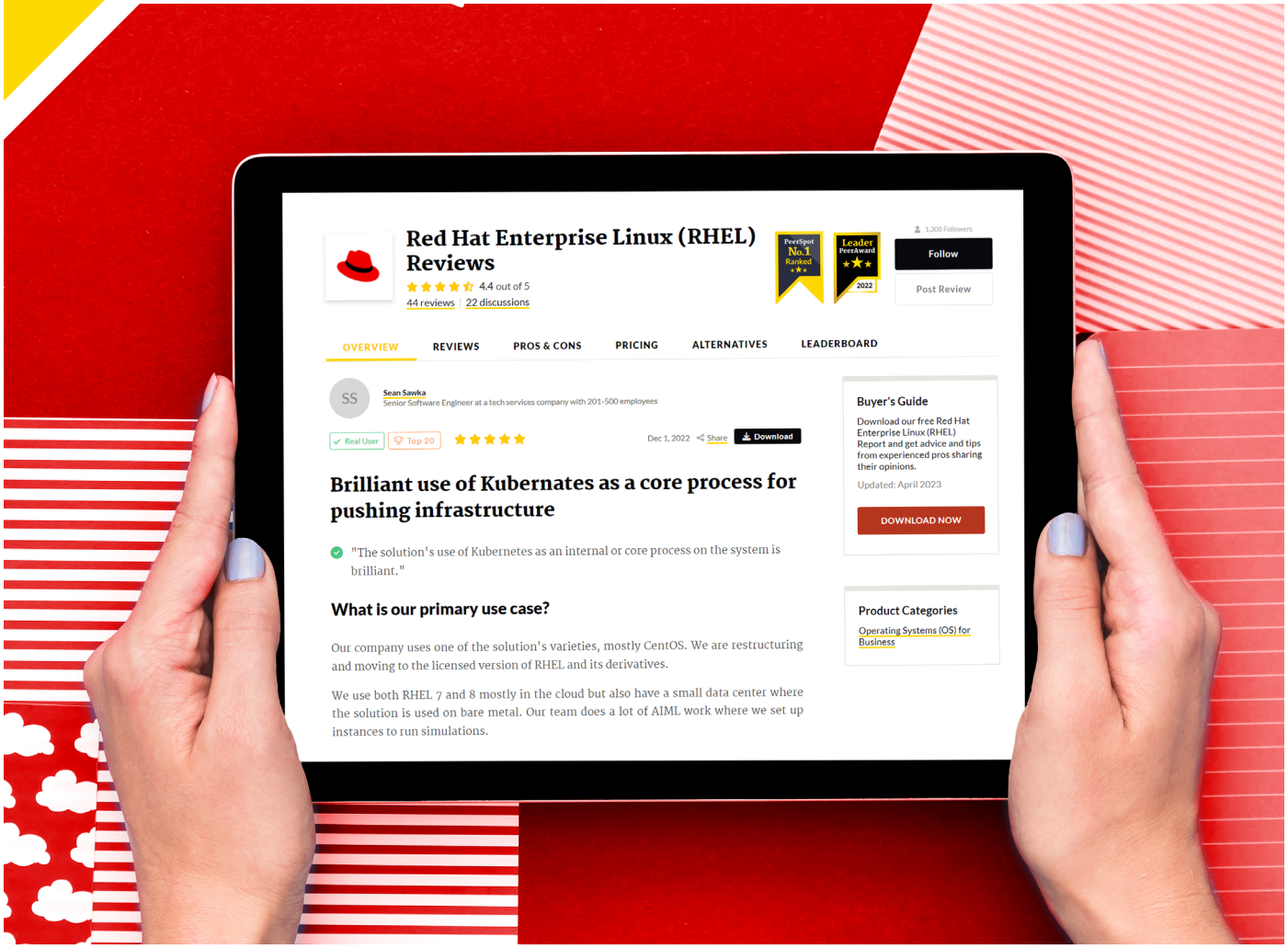
PeerPaper™ Report 2023

Use Cases and Benefits of Red Hat Enterprise Linux

Public Sector Leaders Discuss IT Infrastructure



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Introduction

Information systems in government and the public sector are expected to be highly reliable and secure. This is particularly true for organizations that work in national security and healthcare, where lives may be at stake. In this paper, PeerSpot members who work in government and the public sector discuss why they selected Red Hat Enterprise Linux (RHEL) as their Linux distribution of choice. Red Hat Enterprise Linux is a commercial open-source Linux distribution leveraged by over 89% of the Global Fortune 500 and 92% of global healthcare firms. As an operating system (OS), Red Hat Enterprise Linux serves as the foundation on which to build mission critical systems and power the most important workloads. Drivers of preference include flexibility, performance, simplified management, and security, coupled with interoperability, and consistency.

