USAF leverages HyperCloud for critical aircraft data analysis

United States Air Force captures flight data at the edge saving money and energy with SoftIron HyperCloud.

U.S. AIR FORCE

SOFTIRON

Challenges

01 Performance

Outdated data collection methods which send data to a central location for processing slowed down the ability to leverage critical information.

02 Power

Power constraints made it difficult to quickly read, process, and convert the data at the edge.

03 Space

Eglin needed a solution that was small enough to physically deploy rapidly while also providing ample performance.

04 Security

With sensitive data being moved around physically as well as electronically, infrastructure needed to be secure and compliant across dispersed locations.

Solution

SoftIron HyperCloud - a common, secure infrastructure platform that can be robustly scaled on-demand.

Benefits

SoftIron HyperCloud - a common, secure infrastructure platform that can be robustly scaled on-demand.

✓ **Secure and efficient design**

A secure by design platform and OS that delivers simplified compliance and reduces energy consumption.

✓ **Robust scale-out**

Independently scale-out storage and compute in undefined increments with no upward bound.

✓ **Full functionality in air-gapped environments**

Update, manage and operate without connection to the internet or public cloud

✓ **Easier deployment and lifecycle management**

HyperCloud's hardware platform contains all the cloud DNA required to run a true private cloud, meaning all nodes are automated and operate as a single cluster that is self-healing, auto-configurable, and hot-swappable

✓ **Reduced costs**

Less energy and cooling requirements can reduce energy costs by up to 80% particular appliances means no downtime.

> "With the rise in classification and compartmentalization of real-time flight test missions and Modeling & Simulation (M&S), the current method of Periods Processing and Multiple Independent Levels of Security (MILS) architecture does not scale to support the growing mission and its data. Current testing produces Gigabytes (GB) of data per test mission and those numbers are projected to grow to Terabytes (TB) per test mission and virtual simulation."

CHIEF TEST ENGINEER | 96TH TEST WING

Eglin Air Force Base, one of the United States' premier military installations, has been a cornerstone of national defense since its establishment in 1935. From weapons testing and space awareness to fighter pilot training, its mission is diverse and data-intensive.

The 96th Test Wing, the 33rd Fighter Wing, and the 53rd Wing all conduct operations and testing out of Eglin. With each test flight generating 5.4PB of sensitive audio, video, and telemetry data per year, much of it highly sensitive, Eglin faced immense challenges managing and scaling its high-performance computing needs.

Solution Overview

- On-demand strategic analysis of flight data, from the runway

- Up to 25% improvements to energy efficiency

- Single-platform provisioning means less specialist resources

Solution

Recognizing the need for a highly efficient and effortlessly scalable private cloud to accelerate data analysis after flights, Eglin Air Force Base chose HyperCloud. Deployed in geographically dispersed clusters for both production and DevOps, HyperCloud analyzed and stored flight data directly from the runway, enabling on-demand, strategic analysis.

HyperCloud streamlined Eglin's cloud operations by simplifying edge deployments. It offered the easiest and most efficient way to deploy, scale, and manage private cloud resources. HyperCloud's pre-integrated building blocks seamlessly assimilate into the cloud fabric, drastically reducing time to value and enabling rapid scalability. The purpose-built nodes also ensured optimal compute, storage, and networking efficiency throughout their lifecycle and improved energy efficiency by up to 25%.

By providing cloud as a product, HyperCloud enabled low-touch operations and full resilience without requiring highly skilled specialists. Eglin could consume the cloud infrastructure on its own terms, with no per-use fees or density restrictions. Control and multi-tenant efficiency were retained without sacrificing user experience, thanks to fully integrated service catalogs, quotas, QoS, metering/showback, and role-based access control. Additionally, Eglin could provision file, block, object storage, VMs, containers, and network virtualization from a single platform, eliminating hardware silos and orphaned resources.

Benefits

HyperCloud enabled Eglin to optimize edge data analysis for actionable insights, streamlining costs and efficiency.

> "
> SoftIron's product is the lowest cost, best packaged, and uses the least amount of energy/cooling. SoftIron's integration of object storage has been key to solving storage scalability issues and allowing better support for future Test and Evaluation missions.
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> CHIEF TEST ENGINEER | 96TH TEST WING "

HyperCloud's secure-by-design platform and OS streamlined compliance, slashed energy consumption by 25%, and simplified edge deployments where resources are scarce. It also enabled workloads and data to migrate seamlessly from the edge to core infrastructure, even in disconnected or unstable network environments.

Eglin's success with HyperCloud highlights its ability to simplify data management while delivering effortless deployment and scalability, unified control, more independence, and enhanced efficiency for demanding missions at the edge.