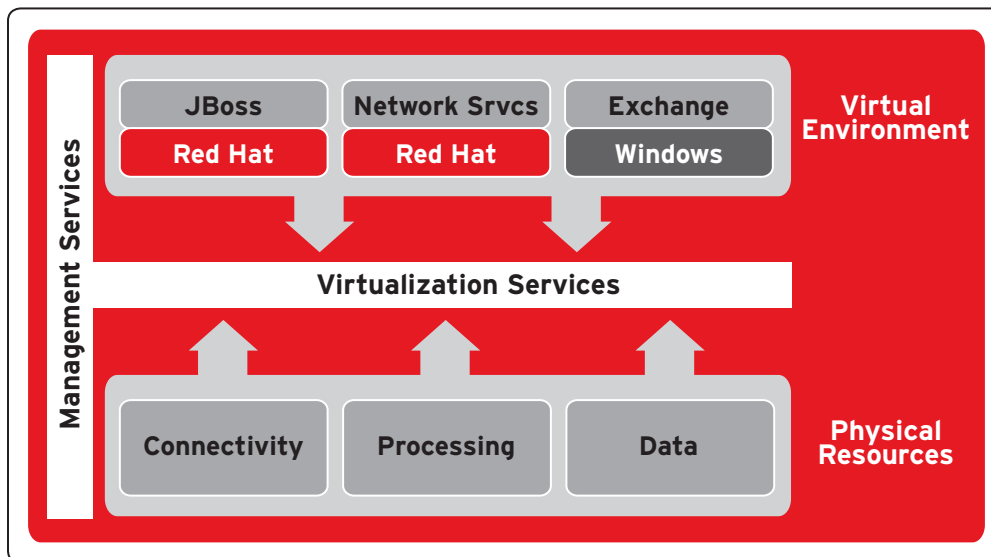


Illustration 1

Red Hat Enterprise Linux Virtualization Platform allows customers to realize the benefits of a virtualized enterprise immediately, with no need to design and integrate their own solution. We provide the technologies and, when needed, a portfolio of consulting services that deliver a virtualized enterprise—from design through deployment, through training and management.

EXPANDING YOUR CAPABILITIES



Consider how much you spend on your server software stack today. Not just the operating system. The storage, clustering, application servers, middleware, portals, BPM, ESB. Add it all up. Then look at the enterprise-class Red Hat open source solutions. Customers can typically save from \$5,000 - \$30,000 per server by using Red Hat open source.

OPEN SOURCE FROM STORAGE TO SOA

Open source software has developed dramatically over the past few years, with Red Hat taking the lead role in delivering complete solutions. For customers who have not kept abreast of recent innovations, it is time to take a fresh look at the cost savings that they offer.

Illustration 2 shows a typical proprietary software stack to the left. Established. Expensive. The status quo. You know how much these products cost to obtain and support. But open source solutions today are every bit the equal of established proprietary products. The stack to the right shows Red Hat equivalent technologies.

