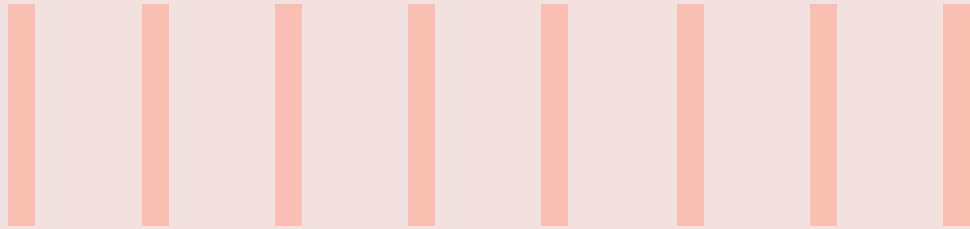




A PUBLIC CLOUD HOSTED INFORMATION PLATFORM FOR WORLD'S LEADING AIRCRAFT MANUFACTURER



Abstract

Airlines operate in a tough business environment today, as they strive to achieve sustainable growth on one hand, while delivering new, digital customer experiences on the other. In order to achieve this goal, airlines don't only have to constantly innovate and create new business models, but also perfect their existing ones. And maximizing utilization of every aircraft, is a big part of meeting both these imperatives.

However, aircraft maintenance is a complex process, and depends on a number of factors including regulatory framework, types of aircraft in the fleet, and their chaotic schedules. To some extent, online maintenance manuals with a rich repository of procedures to

troubleshoot problems simplify this process. However, since any airline owns planes of different makes, and each airplane is used for multiple schedules, across multiple routes, access to maintenance manuals for the right aircraft at the right time is a challenge. Making these manuals and guides available to technicians can avoid schedule delays and possible loss of revenue to the airline operators.

Aircraft manufacturers generally store these manuals in a hosted environment, and make it available to airlines online. However, since most airlines have aircrafts of different makes in their fleet, they end up having siloes of manuals for their aircrafts. Hence, there was a growing need among the airlines to

have a central repository of maintenance manuals and guidelines that they could tap into anytime, anywhere, for all their aircrafts.

When our client, one of the largest aircraft manufacturers in the world, recognized this problem, they saw an opportunity. Providing access to latest maintenance manuals round the clock, making them easy to refer, readable on any computing devices or form factor was envisaged as a new revenue stream. What if they could make this in to with subscription based, SaaS like offering, by making it available on AWS cloud? The idea was noble, and doable, but given the nature of the aviation world today, the journey from idea to implementation, wasn't a simple one.



Rough skies

Fulfilling the strict data security guidelines prescribed by aviation administration while ensuring high-availability and reduced cost, was no mean task. To meet these unique needs, the client decided to provide a cloud hosted solution to airline operators. The maintenance manuals would be hosted on a public cloud, and would be made available through subscriptions to airlines. The cloud also ensured that the confidentiality of data was maintained by creating an insulation between the data of the multiple aircraft manufacturers. Another big driver for cloud adoption for this project was to avoid delays caused due to hardware procurement challenges.

Once the cloud infrastructure was set up, this offering was bundled as a software as a service (SaaS) solution. The SaaS subscription is available for all the airline operators to subscribe to after they procure aircrafts from this manufacturer, or combined with delivery of new aircraft.

Choosing the right partner when embarking on a cloud journey

Once the idea of cloud was finalized, our client needed a partner to help navigate its cloud journey and host this new product offering on the public cloud. Infosys Amazon Web Services (AWS) team and the customer's core team, designed a high-availability AWS cloud architecture by applying security best practices, leveraging AWS scalable / agile feature and implementing cloud adoption framework.

Infosys technical expertise, innovative approach and best practices in cloud were key to building a scalable, optimized, and secure architecture.

The Infosys solution

Infosys adopted template based approach in building the solution which resulted in significantly reduced time to go live. To maintain the uniformity of, and secure each environment, we used our past knowledge and built AWS CloudFormation templates. These templates included building of an AWS Virtual Private Cloud using Elastic

Block Store and all other supportive AWS services to accommodate future scalability needs. These templates in conjunction with configuration management tool and Continuous Integration / Continuous Development (CI/CD) pipeline resulted in saving repetitive environment build efforts, thus reducing the cost and time to go live.

Infosys solution also included a highly available stack leveraging AWS availability zones (clouds). The multi-availability zones structure, augmented with disaster recovery (DR) in a different AWS cloud while still adhering to the geographical regulations around data storage, resulted in a service availability of about 99.99%. This solution also leveraged AWS S3 and Glacier storage for long-term retention of backup data, saving storage and reducing back up cost.

The client's concerns about security were addressed via implementing an API gateway, web application firewalls, encrypting data at rest & in transit and carrying out vulnerability assessments. The implementation of deep security monitoring tool and security information & event management (SIEM) dashboards produced the intrusion detection metrics that addressed vulnerabilities proactively. Infosys also designed security architecture in-line with the defense-in-depth principle, leveraging multiple security controls and governance processes. In addition, the architecture leveraged client organization's information security guidelines to ensure adherence to data security norms.



Infosys solution benefits

- Enabled approximate US \$25 Million business pipeline with the new offering
- Cumulative savings around approximate US \$1 Million in comparison with on premise hosting
- Observed increase in airplane operator's loyalty due to high performance and high available SaaS solution and thus resulted in reduction in contracts termination rate
- Faster time to market of the SaaS platform using template based deployments



For more information, contact askus@infosys.com



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