Red Hat corporate presentation: Appendix

100%
of U.S. media and technology companies in the US Fortune 500 rely on Red Hat[1]

100%
of U.S. airlines in the US Fortune 500 rely on Red Hat[1]

100%
of U.S. telecommunication companies in the US Fortune 500 rely on Red Hat[1]

100%
of U.S. commercial banks in the US Fortune 500 rely on Red Hat[1]

100%
of U.S. executive departments rely on Red Hat[2]

Source: 1. Red Hat client data and US Fortune 500 list, January 2022.
2. Red Hat client data, September 26 2022.

Red Hat Enterprise Linux Use Cases in Government and Public Sector Organizations

PeerSpot members in government and public sector organizations deploy Red Hat Enterprise Linux for a wide range of use cases. For a Systems Administrator at an educational organization with over 10,000 employees, for example, Red Hat Enterprise Linux is for core infrastructure services like package mirrors, configuration management hosts, and proxy requests going to the Internet or as reverse proxies in front of the school's applications. They deliver their campus management software via Red Hat Enterprise Linux, along with applications like Wiki learning platforms.

High-performance computing is where Amrita, an educational organization in India with over 1,000 employees, puts Red Hat Enterprise Linux to work. According to Amrita's Network Administrator, Red Hat Enterprise Linux hosts most of the organization's production servers in its data center. They mainly use Red Hat for application deployments, standalone servers, and virtual machines (VMs). He said, "Red Hat is a great package that helps us customize most of the data and dependent packages we receive from the Red Hat operating system. Most of our server requirements are being managed with Red Hat Enterprise Linux."

High-Performance Computing

Dinesh J.
Senior Information Technology System Analyst at National Center of Meterology

"It's used for our production system. We are running multiple web servers and multiple databases on Red Hat Enterprise Linux."

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A System Analyst II at an energy/utilities company with over 1,000 employees shared that his company's primary use case for Red Hat Enterprise Linux is to develop servers and production. He said, "It's pretty standard usage. We have multiple applications running on both Windows and Red Hat Enterprise Linux. The database systems are mostly MySQL. There's some Oracle but most of it is MySQL. Dealing with Red Hat is pretty straightforward. I haven't run into issues with it." They also run Docker on Red Hat Enterprise Linux.

"It is used for our production system. We are running multiple web servers and multiple databases on Red Hat Enterprise Linux operating system platform," explained a Senior Information Technology System Analyst at Abu Dhabi's National Center of Meteorology, a government agency with more than 200 employees. He added, "We are also running some of our OpenShift containers on it. We have a lot of applications that are running on Red Hat Enterprise Linux versions 5, 6, 7, and 8 in our environment, but the maximum number of applications are running on Red Hat Enterprise Linux 7 and 8."

A Cloud Architect at a government agency with more than 200 employees runs his organization's primary mission systems on Red Hat Enterprise Linux. He said, "Our office automation runs on Microsoft, which includes Word, email, etc. For everything that we present to the customers through the agency, the backend is a Red Hat Enterprise Linux platform." Figure 1 captures this variety of use cases.

