

# Airbus Helicopters meets data science analysis needs to support new business opportunities

## AIRBUS

### Software

Red Hat® OpenShift® Platform Plus

### Partner

Capgemini

Airbus Helicopters, a division of Airbus and a leader in designing, manufacturing, and delivering helicopters, sought to expand the capabilities of its container platform to support new development features and data science needs. With help from technology partner Capgemini, the company upgraded from a virtualized Red Hat OpenShift Container Platform 3 environment to Red Hat OpenShift Platform Plus running on bare metal. The new security, compliance, application, and data management capabilities have helped Airbus Helicopters support processing of massive volumes of data, deploy applications faster, and complete cluster maintenance more efficiently.



### Technology

Around **20,000** employees

### Benefits

- ▶ Established scalable data science foundation
- ▶ Reduced application deployment times from days to hours
- ▶ Shortened cluster upgrades from days to hours

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#### Alexandre Barbier

Product Owner,  
Containers and End-to-End Monitoring,  
Airbus Helicopters

“Red Hat OpenShift Platform Plus provides a one-step update for platform services and applications. We can fully upgrade a cluster—including the operating system—in just a few hours, rather than three or four days.”

**Philippe Raboutot**  
Red Hat OpenShift Expert,  
Capgemini

## Advancing development and data science with new capabilities

Airbus designs, manufactures, and delivers commercial aircraft, helicopters, military transport, satellites, and launch vehicles. Its Airbus Helicopters division is the industry’s largest helicopter manufacturer. To adapt to the extraordinary changes resulting from the disruption of the COVID-19 pandemic, aircraft companies like Airbus are focused on supporting innovation and agility with digital technology.

“Now more than ever, our business needs quick access to IT solutions to easily build and deploy new services for our internal and external customers,” said Alexandre Barbier, Product Owner, Containers and End-to-End Monitoring, Airbus Helicopters.

Airbus has supported its digitalization strategy with a broad range of Red Hat products, including Red Hat OpenShift deployed in a virtualized datacenter environment. This enterprise container platform supports close to 40 applications, including custom civil and sensitive applications—including one that automatically generates full documentation for a specified aircraft—and a variety of developer applications, such as GitLab for code management, SonarQube for automatic code review, and JFrog Artifactory for repository management with related pipelines.

Airbus Helicopters’ data science team uses the platform to run several applications, such as Jupyter notebooks, through the Open Data Hub artificial intelligence (AI) platform. The team recently requested additional capabilities, including support for using graphics processing units (GPUs) to analyze massive data volumes and workloads that require more compute resources—for example, calculating the model and images for HoloLens glasses for new augmented and mixed-reality projects.

## Expanding container resources to new business needs with Red Hat OpenShift Platform Plus

To evolve its container environment to support these new capabilities, Airbus Helicopters worked with technology partner Capgemini to migrate its Red Hat OpenShift infrastructure for data science from virtualized to bare-metal operations to improve operational efficiency and performance.

When Red Hat launched Red Hat OpenShift Platform Plus around that time, Airbus also decided to migrate to the new platform to take advantage of its [security, compliance, application, and data management capabilities](#) to build, modernize, and deploy applications at scale, including:

- ▶ Ensuring workloads are successfully deployed and monitoring for certificate expiration with Red Hat Advanced Management for Kubernetes.
- ▶ Scanning containers for vulnerabilities and sending logs to the security team with Red Hat Advanced Cluster Security for Kubernetes.
- ▶ Maintaining a mirror OpenShift cluster registry with Red Hat Quay.
- ▶ Managing and encrypting workload storage and persistent volumes with Red Hat OpenShift Data Foundation.
- ▶ Several OpenShift operators, including Tekton, GitLab, and AMQ streams, a component of Red Hat AMQ that lets microservices and other applications share data with extremely high throughput and extremely low latency.

“Red Hat OpenShift Platform Plus provides a complete set of tools that are fully integrated, fully deployed, and easy to use, as well as more OpenShift operators to meet new business requirements. This all-in-one approach is an added value for us,” said Barbier.

With assistance from Capgemini, Airbus Helicopters successfully migrated close to 40 workloads to OpenShift Platform Plus on bare metal in less than 3 months. While Airbus Helicopters rebuilt and redeployed its pipeline tools, Red Hat’s migration toolkit for containers proved invaluable for moving all additional workloads. “Overall, the migration was invisible to end users,” said Barbier. “Their applications’ URLs didn’t change at all.”