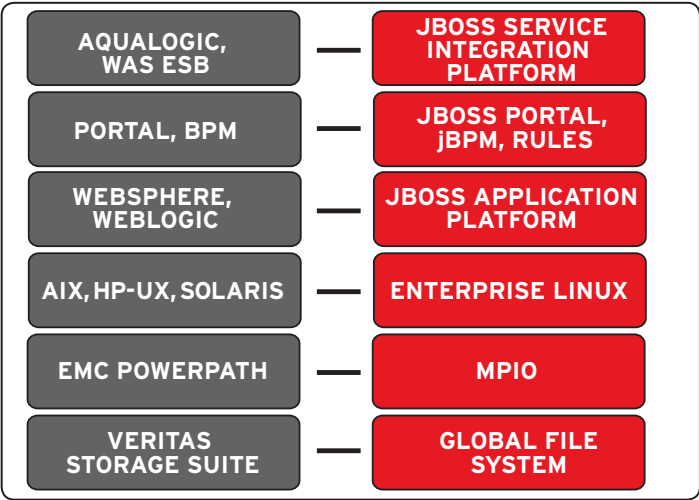


Illustration 2

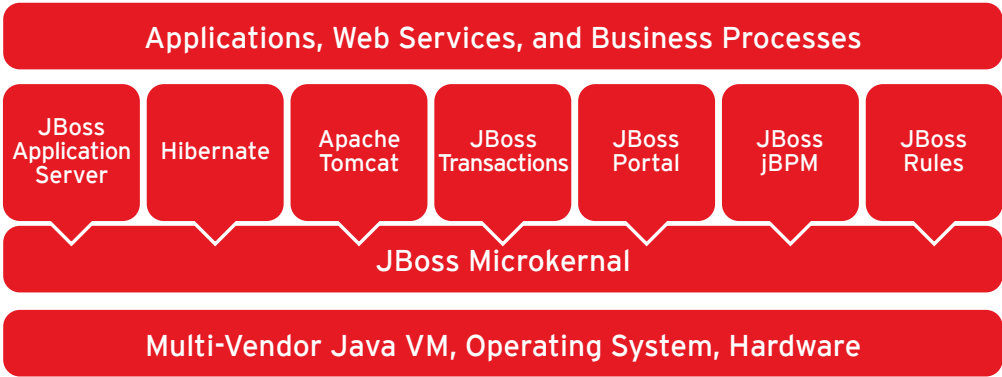


Illustration 3

Illustration 3 shows the extent and flexibility of Red Hat's JBoss open source middleware stack. These products are available today. And they are delivering exceptional cost savings. They are developing faster than their proprietary equivalents.



SHIFTING THE CAPABILITY CURVE: DOING MORE WITH LESS

These cost savings can be used to innovate and create new solutions. Meet new business needs. Optimize existing deployments that are stretched to breaking point. Free up resources so that the IT department can become a corporate enabler rather than a bottleneck.

Open source moves the “capability curve.” Illustration 4 shows the capability curve -tracking expenditure versus output. Your IT budget against the IT capabilities you have to deliver. With proprietary solutions, there is never sufficient budget to deliver on the requirements.

The only solution is to move the capabilities curve. Open source is no longer a tactical, or even a strategic decision. It is an essential decision for success. IT departments who are not adopting open source are falling behind.

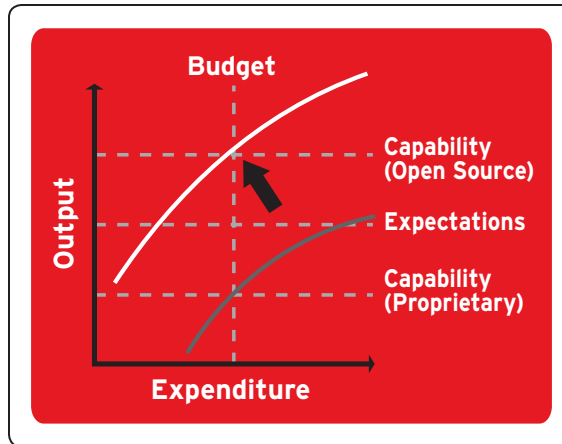


Illustration 4

EXTENDING OPEN SOURCE AVAILABILITY AND MANAGEMENT

For a truly successful enterprise deployment, it is vital to include technologies that provide continuous availability and require minimal system maintenance. Our engineers have built these capabilities into their products from the beginning. They move Red Hat solutions to the front and center of commercial deployments, delivering exceptional service levels without the requirement to purchase expensive proprietary high-availability products.

Of course, the quality of open source software is well established. Just look at the ranking of most available servers on the Internet (Illustration 5). Linux dominates.

| Rank | Performance Graph | Company Site | OS | Outage hh:mm:ss | Failed Req% | DNS | Connect | First Byte | Total |
|------|-----------------------|-----------------------|---------|-----------------|-------------|-------|---------|------------|-------|
| 1 | rackspace.com | Rackspace | Linux | 0:00:00 | 0.06 | 0.045 | 0.059 | 0.118 | 0.118 |
| 2 | datapipe.net | DataPipe | unknown | 0:00:00 | 0.07 | 0.004 | 0.015 | 0.031 | 0.063 |
| 3 | kattare.com | kattare.com | Linux | 0:00:00 | 0.07 | 0.035 | 0.078 | 0.155 | 0.155 |
| 4 | webhosting.tiscali.it | webhosting.tiscali.it | Linux | 0:00:00 | 0.09 | 0.155 | 0.146 | 0.292 | 0.292 |
| 5 | above.net | above.net | unknown | 0:00:00 | 0.11 | 0.006 | 0.041 | 0.086 | 0.146 |
| 6 | globix.net | globix.net | Linux | 0:00:00 | 0.12 | 0.004 | 0.058 | 0.119 | 0.238 |
| 7 | valuweb.net | Valueweb | Linux | 0:00:00 | 0.12 | 0.107 | 0.077 | 0.155 | 0.155 |
| 8 | westhost.com | westhost.com | Linux | 0:00:00 | 0.12 | 0.113 | 0.086 | 0.175 | 0.378 |
| 9 | 1and1.com | 1and1.com | Linux | 0:00:00 | 0.13 | | | | |
| 10 | iweb.ca | iweb.ca | Linux | 0:00:00 | 0.13 | | | | |

www.netcraft.com - September 2006 - Most reliable hoster, ranked by requests and connection time.

