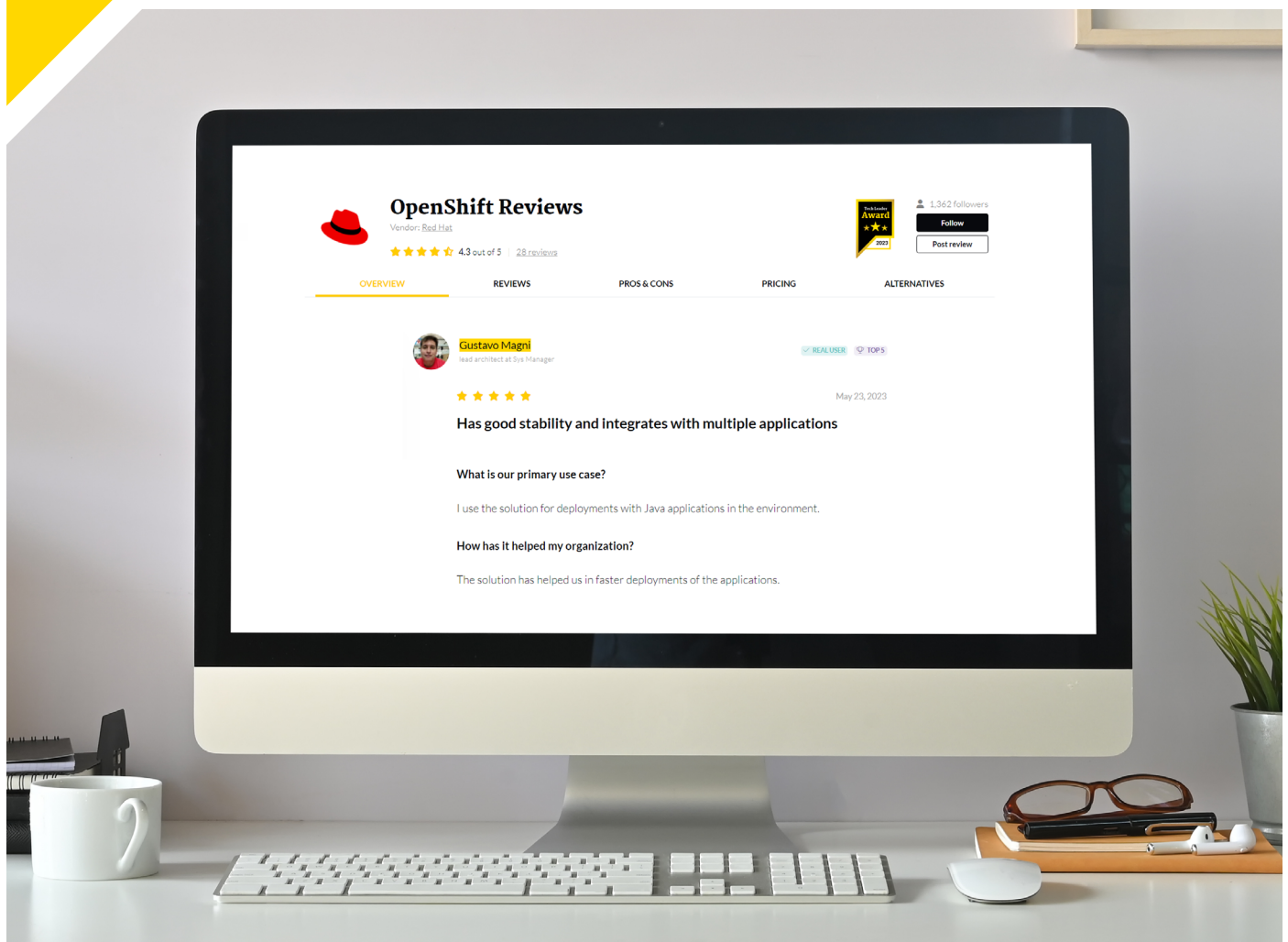


PeerPaper™ Report 2023

Based on Real User Experiences with Red Hat OpenShift

5 Key Success Factors for Making Containers Work in the Real World |



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Introduction

The richness of the Kubernetes ecosystem leads some developers and architects to think they can build their own container orchestration. While this is possible, in theory, experience has shown that it is a better practice to rely on proven containerization platforms like Red Hat OpenShift. With OpenShift, IT managers, along with DevSecOps teams, can deliver container-based infrastructure resources with security, speed, and consistency at scale. This paper explores these advantages. Based on real user reviews of OpenShift from PeerSpot members in the Europe/Middle East/Africa (EMEA) region, it outlines five key success factors for making containers work in the real world. These include development speed, flexibility and efficiency, security, automation, and ease of management across multiple environments.

OpenShift and Its Role in Container Development and Management

Red Hat OpenShift is a hybrid cloud application platform powered by Kubernetes. Now, one might wonder, “Why do I need an application platform if I already have Kubernetes? Doesn’t Kubernetes already offer container orchestration?” Depending on whom you ask, the answer might be yes or no. Yes, Kubernetes, in theory, offers all the functionality one might need to develop, deploy, and orchestrate container-based applications. In practice, containers can be challenging to manage using Kubernetes in its native form.

OpenShift addresses these challenges by bringing together tested and trusted services to reduce the friction of developing, modernizing, deploying, running, and managing container-based applications. The platform delivers a consistent experience across public clouds, on-premises, and in hybrid cloud architectures. OpenShift also supports developers by providing an integrated development environment (IDE) and application services. With these capabilities in action, users find they can streamline their workflows to get container-based applications into production more quickly and securely.



Johann B.

Engineering manager at a tech vendor with 11-50 employees



“Overall, the solution’s security throughout the stack and software supply chain is excellent.”

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OpenShift provides essential enterprise management functions that are difficult to realize with Kubernetes on its own. Figure 1 shows how this works. This simple reference architecture for OpenShift depicts how OpenShift provides a routing layer that directs the nodes and pods at the service layer, which itself sits atop physical, virtual, private, or public infrastructure. Developers and IT Ops teams both use the platform to accomplish their respective tasks.