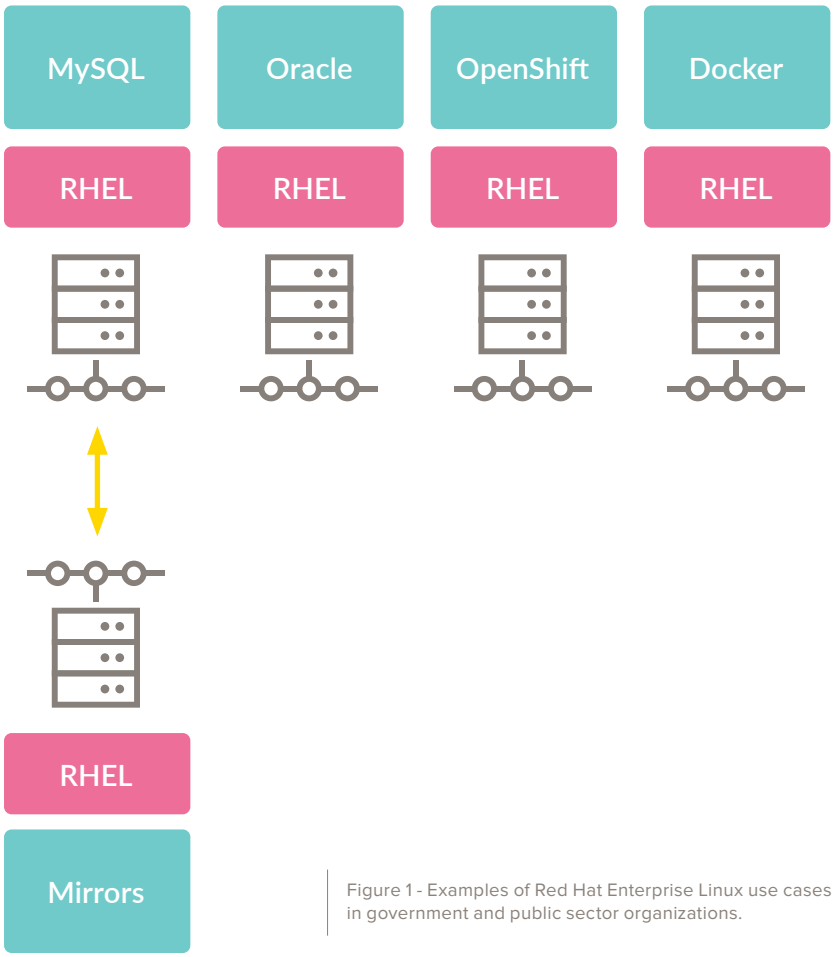

Figure 1 - Examples of Red Hat Enterprise Linux use cases in government and public sector organizations.

Why Public Sector Red Hat Enterprise Linux Users Switch from Other Operating Systems

Government and public sector IT managers switch from other operating systems to Red Hat Enterprise Linux for a variety of reasons, as PeerSpot members shared. In the case of Amrita's Network Administrator, the school had been using CentOS Linux, a free open-source Linux-based distribution.

He said, "We switched to Red Hat because the service providers like high-performance computing. We mostly have high-performance computing deployed in our data center. We needed Enterprise Linux as a minimum requirement. Red Hat Enterprise Linux supports high-performance computing solutions, and packages have to be installed from their repositories. That's a must for any IT enterprise organization now." He also revealed that Red Hat Enterprise Linux has "a great set of dependable packages, software, and a collection of utilities embedded in that operating system. There aren't a lot of errors in the Red Hat operating system, which makes it useful for our system administrator."

Consistent and Stable

Joerg K.
Systems Administrator at a educational organization with 10,000+ employees

"When you have to deal with tasks like updating packages, downgrading packages, and repairing damaged package databases, you want to have one package management tool that you know very well, not three different package managers where you only know the basics."

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Ithaca College is a university in the United States with over 1,000 employees. As their Systems Administrator remarked, the school had previously used Ubunto Linux to run a product called the FOG Project. In his words, "When comparing Ubuntu and Red Hat, the big difference is that the releases for Red Hat are more stable." He mentioned that while Ubuntu pushes updates faster than Red Hat Enterprise Linux, "they're not clean in the sense that they may push out a patch, but then five days later, they have to push out a patch to patch the patch. This is in contrast to Red Hat, which is a little bit more consistent and a little bit more stable."

Package management is what drove the switch from SUSE Linux Enterprise and openSUSE to Red Hat Enterprise Linux for the university's Systems Administrator. He elaborated, saying, "While all distributions share a Linux kernel, there are differences in how to manage the distribution itself. A very important part is the package management. When you have to deal with tasks like updating packages, downgrading packages, and repairing damaged package databases, you want to have one package management tool that you know very well, not three different package managers where you only know the basics."

Why Public Sector Users Rely on Red Hat Enterprise Linux for Critical Workloads

Red Hat Enterprise Linux has developed a reputation as the go-to OS for mission critical systems, a fact that's underscored by government and public sector users on PeerSpot. For example, an InfoSec IT specialist at a division of the US State Department, a government agency with over 10,000 employees, uses Red Hat Enterprise Linux to achieve operational excellence and readiness for the cloud.

They implemented their solution in 2014, using Red Hat Enterprise Linux to run systems for application support in compliance with State Department mandates or executive orders. One use case involves planning, designing the implementation, and executing a launch of online passport renewals. He said, "we think about what the next 20 to 30 years of consular systems infrastructure might look like to build and design for the next 40 years. Not many other companies think beyond a decade."