Illustration 5



Red Hat solutions build on this solid foundation and include high-availability features like failover clustering, Multipath I/O, and RAID that keep applications available even when the hardware fails. And virtualization capabilities allow you to move workloads dynamically, with no loss of service, so that you can meet your service level requirements even as workloads change or systems are taken down for maintenance and upgrades. It is straightforward to add processors and memory to a running system so that it can handle peak workloads. Remove them when the load is low.

But it doesn't stop there. What about monitoring the system for optimal performance? How do you keep your systems up to date with the latest fixes? With Red Hat solutions being suitable for every part of your enterprise, how scalable are the management tools?

Red Hat provides the latest technologies for profiling and monitoring application performance—tools such as Systemtap, created in collaboration with Red Hat partners, IBM, Intel, and Hitachi. Systemtap is like Solaris Dtrace, only with more powerful scripting and more flexible probing.

RYAN BENNER, IT MANAGER:

"I did keep one NT server for our lab database and HR and payroll software. Do I think a company can become fully free of Microsoft, its high prices, and poor security all the way down to the desktop and applications? I do. My next projects include desktop systems.

I advise all the administrators, CFOs, CEOs, and IT personnel who have not taken a look at Linux to start to look at the software as a viable solution to price-gouging of other systems. You can cut administrative costs, licensing costs, and hardware costs by half; you can increase security and up time; and you won't have to make major migrations every few years in order to maintain your support options."

Traditionally, customers measured vendors simply on the speed with which security fixes were provided, but merely getting the fix is often the easiest step. Physically installing the fix on hundreds of distributed systems is the bigger challenge. Red Hat customers enjoy the industry's leading technology for update delivery and deployment: Red Hat Network.

Red Hat Network is the central distribution point for all fixes and updates. There's no need to visit multiple websites to get the updates you need. They are all available directly from Red Hat or can be held at your site on a Red Hat Network Satellite Server. Red Hat Network maintains an audit of your systems and will let you know when there are updates available.

And, most importantly, Red Hat Network can manage hundreds of systems with a single key click or automatically. Centralized distribution, accurate auditing, instant updating. This is the cornerstone of keeping your IT department operating at peak efficiency.



THE OPEN SOURCE ECOSYSTEM: CHOICE WITH VALUE

With no software acquisition costs, open source has re-energized the software industry to develop services and solutions that have genuine value. Services that deliver updates and support. 24x7, one-hour response times, multi-lingual, world wide, on-site, on-line.

Services that deliver the IT solution you need, on time and on budget.

Assessment. Design. Implementation. Deployment. Management. Training.

Red Hat offers these services to a quarter of a million customers with over a million installed systems. And more than 10,000 new customers are adopting Red Hat solutions every quarter.

This amazing growth is not only fueled by open source software. It is equally driven by Red Hat's partner ecosystem, the largest of any open source vendor. OEM partners have certified hundreds of systems and ISV partners have certified thousands of applications with Red Hat Enterprise Linux. And many of them offer support and consulting services. So you can run open source and proprietary applications on the hardware you want. With the services that you need.

| CIO Insight Top 10 in Vendor Value 2005 | | |
|---|------------------|-------|
| Rank | | Score |
| 1 | Red Hat | 84.2% |
| 2 | Apple Computer | 82.6 |
| 3 | Cisco Systems | 81.4 |
| 4 | Dell | 79.0 |
| 4 | McAfee | 79.0 |
| 6 | VeriSign | 75.8 |
| 7 | Citrix Systems | 73.2 |
| 8 | Symantec | 72.7 |
| 9 | Hewlett-Packard | 71.7 |
| 10 | IBM | 71.2 |
| 15 | Sun Microsystems | 66.9 |
| 22 | Novell | 63.3 |
| 31 | Microsoft | 59.7 |
| 39 | Oracle | 55.3 |

Illustration 6

The open model fosters healthy competition among service suppliers, because they must win your business every year. And Red Hat is the undisputed leader in the field, winning CIO Magazine's IT vendor survey for two of the past three years as the vendor that delivered the best business value.

CASE STUDY: STATOIL



In Norway, Statoil, the major energy supplier for the region migrated from UNIX and Windows to Red Hat Enterprise Linux, deploying 16 four-way Oracle servers with EMC SAN.

Statoil saw 50% cost savings and increased performance by 10-40 times. They chose Red Hat over Novell because of Red Hat market share and "the competency of Red Hat among 3rd party suppliers."

