

How a modern, multicloud IT infrastructure can help automakers stay competitive

"We were very lucky to be joined early on by the very capable OpenShift team, which lent significant engineering and real world enterprise expertise to the project."

Brendan Burns
Co-founder of
the Kubernetes Project

"93% of organizations have a multicloud strategy, while 87% have a hybrid cloud strategy."

2020 State of the Cloud Report

Modernize your IT approach with containers and multi/hybrid clouds

From automakers to airlines, companies in many industries need to quickly adapt to changes. Now more than ever, these businesses also need to accelerate innovation and achieve operational efficiencies to gain a competitive advantage.

Becoming more flexible and using more digitally agile environments requires an open IT infrastructure that is built using modern tools and technologies. These should have the capability to run services more securely across multiple environments. This infrastructure should enable fast application creation with capabilities like machine learning. It must also help operation teams ensure that, once deployed, those applications provide a reliable and highly available user experience.

In recent years, these same goals have launched many organizations on a transition to cloud, migrating data and workloads from the datacenter to public cloud. Additionally, IT leaders began to look at the benefits of using multiple cloud providers, including Amazon Web Services (AWS), Google, IBM Cloud, and Microsoft Azure. IT teams and developers also began to demand cloud-like user experience on workloads that remain in the datacenters. This demand requires balancing on-premise, private infrastructure, and public infrastructure, which focuses on increased portability of applications, reduced complexity, and heightened security.

These needs gave rise to the modern hybrid cloud approach, which offers more security and the ability to use the huge investment in legacy systems. According to the *2020 State of the Cloud Report*, 93% of organizations have a multicloud strategy, while 87% have a hybrid cloud strategy.¹

How Red Hat can help

Today's automotive manufacturers must deploy and manage applications at scale. Plus, they need to scale out new services and applications for edge computing. But the question remains: how do you do this while ensuring fast development and deployment of both internal and customer-facing innovations—and high availability of critical applications?

The go-to solutions for achieving application portability and ease of management across clouds and datacenters are microservices, containers, and Kubernetes—the leading container orchestration framework. As a leading contributor to Kubernetes since the project switched to open source, Red Hat provides one of the most widely used Kubernetes application solutions. Red Hat was also named a leader in the Forrester Wave report among eight cloud container platform vendors.² According to Forrester, "OpenShift® is the most widely deployed multicloud container platform and boasts powerful development and unified operations experiences across many public and on-premises platforms."



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¹ Flexera, "2020 State of the Cloud Report," 2020.

² Forrester, "The Forrester Wave: Multicloud Container Development Platforms, Q3 2020".

The open, comprehensive, and security-focused enterprise Red Hat® OpenShift Container Platform offers a single platform capable of building, running, and managing Kubernetes-based workloads at scale across clouds and on-premise. It frees applications from infrastructure, enabling them to work independently and run anywhere Red Hat Enterprise Linux® is supported, including edge.

Build on Kubernetes with trust

Red Hat OpenShift defines a *defense in depth* approach to container security. It focuses on security at every level of the container stack and throughout the application life cycle. This feature includes managing security for the entire software supply chain, which involves controlling content sources and then defending against attacks in all layers of the platform. Red Hat has also created application programming interfaces (APIs) that allow security providers to augment the existing security services. This increased security prevents attackers from accessing communications to edge devices—whether those are self-driving cars, programmable logic controllers (PLCs), or other machine controllers on the factory floor.

Build, deploy, and monitor applications with ease

With built-in logging and monitoring, Red Hat OpenShift gives operations teams visibility into deployments no matter where they are—across teams. It uses Prometheus and Grafana, which are both open source. Red Hat Kubernetes Operators also embed the unique application logic that enables services to function reliably—not just configured but tuned for performance. Applications can also be updated and patched from the OS with one touch.

This open platform further allows dev teams to use the tooling they prefer—including Jenkins, Java, and Python. These tools help developers speed application innovation, and with containers they can package an application with all the parts it needs—such as runtimes and libraries—and ship it as one product. When the time comes to launch, Red Hat OpenShift simplifies deployment by ensuring each of the individual applications can talk to each other, leaving developers free to focus on coding.

All this helps teams quickly deliver new applications and migrate existing apps to cloud for more agility. This increased agility helps automakers propel the innovation cycle—whether it is rapidly building and deploying new applications or improving the customer experience (CX).

Speed innovation with AI/machine learning

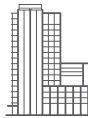
Red Hat open cloud technologies help automakers apply the power of AI and machine learning—from automating the factory edge to increasing the safety of autonomous vehicles. For example, AI can power applications that span the automotive manufacturing floor. Automakers can also use AI-driven systems to create schedules and manage workflows. Or they could improve the safety of robots working alongside humans on factory floors and assembly lines.

In autonomous and connected vehicles, AI and machine learning enable OEMs and suppliers to continuously improve the quality of a vehicle by upgrading high-level software as well as low-level code on the electronic control units (ECUs). Additionally, cloud application developers must choose from among an overwhelming variety of languages, application frameworks, tools, and test frameworks. Fortunately, Red Hat OpenShift is designed to support machine learning workloads, which can offload some of those decisions to a computer brain. For example, the computer could do much of the mundane work, identify patterns and drawbacks learned by examining millions of lines of other peoples' code, and then provide advice to developers on their own code. Red Hat Decision Manager adds the ability to intertwine machine learning models with conventional decision models.

This capability is helping organizations across the automotive industry accelerate business and mission-critical initiatives by developing intelligent applications in hybrid cloud.

Discover how Red Hat can help you build a modern hybrid or multicloud infrastructure to increase innovation and manufacturing efficiency. Learn more—Red Hat OpenShift—<https://www.redhat.com/en/technologies/cloud-computing/openshift>

About Red Hat



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 organizations prepare for the digital future.



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