Case Study
Aviation Manufacturer Undergoes Digital Transformation to Improve Safety

Client

Aviation Manufacturer

The client is a world-leading manufacturer and service provider for jet engines. From the turbosupercharger to the world's most powerful commercial jet engine, our client has a long history of powering the world's most robust and innovative aircraft capabilities.

Challenge	OnX solution	Results
• Needed faster analysis of engine flight health and safety data • Too many expensive engineering workstations on factory floor • Cut the time needed to identify and respond to any mechanical incidents • Cut costs from plane downtime and improve time in the air • Needed faster data analytics to improve predictive maintenance requirements	• Containerization, automation, DevOps enabled environment • Application refactoring to cloud-native to take advantage of above automation • Infrastructure as Code to enable auto kill and failover eliminating downtime • Private cloud (VDC) on client premises on the edge for near real time processing • 24x7x365 Monitoring and management	• Health analysis of the engines data cut down to 3 hours from 24 hours • Faster identification of maintenance requirements • Zero downtime of infrastructure through automation • Improved safety through digital transformation • No single point of failure with automation and redundant network and compute infrastructure • Predictive maintenance saves millions of dollars

Challenge

The client wanted to improve the time to data analysis output of their engine health checks to near real-time upon a plane's landing. OnX was given the opportunity to cut the processing time of the digital readings down from 24 hours to to 12 hours, which we eventually got to 3 hours. The client also wanted to reduce the number of expensive engineering workstations on the factory floor that were being used to analyze the data results. The client was also looking centralize their data management, so OnX was tasked with providing a single repository for the data that also served as a general-purpose analytics engine.

OnX solution

Due to the massive amount of data and the client's security requirements, OnX deployed a private cloud environment to enable Kubernetes clustered microservices on-premise in a private dedicated next generation cloud. OnX designed a DevOps environment that vastly improved time to data analytics and allowed for agility in continuous integration and deployment (CI/CD).

We monitor and manage the infrastructure end-to-end and respond 24x7 to any incidents. If there is a node impairment, Master or Worker, the environment will kill the node and rebuild from scratch using an automation tool in the Kubernetes control plane managed in the highly available OnX hosted private cloud.

With automation and a redundant network and compute infrastructure, there is no single point of failure. The solution leverages AI and predictive analytics to forecast maintenance and improve continual operations reducing costs and driving an increased bottom line.

Results

Through modernizing mission critical applications that drive their bottom line, OnX helped the client get the most from innovative technologies like containers and microservices, and game-changing practices like agile, DevOps, and continuous integration and deployment (CI/CD).

The goal of improving predictive analytics was met for the client as application refactoring helped the client analyze flight engine data in a fraction of the time as they previously were able to. Using Infrastructure as Code along with cloud-native applications, the engine's software sends the health of the engine report to its Digital Twin in the OnX managed private cloud. The rapid feed of results enables the client to use predicative analytics to determine the engine's health prior to take off, decreasing the time a plane spends on the ground and improved safety.

Through this digital transformation, OnX helped the client cut the time to it takes to identify a problem from 24 hours down to three. We monitor, manage, and maintain the client's infrastructure 24x7x365. OnX expert's responsive management enables the client's IT staff to offload the day-to-day responsibilities of infrastructure monitoring so that they can focus on application improvements and propel their mission-critical initiatives forward.