Statoil determined that migrating their application infrastructure and HPC needs off legacy UNIX and standardizing on Red Hat Enterprise Linux would allow them to manage operations more efficiently, drastically reducing the cost of IT operations - and strengthening their bottom line.

WORKING WITH THE LEADER

Red Hat creates its own products, working closely with customers and partners to define the products' strategic direction and functional capabilities. For any commercial deployment, this provides significant advantages over working with third party distribution builders, who, with varying levels of fidelity, merely repackage Red Hat source code. By using Red Hat products and services, customers enjoy an immediate relationship with the manufacturer. Their feature requests can be incorporated, required bugfixes can be engineered and turned around much faster than third party builders, and a high level of strategic influence is possible.



Here's what Dave Dargo, CTO of Ingres, had to say about one third party distribution, Oracle's redistribution of Red Hat Enterprise Linux:

"What I found more fascinating about Larry's quote, though, was the concept that in order to speed the adoption of Linux the support prices had to be lower and support had to be better. Let's look at first year costs for deploying Oracle on Linux on a four processor box and see what kind of savings we're really talking about:

First year's Linux support from Red Hat: \$2,499

First year's Linux support from Oracle: \$1,999, O.K., we're saving money now - \$500 to be exact.

First year's Oracle database support with no database options: \$35,200

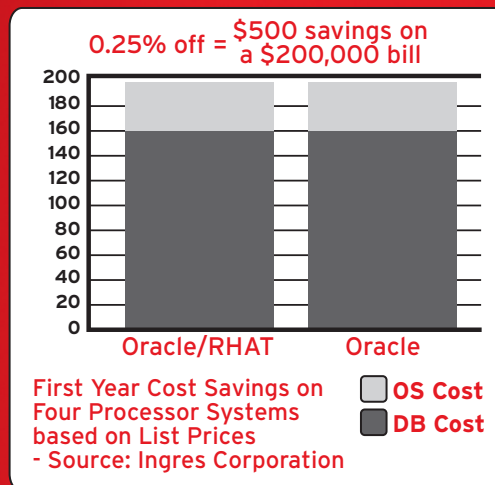
So far, the support costs for the first year are either \$37,699 or \$37,199; still saving that \$500.

But wait, there's more, the license fee you would pay to use Oracle is \$160,000. So the total, first year's cost for Oracle on Red Hat's Linux is \$197,699 or \$197,199 if you get Linux support from Oracle – a savings of a whopping 0.25%.

What does this tell us? That they're solving the wrong problem. Let's assume that Oracle provided the Linux support for free, that's \$0.00, nada, nothing, zilch. The price for Oracle on that Linux for the first year would still be \$195,200.

If the limiting factor of adopting Linux is the price of support, are we going to see Oracle lower their prices? Oh, that's right—Linux is open-source and has a competitive support model and Oracle is closed-source with a monopolistic support model. That's why they can charge nearly \$200,000 for their database, with no options, for a four processor box. Monopolistic vs. competitive; which is better for the customer? Hmm, let's think about that one."

But what about the other part of that quote, that support has to be better. There's a survey from CIOinsight that shows Red Hat is the number one vendor for value as rated by CIO's in 2004 and 2005. Where does Oracle fit on that chart? Glad you asked, they ranked 39 out of 41.



OPEN SOURCE EVERYWHERE



Today Linux is being used everywhere. Suitable for every workload—even the largest, most business-critical applications. Its performance and economic benefits can be applied to every level in the infrastructure.

Open source is pervasive. It's providing real business benefits for the largest organizations right now.

The United States Federal Aviation Administration switched to Red Hat Enterprise Linux and fixed their reliability and scalability problems on a \$10 million project that cost \$25 million in 1998. And it allowed them to achieve 30% increase in operational efficiency at half the cost.

The performance gains from Red Hat Enterprise Linux allowed DreamWorks to put a fourth movie into production rather than the three that their previous model could support.

DELIVERING BETTER QUALITY SOFTWARE SOONER

Clearly the open source development model is a relatively recent phenomenon - Linus Torvalds, released his first version of the Linux kernel in 1991 - so it has often been thought of as "catching up" with proprietary software technology, which has been under development for almost 50 years. Open source development depends on collaboration, and that collaboration depends on the Internet. So the growth of the Internet has allowed the open source community model to reach its current scale and power. Tens of thousands of projects. Hundreds of thousands of developers. Companies no longer need to create software privately, at huge cost (which then must be sold at a high price and strenuously protected.)