Achieve Operational Excellence

Sachin V.
Network Administrator
at Amrita

"There is portability in the applications and containers built on Red Hat, which keeps our organization agile."

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At Ithaca College, Red Hat Enterprise Linux enables the functioning of mission-critical workloads in the cloud. Per their Systems Administrator, these include management of student transcripts and workloads that require back-ups. They connect Red Hat Enterprise Linux on-premises with Microsoft Azure for this purpose. He added, "We are moving in the direction of using Red Hat in the cloud." Users like this are opting for Red Hat Enterprise Linux for critical workloads due to the OS's flexibility, simplified management, and security, along with interoperability, scalability, and consistency.

Flexibility

Flexibility

As an open-source operating system across hybrid, cloud, and on-premises, Red Hat Enterprise Linux is favored for its flexibility by PeerSpot members in government and the public sector. As Amrita's Network Administrator put it, "There is portability in the applications and containers built on Red Hat, which keeps our organization agile. Enterprise Linux offers flexibility in terms of dependent packages."

The National Center of Meteorology's Senior Information Technology System Analyst praised Red Hat Enterprise Linux for how it enables the deployment of current applications and emerging workloads across bare-metal, virtualized, hybrid cloud, and multi-cloud environments." Figure 2 captures this range of options. A Joint Director at a government agency with more than 500 employees was similarly pleased that Red Hat Enterprise Linux enabled his team to deploy current applications and emerging workloads across all virtualized hybrid cloud and multi-cloud environments. He said, "It is one of the most stable operating systems that are available."