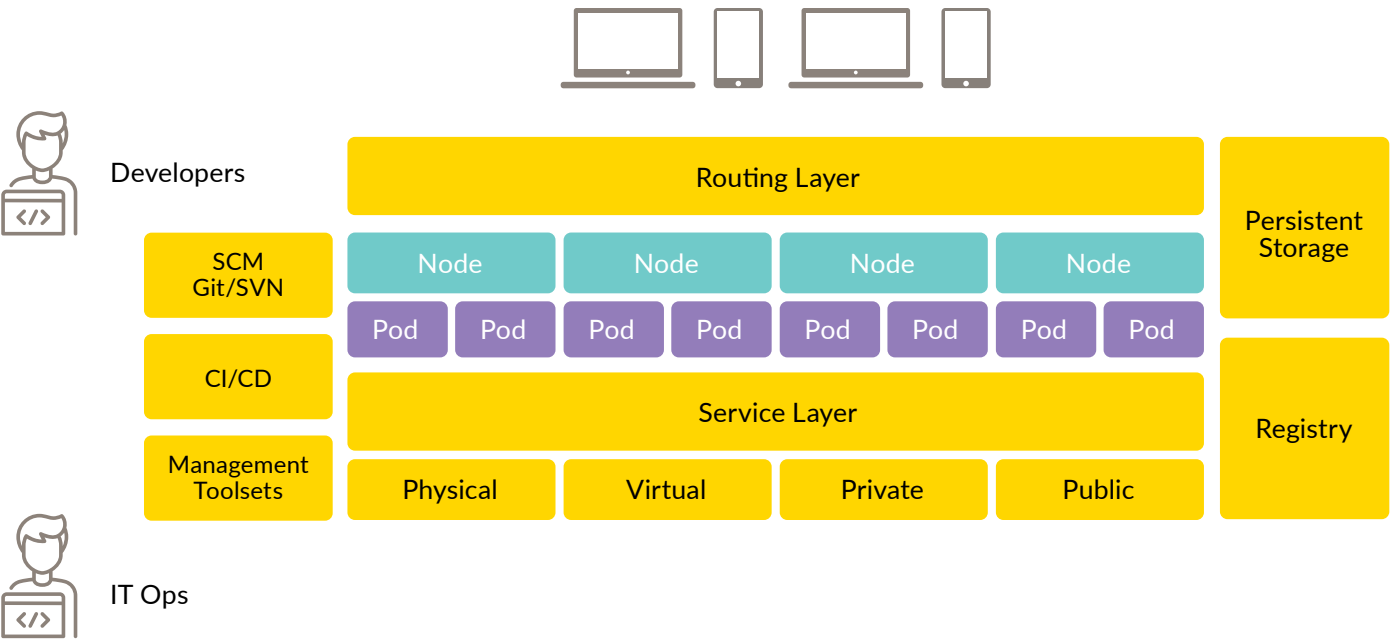


Figure 1 - Reference architecture for Red Hat OpenShift.

An OpenShift consultant at HCS Company, a small tech services company in the Netherlands, offered a helpful perspective, saying, “OpenShift offers more stability than Kubernetes. With OpenShift, we get a complete ecosystem around the developer, which includes extras that aren’t available with Kubernetes.”

He went on to say, “If we build in a Kubernetes environment ourselves, we have to do a lot of work to get it on the same level as OpenShift. One of the nicest parts of OpenShift is the UI [user interface], which allows developers to log on and start building their applications very quickly. The integrations are essential to OpenShift, including pipelining and service mesh.”



Assistant to Vice President
at a consultancy with
10,001+ employees



**“All the applications
we have transformed
on the microservices
architecture have
been deployed on
OpenShift.”**

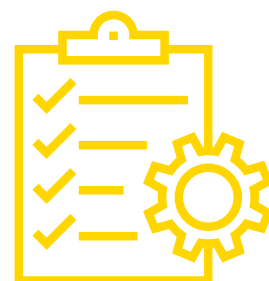
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OpenShift Use Cases

PeerSpot members in EMEA who use OpenShift are putting the platform to work across a variety of use cases. For example, the Owner of SoftContact, a small comms service provider in Israel, uses OpenShift as a Kubernetes distribution to split monolithic applications into microservices. The Head of Architecture at a Turkish financial services firm with over 10,000 employees uses the platform for container orchestration and management.

A Senior Kubernetes Architect at a French financial services firm with over 1,000 employees uses OpenShift to run its own software. He explained, “Our software is different from the banking system, and it’s mostly written in Java with a backend, an Angular frontend, MongoDB, and some caches.”

“We use it as a test environment, usually,” said an Architect at a software company in Greece with more than 500 employees. He added, “And, to quickly develop the proof of concept for various projects. So, it’s mainly for quick deployment and testing.” An Assistant to Vice President at a consultancy in the Netherlands with over 10,000 employees shared that his team uses OpenShift mostly for building middleware services and web applications. He remarked, “All the applications we have transformed on the microservices architecture have been deployed on OpenShift.”



Container Management

5 Key Success Factors for Making Containers Work in the Real World

What does it take to make containers work in the real world? As PeerSpot members in EMEA explain, success comes from solutions that speed up development and offer flexibility and efficiency. They need automation as a key element of a system that is easy to manage across multiple environments. Security matters, as well, in light of the inherent limits of Kubernetes security.

#1 – Development Speed

Speeding up software development has been one of the main drivers of the move to containerization and microservices. Operationalizing this objective goes better with a tool like OpenShift, as PeerSpot members discussed in their reviews. For example, an Engineering manager at a small tech vendor in Spain found that OpenShift's Dev Spaces (formerly CodeReady Workspaces) reduces project onboarding time by around 10%. He also said that OpenShift's Dev Space helps reduce time to market by about 10%.