The open source model is so powerful that in many areas it has overtaken proprietary capabilities. New software research, incubated in academia, government, and commercial environments, is almost exclusively created using the open source model, often with free Linux distributions, such as the Fedora project.

CASE STUDY: VANDERBILT UNIVERSITY

Vanderbilt University deployed Red Hat Enterprise Linux due to its Oracle compatibility and lower total-cost-of-ownership (TCO) in hardware, software, and management.



For any world-class research institution, the need to stay at the leading edge of current technologies is paramount. At Vanderbilt, technology leadership permeates every business decision.

Because open source technology is built with best practices of software development, it appeals to the University.

A central MIS staff supports the University and Medical Center, so high levels of performance and reliability are critical to their continued leadership and long term success.

Open source virtualization technology demonstrates the ability of the collaborative model to develop innovative new techniques and catch up with older proprietary solutions in a very short time. In areas such as web serving or HPC environments, open source software is the undisputed leader. And open source customers benefit directly—they gain access to the latest technologies quicker than proprietary software customers. Better security, performance, choice, and competitive advantage.

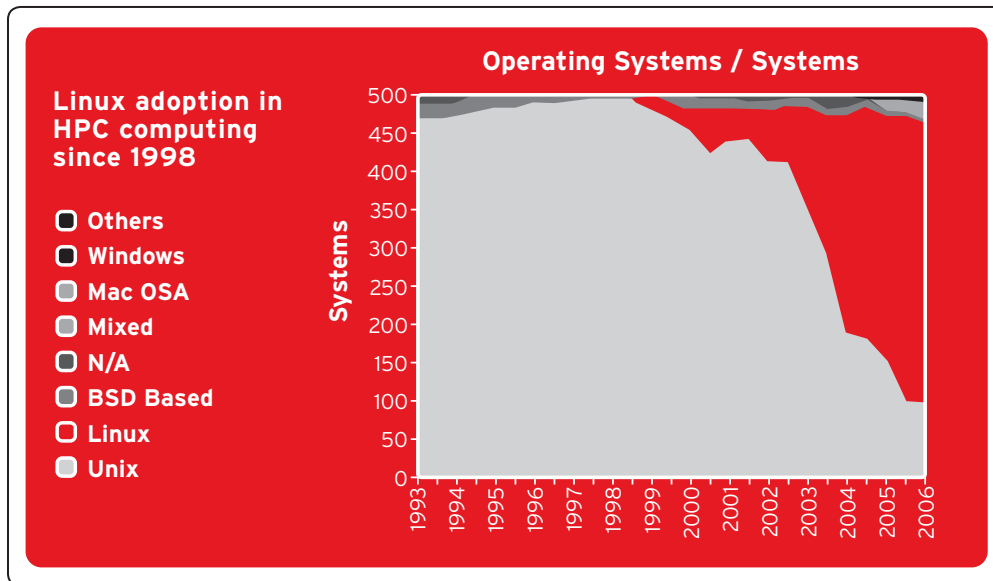


Illustration 7

The graph in Illustration 7 shows the dramatic shift to Linux over the past few years in the hotbed of HPC software research: the Top500 system list. At www.top500.org the world's largest computers are cataloged and described. What the largest systems in the world are doing today, the mainstream customer will be doing tomorrow. The Internet, the World Wide Web, parallel processing, grid technology all came from the HPC world. Open source and Linux are where the action is.

SPANNING THE IT SPECTRUM

Red Hat server products are designed for all environments—from database and corporate applications running on the largest mainframe servers to high-volume blade and racked servers – and they run on all five of the leading hardware architectures. Client products span from the laptop to the high-performance workstation. And Linux's traditional strength in scale-out environments has been complemented over the past two years with the addition of commercial-strength support for fault tolerant and large scale-up environments. All this comes with consistent management, updates, and security. This consistency also simplifies application porting and ensures that Red Hat's ISV partners can easily certify their applications on the architectures that their customers require.

Red Hat technology is standards-based at every level and has evolved to provide the functionality of the most mature operating environments. With its very strong family ties to UNIX, migrating from a UNIX to Linux environment is easy and brings with it the advantages of significant cost reduction and increased flexibility. When planning your move to an open source solution, Red Hat can assess, design, validate, deploy, and manage every aspect of the project, leading to a faster, more successful deployment. Quicker benefits. Quicker return on investment.



CASE STUDY: UNITED STATES FEDERAL AVIATION AUTHORITY

By migrating from a costly UNIX platform to Red Hat Enterprise Linux on their workstations and servers at the Volpe Center, the United States Federal Aviation Authority (FAA) was able to eliminate costs and ineffective systems while creating a scalable architecture that met their high-demand environment.