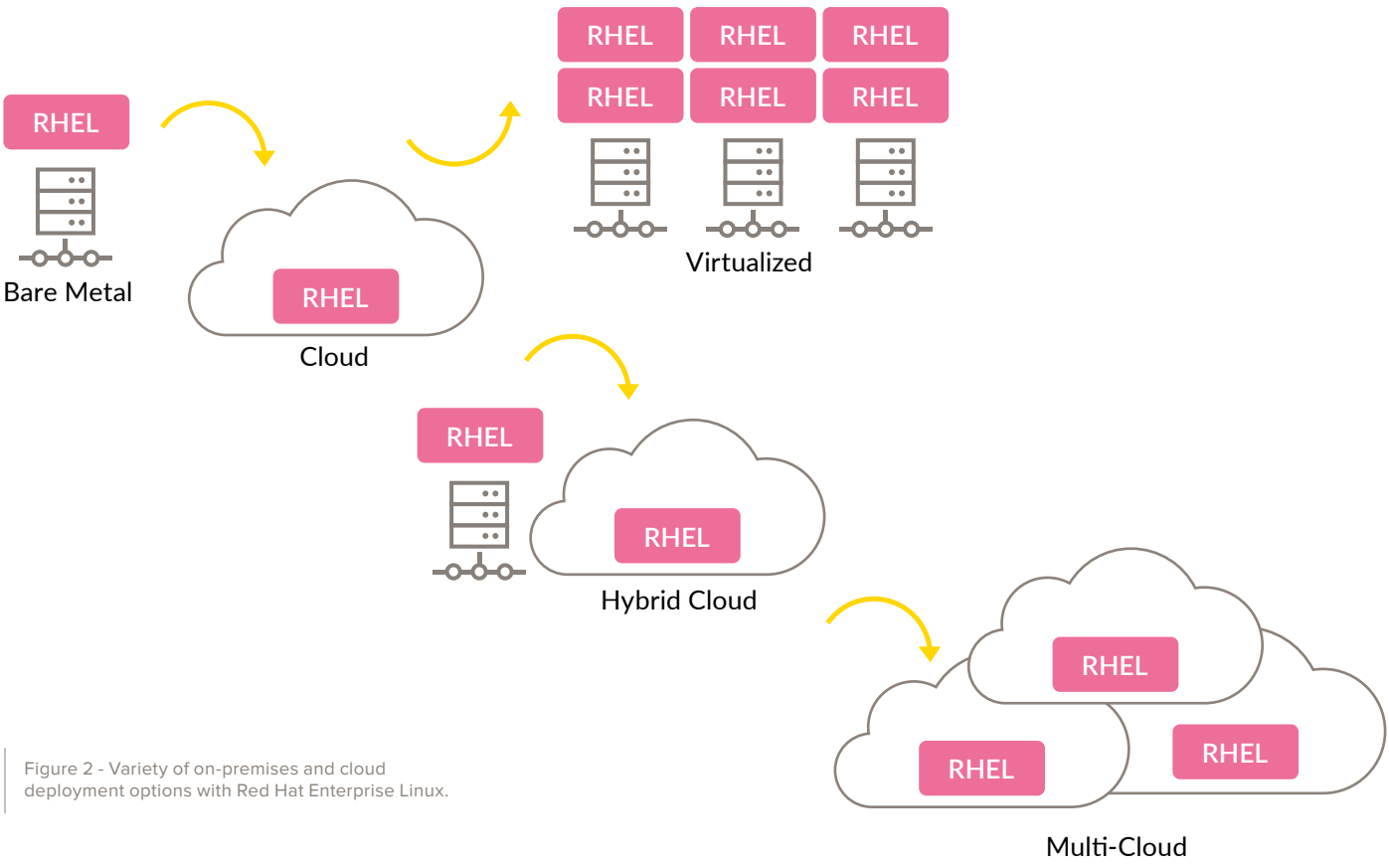

Figure 2 - Variety of on-premises and cloud deployment options with Red Hat Enterprise Linux.

Jim B.
Senior Software Engineer at a government with 10,000+ employees

"The flexible and extensive system makes it easy to cluster, check redundancies, and perform data backups."

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Other notable comments about Red Hat Enterprise Linux's flexibility included:

- "We need a pretty powerful but flexible cluster system to operate and develop applications for general maintenance. The solution is very versatile with an intuitive, easy-to-use interface and a wealth of available applications. The flexible and extensive system makes it easy to cluster, check redundancies, and perform data backups." - Senior Software Engineer at a government agency with over 10,000 employees

- "Given that we started running everything on Microsoft, Red Hat is a lot more flexible in giving us the ability to span out specifically as we move into containers. It's going to give us the ability to stand up a lot more resiliency. When we're getting a heavy load, we can expand." - Cloud Architect at a government agency with more than 200 employees

- "It is quite a flexible, customizable, and scalable operating system. It is quite flexible for integrating third-party applications." - Technical Program Manager at Indian Institute of Management Visakhapatnam, a university with more than 200 employees

Simplified Management

Systems management is a perpetual challenge in government and public sector IT organizations. There is never enough time, money, or people, which leads IT managers to value operating systems that can simplify management. A Senior Systems Engineer at a university with over 1,000 employees spoke to this need when he commented on how Red Hat's single subscription and install repository made it simpler and easier to manage hundreds of virtual machines.

Simplified Management

The energy/utility company's System Analyst II similarly noted, "It [Red Hat Enterprise Linux] would speed up deployment and make it easier to manage." He offered several examples, including if a developer needed to "throw up a box real quick to check something," he or she could run a playbook, patch together a server and rather quickly do what needed to be done. At that point, with Red Hat Enterprise Linux, the developer could then dismiss the server and all resource reviews return back to the Yellowdog Updater (YUM). "If it was hardware," he added, "it would be a little bit different, but if we run a virtualization environment, they return all resources back to the host. So it made matching servers and deployment a lot simpler and less work on the operations environment."

He then shared, "When we were running multiple versions of Java, if patches came out for both versions, we would apply the patches for both versions and usually, that could be downloaded. It was pretty simple to update those."

Don B.
Systems Administrator
at Ithaca College

"Satellite makes it quick and easy to deploy, and it is also easy to automate the process."

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Ithaca College's Systems Administrator uses Red Hat Satellite, the lifecycle management application that works with Red Hat Enterprise Linux, to deploy, maintain and upgrade his Red Hat systems. He liked that Satellite integrates easily with the college's existing infrastructure. "Satellite is an important feature because it helps to speed up deployment," he said. "Satellite makes it quick and easy to deploy, and it is also easy to automate the process. I'm the only Linux person at my organization, with the rest of the people working with Windows. Using Satellite, a Windows end-user can deploy a Red Hat server without any Linux experience."

Interoperability and Consistency

Red Hat Enterprise Linux users are pleased with the OS's reliability, along with its ability to scale and interoperate with other systems. As the energy/utility company's System Analyst II observed, "It's very scalable. I haven't seen any issues with the scalability of Red Hat. I've used it in environments where we have a few hundred people to a couple of thousand people. I've never seen any issues with scalability. It's one of the big sell points of Red Hat Enterprise Linux. It's as scalable as Unix."