Saves Time



Can Run Test Continuously

The French financial services firm uses OpenShift together with Spring Boot's read/write process, which is part of the Spring software development framework. Specifically, they use OpenShift to deploy virtual machines (VMs). According to their Senior Kubernetes Architect, the move to OpenShift has resulted in significant time savings. He said, "Overall, instead of taking two to three days to request a VM install, deploy, patch, and then put an application on it, we are down to approximately 10 minutes when using OpenShift. We save a lot of time because it's easy to create and destroy environments where everybody can work on different features without blocking each other."

"It can speed up the development time," said the Greek software company's Architect, "because the development and testing phases are sped up, the time to market can also be very good." While noting that speed also depends on other factors, such as any back-and-forth changes and customer feedback, he shared, "Overall, there is about a 10% improvement in the time to market." He went on to say that the Dev Space reduces project onboarding time by 20%.

HCS's OpenShift consultant similarly noted that Dev Space enables developers to run a test continuously and start the container test, drop the container, and repeat—saving around 75 percent of the time compared to traditional modes of testing.

The Greek software company's Architect put it this way: **"The biggest benefit is the speed.** When developing a new PoC [proof of concept], if we don't have a container-based environment, we would have to set up virtual machines. We would have to install different software to make sure that there are secure ways to do that, which would most likely need a couple of days, whereas, with a container-based platform, such as Kubernetes or OpenShift, we can do that in a matter of minutes or hours."

Speed tends to translate into return on investment (ROI), according to an Executive Head of Department at M-PESA Tech, a comms service provider in Kenya with over 10,000 employees. He said, **"We did see ROI.** The solution's Dev Space reduced project onboarding time by over 50% and time to market by 70%. The organization really wanted to go open source for a very long time to reduce its CapEx and OpEx costs."

The ability to meet compliance requirements also led to ROI, according to the Greek software company's Architect. He said, "I believe there is an ROI for organizations where security is very important, and because of privacy requirements, the public cloud cannot be an option. Especially in the banking sector, there's almost no competition. **There is about 15% ROI.**"



Executive Head of
Department - MPESA Tech
at a comms service
provider with 10,001+ employees



**"The solution's Dev
Space reduced
project onboarding
time by over 50%
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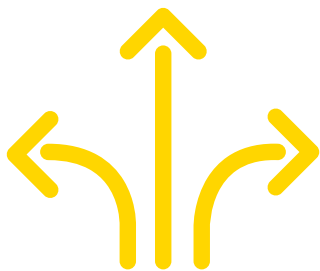


Matthias B.
Senior Kubernetes Architect
at a financial services firm with
1,001-5,000 employees



“OpenShift provides us with the flexibility and efficiency of cloud-native stacks while enabling us to meet regulatory constraints.”

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**Cloud
Environment
Flexibility**

#2 – Flexibility and Efficiency

Flexibility and efficiency stood out as two essential drivers of success with containers. PeerSpot members in EMEA praised OpenShift in this regard, with the French financial services firm’s Senior Kubernetes Architect, for example, saying, “OpenShift provides us with the flexibility and efficiency of cloud-native stacks while enabling us to meet regulatory constraints.”

In his case, they use Open Policy Agent (OPA), which is for defining security requirements for deployments for different channels. He explained, “These checks are made during the admission of the pod so we are sure that any workload that goes through this gate complies with our requirements automatically. This guarantees that we do not deploy anything that breaches those requirements. The solution provides proactive security versus reactive.”

For HCS’s OpenShift consultant, what mattered was the ability to be as flexible and efficient as possible with cloud-native stacks, while meeting regulatory compliance requirements. He said, “No matter where we run our container clouds, as long as we use the right tooling such as Knative, we can run our applications everywhere.” With OpenShift, his team can deploy applications to Amazon Web Services (AWS), Microsoft Azure. “We don’t have to run our application on OpenShift,” he added. They build applications with tools like Knative, using MQ streams, and Kafka, “allowing us to connect it everywhere.” Figure 2 shows this workflow in action.

M-PESA Tech found the same benefit. They could enjoy the flexibility of cloud-native stacks while complying with regulations. Their Executive Head of Department elaborated, saying, “Since most of our services were deployed on-premises, this allowed us not to get into data privacy issues for services with personally identifiable information belonging to customers.”