“We found that when we deployed Red Hat Enterprise Linux, the system ran at less than 10 percent CPU. It was much faster and more efficient. We got the power back and the ability to scale, even in regard to sheer physical space. We squeezed all of our servers into six racks, and, at the same time, increased from 700 to roughly 1,000 workstations in the field, aligning all of our products on a single, open platform,” explained Joshua Gustin, program manager.

FLEXIBILITY AND COST SAVINGS FOR WINDOWS CUSTOMERS

Microsoft Windows customers are quickly appreciating the benefits that UNIX customers have enjoyed using Linux solutions. Windows and Linux interoperability features have matured dramatically over the past few years, providing many of the features requested by customers such as excellent integration with Active Directory and support for common office document formats. For many Windows customers the ability to use Linux for new deployments is compelling. Comprehensive and proven security technology. Lower costs all the way up the software solution stack. Lighter hardware requirements. All coupled with ready-to-go virtualization.

Red Hat Enterprise Linux Virtualization Platform provides Windows customers with the capabilities to deploy a virtualized enterprise-running legacy Windows applications where necessary and open source applications to meet new business requirements.

CASE STUDY: CAPITAL CARDIOLOGY ASSOCIATES

Capital Cardiology Associates, a medical group with 14 locations in the Albany area, had been running Novell file services, NT domains, a mix of Windows 95, 98, and 2000 workstations on old Compaq hardware, and newer Dell boxes.

Exchange 5.5 handled messaging needs along with Outlook. Fractional and dedicated T1 lines and VPNs handled networking chores.

CCA went 100% thin client Linux and eliminated the desktop from the equation as a point of management.

“I cannot see how you wouldn’t be better off over a five-year term with Linux. The big surprise is that the return on investment is much, much larger [than anticipated].”

- Dr. Martin Echt, CEO

BRINGING SECURITY TO THE WINDOWS WORLD

For Windows customers, sleepless nights worrying about security have been a fact of life for many years. For open source customers security is where it should be: part of the fundamental fabric of the environment. Under control. Manageable. And bet-your-business quality.



Why is open source so effective?

The open source model doesn't bury its code out of sight. Microsoft claims that secret code is inherently more secure. Although that seems reasonable at first glance, in reality it is patently false. If Windows is the measure of what secret code can deliver, then the CIO is going to enjoy sleepless nights forever. Proprietary software has done its best- and has been found wanting.

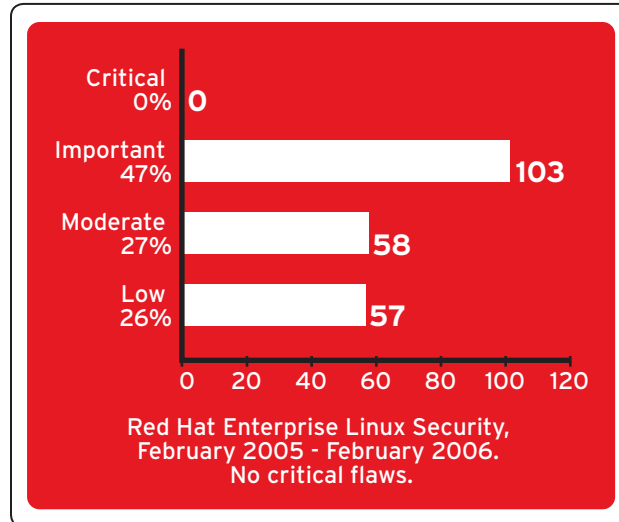


Illustration 8

On the other hand, open source software allows anyone to inspect, identify, and resolve flaws in the code. The bad guys and the good guys. And what does the last decade of open source software demonstrate? That the good guys win. Every time. Easily. So the discussion is not about theoretical which-is-best discussions, it's about real world results. Illustration 8 demonstrates the security of a Red Hat Enterprise Linux default server installation for the year February 2005 - 2006. Note that there were no critical flaws during this period.

Red Hat relentlessly implements new features to ensure the highest levels of security. From the inclusion of Security Enhanced Linux-developed by the United States Government's National Security Administration (NSA) to meet EAL4+/LSPP certification levels-to the addition of sophisticated security features that cover the kernel, compilers, libraries, and support for security-related hardware capabilities.

Will things improve for Microsoft customers when Vista is delivered? Has Microsoft learned? Apparently not.



