



LEADING AEROSPACE MANUFACTURER MOVES AWAY FROM LEGACY SYSTEMS AND TOWARDS APPLICATION MODERNIZATION

The aerospace industry builds the aircraft that underpin global passenger travel, the movement of commercial goods, and national defense. Less obvious is the role aerospace companies play as major parts suppliers to airlines around the world.

Today's airplanes are incredibly sophisticated; one could find a single aircraft can have between four and six million parts, and a failure in any one of those can ground the plane. Airlines cannot afford to have planes out of service, which means they cannot have parts out of stock. At the same time, it is too expensive for manufacturers and maintenance companies to maintain large amounts of unused parts.

This means both sides engage in a challenging process of predictive maintenance. When done well, connected devices leverage artificial intelligence and machine learning (AI/ML) to proactively provide crucial data and insights about realtime asset performance, estimated replacement timelines, and supply-chain agility, with ample lead time for suppliers and airlines.

We worked with a leading aerospace manufacturer facing legacy-system challenges that wanted to modernize and improve predictive maintenance of its supply chain for after-market service-parts management. The objective was to adopt a cloud-first approach to improve lead time, forecasting accuracy, inventory optimization, and, above all, planning, leveraging Red Hat OpenShift and the Kubernetes Orchestration Platform.

This requires agility and scalability across organizations, and that means moving away from legacy systems to a flexible [cloud](#)-based model, which often begins with the process of application modernization. It is a considerable undertaking, but it is the first step in true digital transformation.

In order to modernize successfully, we took the following steps.

Application containerization:

Creating applications in containers means they are portable between different platforms and clouds. Write it once, run it anywhere. It utilizes technology. Because of this, [containers](#) were the primary deployment format for all cloud-native applications in the migration, and Capgemini managed the clustering, networking, and deployment automation, in addition to creating an opensource container-orchestration system. As a result, server provisioning now takes hours instead of days.

DevOps adoption:

DevOps is a critical component of application modernization that accelerates product development with continuous integration and delivery. We worked to secure buy-in amongst executive stakeholders to ensure that DevOps included front-line, procurement, budget-setting, financial governance, and [security audits](#). We also learned it was better to coach individuals instead of simply implementing the DevOps model across the technical teams. Rather than a big-bang

approach, incremental [DevOps was the right solution](#), with a strategy based on three-, six-, and 12-month plans. As a result, if the user community wants new predictive asset-maintenance features like demand aggregation, teams can now develop and deploy them quickly. Additionally, the inclusion of security checks and reviews means a better software pipeline.

Agile transformation:

Agile is a delivery methodology that, unlike the traditional waterfall approach, enables rapid time-to-market for [innovation and drives business value](#). We worked to deliver a plan that provided the needed automation and discipline for teams, used a product roadmap to mediate tactical trends and long-term vision, and built in ongoing flexibility. The Scaled Agile Framework (SAFe) has made development at scale possible. [Agile](#) transforms behavior and culture and making use of common terms and harmonizing how people describe basic process steps were important in not complicating matters.

In this way, the company was able to adopt AI/ML to improve its predictive asset maintenance for faster feedback and greater flexibility and scalability in response to change. As a result, supply-chain processes better aligned to the demands of customers and suppliers. As is the case in many digital transformation initiatives, [app modernization](#) built the foundation for change by freeing the organization from legacy platforms and creating the right cloud environment.





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