### **Simplifying collaborative work for developers, administrators, and users**

#### **Established scalable, security-focused foundation for data science work**

Running its container environment on bare metal infrastructure lets Airbus Helicopters’ data science team process and manage massive volumes of sensor and other data. This approach provides dedicated server compute resources for workloads running on Red Hat OpenShift, with access to [more CPUs and memory than virtual machines \(VMs\)](#)—as underlying hardware resources are accessed directly, without needing to pass instruction sets through a virtualization layer. Additionally, the single root I/O virtualization (SR-IOV) architecture used by bare-metal servers helps improve network performance by increasing connectivity using minimal CPU requirements.

A bare-metal approach also meets company requirements to encrypt all system disks used for data science projects. “Running Red Hat OpenShift on bare metal means we can use Microsoft’s Trusted Platform Module (TPM) technology to store encryption keys,” said Barbier.

#### **Reduced time to build and deploy applications by hours**

Adding automation to application pipelines has helped Airbus Helicopters’ development teams save hours of work time. For example, fully automating operating system installation with Red Hat Enterprise Linux CoreOS means teams no longer need to manually complete separate installation for each new cluster.

“Our developers can quickly correct any bugs discovered in applications that our business teams and external customers rely on daily,” said Barbier. “We can also launch new services to market much faster than before.”

#### **Simplified container platform and cluster maintenance**

Enhancing its evolving container environment with Red Hat Enterprise Linux CoreOS has helped Capgemini more easily manage and upgrade Airbus Helicopters’ IT infrastructure. This lightweight operating system for clustered container deployments automates processes for maintaining cloud resources, container engines, and other components of Red Hat OpenShift. In addition, OpenShift Platform Plus includes several architectural enhancements to easier installation, provisioning, and updates. Automated upgrading saves Capgemini’s team time—and eliminates downtime for users.

“Red Hat OpenShift Platform Plus provides a one-step update for platform services and applications,” said Philippe Raboutot, Red Hat OpenShift Expert, Capgemini. “We can fully upgrade a cluster—including the operating system—in just a few hours, rather than three or four days. We no longer need to install an operating system separately since it is now fully part of the Red Hat OpenShift installation process. All platform components are managed by cluster operators, which makes the cluster easier to configure, manage, and protect.”

### About Capgemini

As a leading strategic partner, Capgemini has leveraged technology to enable business transformation for more than 50 years. It addresses the entire breadth of business needs, from strategy and design to managing operations. [capgemini.com](https://www.capgemini.com)

### Continuing digital transformation journey with automation and MLOps

To continue building on the successful evolution of its container environment, Airbus Helicopters is exploring new technologies from Red Hat, including expanding automation with Red Hat Ansible® Automation Platform. The company is also considering adopting Red Hat OpenShift Data Science, a machine learning (ML) platform for the hybrid cloud that provides a fully supported environment to establish MLOps best practices, where data scientists and developers can rapidly train, deploy and monitor ML workloads and models on premise and in public clouds. Airbus Helicopters is also planning to deploy a high-availability OpenShift cluster to a third datacenter to support critical applications.

“We see Red Hat OpenShift as a strategic technology asset,” said Barbier. “Every month, we share KPIs [key performance indicators] with our executive team to highlight its performance. It’s a critical part of our digitalization strategy and meeting our goals for the future.”

### About Airbus Helicopters

Airbus Helicopters strives to provide the most efficient helicopter solutions to its customers. Its helicopters are in service across more than 150 countries worldwide, performing nearly every type of vertical flight task imaginable. The company’s product line offers the full spectrum of rotary-wing aircraft solutions for civil, government, military, law enforcement, and parapublic uses. [airbus.com/en/products-services/helicopters](https://airbus.com/en/products-services/helicopters)



### About Red Hat Innovators in the Open

Innovation is the core of open source. Red Hat customers use open source technologies to change not only their own organizations, but also entire industries and markets. Red Hat Innovators in the Open proudly showcases how our customers use enterprise open source solutions to solve their toughest business challenges. Want to share your story? [Learn more.](#)



### 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 develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. [A trusted adviser to the Fortune 500](#), Red Hat provides [award-winning](#) support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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