MICROSOFT IN 64-BIT VISTA LOCKDOWN

By Chris Williams - Published Tuesday 24th October 2006

www.regdeveloper.co.uk/2006/10/24/microsoft_at_rsa/

RSA Europe Microsoft will operate 64-bit versions of Windows Vista as a tabernacle, with the kernel as the holy of holies, where only its own high priests of security may venture. There's going to be a kybosh on naughty developers mucking about with the 64-bit kernel; patching will be banned. Speaking at the RSA Europe conference in Nice, Microsoft security technology unit corporate VP Ben Fathi said the 64-bit kernel will be a "black box".

He compared developers insisting on the ability to patch the code to a Sony Walkman user invalidating their warranty by opening up the device. He said, "It's just not the way the box was designed... we're putting a stop to that."

Fathi conceded for 32-bit systems the firm will never have the amount of control over security. He said, "That train has left the station."

For 32-bit versions of Vista, it'll be mostly as you were on security. Developers will be able to patch the kernel, only now they'll have to compete with Microsoft's own brand anti-spyware, encryption, and anti-spam offerings. Fathi lamented Microsoft had "missed a great opportunity" last time round.

Whether Microsoft top brass see that "great opportunity" as one to secure systems or to swallow the security market whole remains to be seen. The final version of the Windows Defender free anti-spyware program went live today. Fathi said Defender has already become the most popular download ever from Microsoft, though he was obviously choosing to omit patches from his reckoning.

For Microsoft Windows customers who wish to increase the security of their systems but are unable to migrate directly to an open source solution, virtualization offers the opportunity to regain a measure of control. Windows systems can be virtualized, running on top of a Red Hat Enterprise Linux foundation. While Windows email viruses and similar security flaws would not be eliminated, the physical network infrastructure would be safely under the control of Red Hat Enterprise Linux.

USING OPEN SOURCE TO REDUCE ADMINISTRATION COSTS

Cost savings with Red Hat open source solutions come from more than just the subscription and hardware. Unlike most Windows environments, it is practical to deploy multiple applications on a server. Servers are easier to provision, keep secure and updated, thereby reducing administration costs.

But don't take our word for it. See what industry experts have to say.



The Robert Francis Group, an leading industry analyst, reported:

“Linux provides a lower overall TCO compared to Windows or Solaris for J2EE application server environments; RFG found Linux to be 40 percent less expensive than similarly configured Windows on x86 systems, and 54 percent less expensive than Solaris on SPARC. Linux competitors have brought costs down over the last few years. However, deltas in support and management costs, and improvements in how customers manage their Linux systems, will likely allow Linux to retain its position as the lowest-cost option. IT executives faced with shrinking budgets and increasing workloads should thus evaluate Linux as an alternative to other operating system choices.” (TCO for Application Servers - comparing Linux with Windows and Solaris)

And Enterprise Management Associates says:

“Linux tends to be more productive, as Linux administrators tend to manage more servers than Windows administrators, and Linux systems tend to handle greater workloads than Windows systems.” (EMA Executive Study Summary www.osdl.org/newsroom/studies/EMA)

Brian Schenkenfelder, president of Kentucky-based Linux consultancy n+1 explained:

“What I’ve found is that a Linux administrator who knows what he’s doing should be able to administer two to three times the amount of boxes a Windows administrator should be able to administer.” (Linux TCO edge: Lower labor costs)

FROM ECONOMIST.COM, MARCH 16, 2006

“Every time Internet users search on Google, shop at Amazon or trade on eBay, they rely on open-source software—products that are often built by volunteers and cost nothing to use.

More than two-thirds of websites are hosted using Apache, an open-source product that trounces commercial rivals.

Wikipedia, an online encyclopedia with around 2.6m entries in more than 120 languages, gets more visitors each day than the New York Times’s site, yet is created entirely by the public. There is even an open-source initiative to develop drugs to treat diseases in poor countries.

To get a sense of just how powerful the open-source method can be, consider the Firefox web browser. Over the last three years it has crept up on mighty Microsoft to claim a market share of around 14% in America and 20% in parts of Europe.”

WORLD WIDE COLLABORATION

Linux. Xen. Apache. Tomcat. JBoss. MySQL. Firefox. Thunderbird. OpenOffice. These are the latest names in software. What do they have in common? They are all open source projects.

Just how powerful is the open source collaboration model? Sourceforge.net, a leading website for open source software, hosts over 130,000 projects and has 1.4 million registered users. This power exceeds that of even the mightiest proprietary software company. By several orders of magnitude. The result? The highest quality code - with so many developers, bugs are more rapidly detected. Higher performance. Higher security. User-driven functionality. Flexibility. Choice.



Red Hat works closely with its ISV and OEM partners to ensure that Red Hat products provide the capabilities that they need. The collaboration model means that partners can see and improve the code. Very often partners create code themselves, because they know more about their requirements than anybody else. AMD and Intel work on processor support features. IBM provides support for its system architectures. Imagine this power multiplied across the entire IT industry. Red Hat helps and guides its partners through this process. Open source is powerful. Open source is unstoppable.

