Solving Government IT and Hybrid Cloud Challenges Using Kubernetes

Common U.S. Federal Government IT Modernization Use Cases

Government agencies often face unique challenges in managing their IT infrastructure, since their use cases require high security, reliability, and the ability to scale systems quickly and efficiently. Below are some government use cases that are being successfully addressed with Kubernetes (K8s) based solutions.

Update Legacy Applications

Whether on-premises or in the cloud, any new federal IT system must be accredited before it can be deployed agency-wide (i.e., Authority to Operate). This is a not-so-agile and costly process. Currently, to meet government compliance standards, IT teams need to update legacy software and systems to address evolving security vulnerabilities within 90 days (about three months). This is labor intensive, time consuming, and presents a difficult benchmark to meet for customers that run sensitive workloads in disconnected or air-gapped network enclaves (e.g. Navy ships at sea).

Transition to Cloud-native

Organizations using legacy applications can extend their life or transition VM workloads to a hybrid or cloud-native environment via Kubernetes. Doing so enables IT teams to automate application and security updates, as well as backup and recovery services out to the tactical network edge, even in complex or contested environments.

U.S. Federal Government IT Modernization Use Cases

Government IT teams manage a complex mix of old and new technologies while ensuring continuity of operations (COOP). Having an effective COOP or disaster recovery (DR) plan in place means uninterrupted functioning of essential government, emergency response, and national security functions when there are technological threats to critical infrastructure, like natural disasters or a national security crisis.

As CxOs move to modernize IT systems for improved security, resilience, and more agile DevSecOps, the lift and shift to more innovative technology must be balanced with keeping legacy systems and services stable, despite rising costs.

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Integrate and Manage Mixed Workloads

Where agencies have a mix of both VM-based and containerized applications, the OpenShift/Kasten combination enables these to coexist and run on K8s. OpenShift provides a secured layer to help seamlessly orchestrate legacy and multi-cloud workloads in one place, while Veeam offers simplified integration with Kasten and peace of mind via Veeam's reliable backup and restore capabilities.

Automate Compliance Scans

Fixing application vulnerabilities presents challenges for IT teams who are tasked with ensuring government IT compliance mandates are met promptly. Automated compliance scans can easily check for compliance with mandates and executive orders (EOs), such as the encryption of data in transit and at rest, RHEL systems, Center for Internet Security (ICS) IS Kubernetes Benchmarks, and others.

Gain COOP

Customer cloud data is NOT backed up by cloud service vendors. Data from both legacy and multi-cloud environments should be regularly backed up so they are quickly recoverable if outages occur. OpenShift ensures systems are continually updated, monitored for health, and dynamically scalable during high-demand incidents and cyberattacks. Veeam delivers products and solutions to support COOP, providing resilience and DR capabilities that ensure data integrity and quick restoration after any disruption.

Efficiently Bridge Legacy and Modern IT Infrastructure

Combined in a single simple-to-use solution, Red Hat OpenShift, paired with Veeam Kasten *for Kubernetes*, enables a seamless, efficient bridge between legacy and modern IT infrastructure. This K8s-based solution ensures robust data availability, better application security, and instant DR. Here's how these technologies offer distinct but complementary capabilities that can address a variety of government use cases.

- **Red Hat OpenShift:** As an enterprise ready K8s platform, OpenShift is designed to facilitate the development, deployment, and management of applications with an emphasis on security and compliance, which are critical for government operations. OpenShift enriches K8s with added features, making it a comprehensive tool for orchestrating containerized workloads and managing infrastructure health.

- **Veeam Kasten:** Specializing in secure data management for K8s environments, Veeam Kasten ensures the safety and recoverability of legacy applications and multi-cloud data wherever it exists. This solution provides robust data backup, disaster recovery, and mobility capabilities through the network edge, which is essential when supporting mission-critical operations when there's a disaster or in a hostile environment.

Simple, Seamless, Better Together Solution
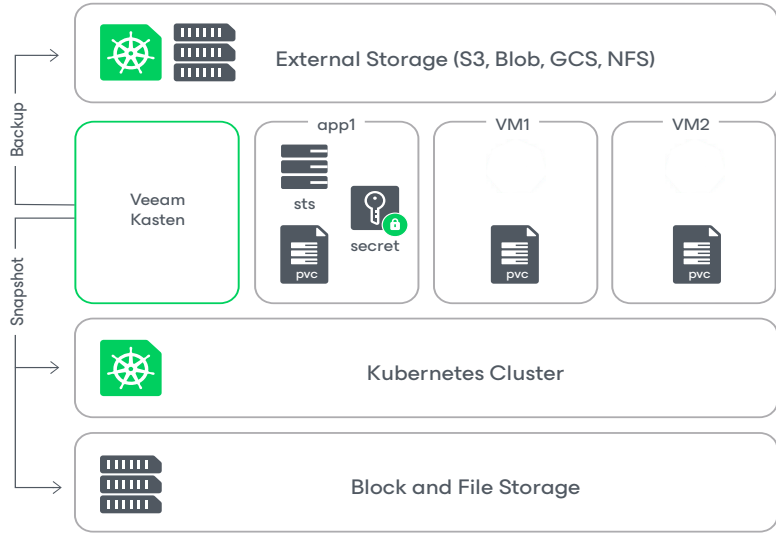
- **Operations**
  Lift and shift virtual machines (VMs) to cloud native infrastructure and operations, thus simplifying the hybrid cloud.
- **Development**
  Refactor application design or integrate with cloud-native microservices.
- **Security and Performance**
  Stronger application isolation and kernel tuning.
- **Data Protection**
  Fully supported as a K8s workload by Veeam Kasten.

Together, RedHat OpenShift and Veeam Kasten form a single solution that can help modernize government IT infrastructure, ensure secure and compliant data operations, and provide robust data backup and DR to the tactical edge. If you are looking to solve infrastructure integration challenges, look no further than the partnership of RedHat and Veeam.

About Veeam Software

Veeam, the #1 global market leader in data protection and ransomware recovery, is on a mission to empower every organization to achieve radical resilience through data security, data recovery, and data freedom for their hybrid cloud. Headquartered in Seattle, with offices in more than 30 countries, Veeam protects over 450,000 customers worldwide, who trust Veeam to keep their businesses running. Learn more at www.veeam.com or follow Veeam on LinkedIn @veeam-software and X @veeam.

About Red Hat

The US government demands performance, transparency, and value — exactly what Red Hat and open source offer. Red Hat is the standard choice for Linux in governments worldwide. Our cloud, virtualization, storage, platform and service-oriented solutions bring real freedom and collaboration to federal, state, local, and academic programs. And Red Hat's worldwide support, training and consulting services bring the power of open source to your agency. Learn more at www.redhat.com/government.

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