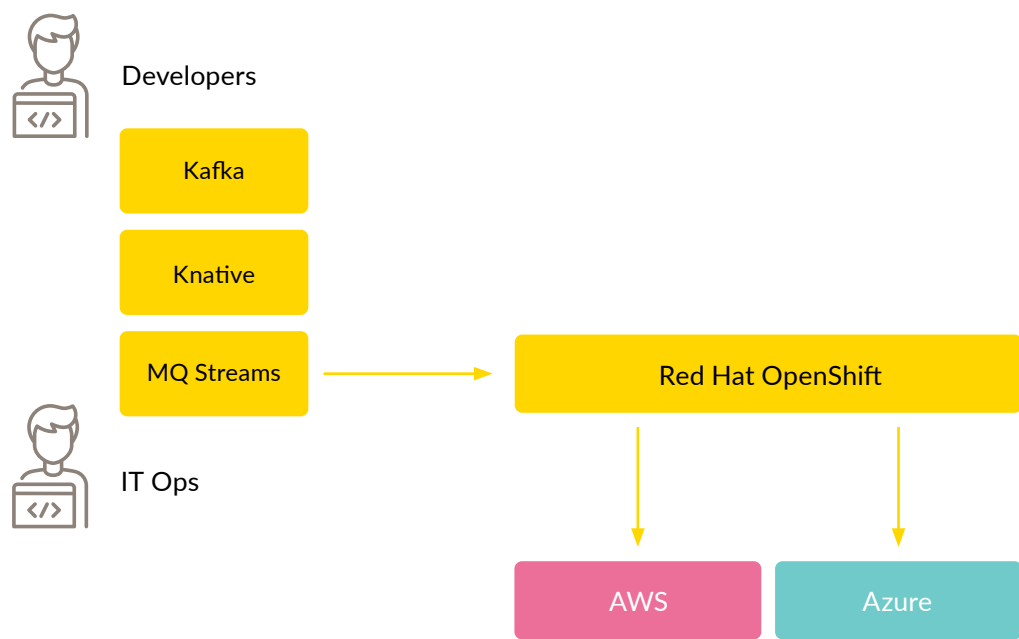


Figure 2 - How Red Hat OpenShift allows user to “connect it everywhere.”

#3 – Security

Kubernetes is known for being hard to secure in its native state. OpenShift helps with this critical need, according to PeerSpot members in EMEA. The Spanish tech vendor's Engineering Manager shared, "Overall, the solution's security throughout the stack and software supply chain is excellent." He cited features like role-based access control and segregation between projects as examples of how OpenShift helps his team defend Kubernetes-based applications.



Offers Security

"It's the most secure out-of-the-box solution for security," said the French financial services firm's Senior Kubernetes Architect. He also observed that OpenShift's security throughout the stack and the software supply chain is good. He said, "The defaults in OpenShift are favorable and secure. Red Hat usually takes a lot of time to ensure compliance with the CIS [Center for Internet Security] benchmark and by default."

Other notable comments about OpenShift's security included:

- “By default, OpenShift is very secure. Out of the box, our role access is in place. We can easily connect to our active directory or our open ID providers. The constraints in the platform are also secure by default. OpenShift is one of the most secure solutions out of the box.” - OpenShift consultant at HCS Company
- “I am impressed with the product's security features.” - Owner of SoftContact
- “The security throughout the stack and the software supply chain is very good. It's a step-by-step procedure to obtain new software. It's very secure. We cannot have access without a safe, provisioned way.” - Architect at a Greek software company

#4 – Automation

Automation helps organizations get the most out of their container-based applications. For M-PESA Tech's Executive Head of Department, the advantage of OpenShift comes from its ability to “automate as much as possible.” He continued, commenting, “If an organization can do a lot of automation, e.g., automating deployments, that can go a very long way in reducing the time to market and the time required to fix issues that arise out of deployment.”