SERVICES TO MEET EVERY IT REQUIREMENT

Red Hat solutions, from the Red Hat Enterprise Linux operating system platform to the JBoss middleware suite, combined with a portfolio of thousands of certified applications and hundreds of certified systems, make Red Hat the sensible choice for every IT deployment. From the laptop to the mainframe. From the front office to the corporate database.

But Red Hat is much more than technology. Red Hat customers demand world class support. And Red Hat provides it. Multiple product subscriptions are available, ranging from simple maintenance to 24x7, with one-hour response. Red Hat support is global, delivered from four major support centers in eight languages. Other companies claim that they have more staff, but no one has more breadth and depth of open source knowledge than Red Hat. Where services are concerned, quality trumps quantity every time.

And we provide extensive training curricula leading to several highly regarded certifications: Red Hat Certified Technician, Red Hat Certified Engineer, and Red Hat Certified Architect. These courses enable your staff to develop their skills, improving morale, reducing turnover, and increasing your total IT capabilities. Whether you're adopting Red Hat solutions from a UNIX or a Microsoft Windows world, Red Hat has courses that meet your needs.

FROM CERTCITIES.COM: 10 HOTTEST CERTIFICATIONS FOR 2006:

#1: RED HAT CERTIFIED ENGINEER (RHCE)

Reader Interest Score (out of 20): 17 Buzz Score (out of 10): 8

If you're looking for yet another sign that Linux is becoming a real player, then you've got it. While Linux certifications have regularly made our Hot Cert list over the past few years - in fact, the RCHE has appeared on this list since we started it for 2002 - this is the first time one has ever taken the top spot. Quite a feat, especially when you consider that the vast majority of CertCities.com's readers are Windows professionals.

So how did this Linux title break through to No. 1? Having a stellar reputation never hurts, and Red Hat is well known for the quality of its RHCE lab exam, which tests candidates' hands-on skills with Red Hat Enterprise. "It's a truly challenging certification," commented Dulaney. "It carries a lot more respect than others in the market."

But the title wouldn't go anywhere unless its skills were seen as marketable. And according to Morris, high-level Linux skills may be more marketable than some might think. "These days... it seems that demand for a great Linux person outstrips the demand for general Microsoft administration skills," commented Morris.



ELIMINATING VENDOR LOCK-IN

Customers today value independence from their vendors. Independence gives them flexibility and choice. With open source software and industry standard hardware, vendor independence is guaranteed, so customers no longer have to fear being locked in to any company.

For vendors, the alternative to locking customers in with proprietary solutions has been to concentrate on delivering high quality and demonstrable value. Red Hat strives continuously to ensure that it remains the highest quality open source vendor, delivering continuous value to its customers, so that it is the right vendor choice every time.

Illustration 9 shows the results of a survey by Computer Economics that asked respondents to rank the most important feature of open source solutions. Vendor independence topped the list.

For some customers, the power of choice is embodied in the way that open source software enables them to examine, verify, change, and optimize the code for themselves. On the other hand, for the majority of customers with businesses to run and deadlines to meet, the ability to modify the code is not as compelling. But the way that Red Hat and the entire IT industry openly share the code and collaborate to build the world's most open and flexible environment is important to all customers.

Choice. Flexibility. Virtualization. Standards support.

Red Hat puts the power where it should be - in the customer's hands.

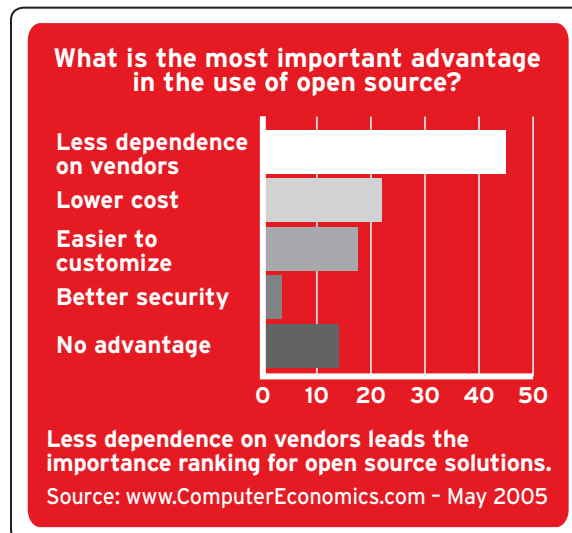


Illustration 9