Interoperability

The government agency Joint Director concurred, saying, "Scalability is excellent. With the introduction of hybrid and multi-cloud support, one can scale up as well as scale out his workloads pretty easily. We usually scale up our traditional workloads when we need more resources, i.e., during peak seasons."

Integration is where Red Hat Enterprise Linux stood out for the educational organization's Systems Administrator. He said, "Ansible and Red Hat Enterprise Linux integrate pretty well. You see pretty quickly that Red Hat has a huge engagement in Red Hat Enterprise Linux as well as in Ansible. They work very well together. This integrated approach decreases the time that we need to set up configuration jobs. It helps us to have faster deployments as well as make configuration changes faster and more secure. It is a tool for everyday use."

"Its integrations are very reliable," said the National Center of Meteorology's Senior Information Technology System Analyst. In their case, they have a Satellite server for patching. They use Ansible for configuration management, with many application programming interfaces (APIs) for third-party integrations. He elaborated, commenting, "We do a lot of testing before integrating the third-party services into Red Hat Enterprise Linux. We first try them out in the test environment, and then we deploy them on the dev environment, and after that, we move them to the production environment."

Red Hat Enterprise Linux guarantees performance and scalability for Amrita, according to their Network Administrator. He shared, "We have used many Linux-based operating systems for production purposes.... When we run industry servers, they demand high performance."

Joerg K.
Systems Administrator at a educational organization with 10,000+ employees

"Ansible and Red Hat Enterprise Linux integrate pretty well."

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Security

Security is a critical requirement for any government or public sector entity. For this reason, security departments and their partners in IT expect an OS to enhance security posture whenever possible. In the case of Red Hat Enterprise Linux, security improvements come partly from the technology's embedded protection functionalities for IT infrastructure and data. As a Senior Software Engineer at a government agency with over 10,000 employees said, "We operate in a high-security environment and the solution's security profiles meet our standards."

"Red Hat Enterprise Linux was able to help improve our security posture. We run a very tight ship," said the government agency Cloud Architect. He further commented, saying, "Red Hat Enterprise Linux's built-in security features and security profiles are very good for reducing risk and maintaining compliance.... We're very happy with the amount of security customization we've been able to do with Red Hat Enterprise Linux. The fact that Red Hat is really on top of security issues is also valuable. We get daily emails from Red Hat letting us know of possible issues and fixes, which is incredibly helpful for us."

A Program Analyst at a government agency with over 10,000 employees also cited Red Hat Enterprise Linux's built-in security features and security profiles as a factor in risk reduction and compliance. Red Hat Enterprise Linux enabled Amrita to achieve security standard certification. Their Network Administrator said, "Most enterprise solutions need to comply with security standards. Many Linux-based operating systems fail to provide security because of open-source techniques. Red Hat's built-in security features simplify risk reduction and maintain compliance because Linux is mostly open source."

He offered further detail, pointing out that Red Hat Enterprise Linux's inbuilt firewall is "highly dependable". They can customize rules for outbound and inbound traffic, and specific accesses can be quickly returned in the script files. "It has a great command line," he added.

Red Hat Enterprise Linux's security and bug-fix errata for every update are what mattered to the educational organization's Systems Administrator. He explained, "I have a lot of pretty sophisticated information so I can inform myself about what an update is for, what could happen when I install it, or what would happen if I don't install it. The value added by the information Red Hat provides for its distribution is pretty good." As these comments show, Red Hat Enterprise Linux has the ability to bolster security measures for government and public sector organizations.

Jim B.
Senior Software Engineer at a government with 10,000+ employees

"The solution is very versatile with an intuitive, easy-to-use interface and a wealth of available applications."

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Conclusion

Information systems in government and public sector organizations need to be as reliable and secure as those in the corporate world, or even more so. As PeerSpot members in government and the public sector explained in their reviews of Red Hat Enterprise Linux, the commercial open-source Linux distribution provides a solid foundation for their critical workloads. They selected Red Hat Enterprise Linux over alternatives based on the OS's flexibility and ability to simplify system management. Security was a factor too, as was the technology's potential for interoperability and scalability. As these OS elements come together, Red Hat Enterprise Linux users are finding that they can respond to changing business dynamics and easily extend their systems into new settings, such as the cloud and hybrid architectures.

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About Red Hat Enterprise Linux

Red Hat is the world's leading provider of enterprise open-source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open-source communities, Red Hat can help agencies and organizations prepare for the digital future.