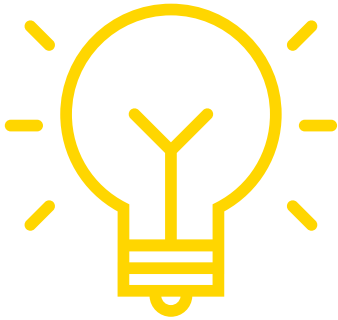


Jan K.
OpenShift consultant at
HCS Company



**“OpenShift is one of the
most secure solutions
out of the box.”**

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Fosters Innovation

“OpenShift’s automated processes have reduced our development time and increased the quality of our end product,” said HCS’s OpenShift consultant. For context, he said, “When we look at traditional web development applications, we’ll find that the typical release cycle is one and a half to two months. However, given that customers are now deploying new versions of their applications multiple times a day, OpenShift has improved the way our organization develops, tests, and deploys applications. OpenShift stimulates innovation.”

He went on to offer some details, saying, “When Dev Space are used, we can bring up a complete OpenShift cluster in under two and a half hours. Using Dev Space is definitely worth it if we only have to configure it once. We can have a complete working stack for more than 30 or 40 developers up and running in less than four hours. If we have to do it in the traditional way, it will take 1600 hours.”

Automating checks for regulatory compliance is something the Greek software company's Architect appreciated about OpenShift. He said, "In the hybrid cloud model, we can check for different things, such as the accessibility of many different classes not only in the cloud but also on-premises. We can use the hybrid view to check many things very quickly."

To understand why this is significant, in their previous mode of operation, a visiting regulatory body might need a week to run scripts and check if certain rules apply to all servers, checking one server at a time. "With OpenShift," he said, "from one panel, we can automatically run a script across several different servers or even connect manually to each of them, which is a big benefit. It saves a lot of time and money."

#5 – Ease of Management Across Multiple Environments

Container-based applications should be relatively easy to manage across multiple environments. This is a characteristic of OpenShift, as the Greek software company's Architect shared. He said, "It's very easy to manage deployment across different environments. It doesn't matter if it's a private or a hybrid cloud. It's very well-suited for the type of work that we do, which is the deployment for our PoCs. It's very easy to start with small ideas and then gradually scale up."



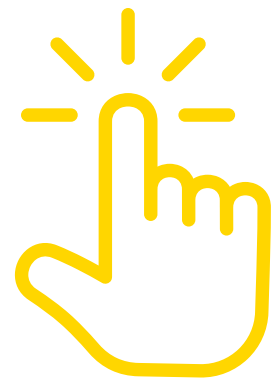
Markos S.

Architect at a computer software company with 501-1,000 employees



"With OpenShift, from one panel, we can automatically run a script across several different servers or even connect manually to each of them, which is a big benefit. It saves a lot of time and money."

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Easy to Manage



Johann B.

Engineering manager at a tech vendor with 11-50 employees



“We aren’t cloud-locked. If we want to move our OpenShift solution to another cloud provider, or even our private data center, that’s doable.”

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He also discussed that OpenShift is “very easy to integrate with different systems and products,” which he considers a plus. He described the user interface as “very nice” and “very self-explanatory,” qualities that save time when training new users. As he put it, “You can cut a lot of time to quickly familiarize yourself with the base.”

The Spanish tech vendor’s Engineering Manager was pleased that OpenShift “doesn’t require us to learn a whole new vocabulary.” He added, “There is no vast stepping stone regarding configuration and management, and we aren’t cloud-locked. If we want to move our OpenShift solution to another cloud provider, or even our private data center, that’s doable. The tool is better in terms of application management than anything found in the cloud, and one of the main selling points of OpenShift is the abstraction of infrastructure.”

Conclusion

Red Hat OpenShift helps users bring out the best in their Kubernetes ecosystems. As PeerSpot members in EMEA found, OpenShift enables them to realize five key success factors for making containers work in the real world. It helps them speed up development and time to market. It makes them more flexible and efficient in developing and managing containers. Their container ecosystems become more secure, while automation contributes to ease of management and overall productivity. These are the elements of success with containerization.

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Red Hat OpenShift gives organizations a single platform for application innovation that lets them operate consistently and innovate continuously. It supports every application and can span every cloud so that organizations can be ready for today and build for the future.