COMPANY OVERVIEW

Airbus, the largest European aeronautics manufacturer, based in Blagnac near Toulouse in France designs, manufactures, and markets its products, services, and solutions for airlines across the world. International in scope, the company is established in 180 locations and relies on 12,000 direct suppliers. At the end of 2017, it accounted for some 10,926 aircraft delivered to customers on every continent, with a commitment to make documentation for all its aircraft models available to its numerous operation and maintenance stakeholders.

Powering the Search for Near Real-Time Access to Aircraft Technical Documents

At Airbus, customer service provides support to airlines and their maintenance partners, certification authorities, and the numerous suppliers involved in the manufacturing of an aircraft. This totals approximately 80,000 internal and external users. With an ever growing dossier of reference documents being produced for each new airplane model, Airbus decided to develop an internal application to replace their previous solution—from 2003—for digitizing the large volumes of assorted aircraft reference documents. This is how the development of the ADNS (Advanced Data Navigation Services) project was born—with the dual objective of satisfying 3,000 requests per minute in less than 2 seconds, and launching its new consulting portal within a 2-year deadline. To improve its response time and fulfill its time-to-market commitment for the ADNS platform, Airbus opted for the power and real-time capabilities of the Elastic Stack, a new-generation technology with a set of features that allows Airbus to guarantee access rights to authorized users and monitor the platform's health.

The ADNS platform is one of the pilot projects of Airbus' digital transformation.

François Bedin

ADNS IT Project Manager, Airbus

AIRBUS ADNS’ JOURNEY WITH ELASTIC

The Who: The IT Project Manager and His Team Responsible for Airbus Customer Service

With the support of his IT team, François Bedin took on the task of creating the new ADNS platform, working collaboratively with Airbus customer service representatives, various external entities and customers using the aircraft technical documentation. An agile development model was used so that relevant stakeholders were involved in the advancement and validation of each project stage. With the project complete, customer service now benefits from a modern document search and consulting platform that makes a significant contribution to fulfilling Airbus’ service-level agreement (SLA) commitments.

We opted for agile development combined with the research benchmark to deliver an effective document solution within 2 years.

François Bedin

ADNS IT Project Manager, Airbus.

The What: Responding to Every User Request in Less than 2 Seconds

The Airbus ADNS platform forms an integral part of the sale and delivery of an aircraft. It also centralizes the information relied upon by airlines and their maintenance departments to carry out necessary maintenance operations after each landing and during routine aircraft overhauls. Today, the aim is to respond to every user request in less than 2 seconds—querying a growing volumetric context of (to date) 6 TB of documents—while also guaranteeing secure user access rights depending on the request and the requester's profile.

We imposed the requirement for a powerful search tool based on new-generation open-source technologies in order to fulfil Airbus' commitment to its customers, provide performance, and 24/7 high availability.

François Bedin

ADNS IT Project Manager, Airbus.

Guaranteeing a 24/7 Commitment to Customer Service

To guarantee a high level of performance for the ADNS platform's navigation tool, the project manager and his team rely on the proven search and indexing power of Elasticsearch. Near real-time performance is aligned with the high availability requirements of the ADNS infrastructure, which is intended to guarantee Airbus' 24/7 commitment to customer service. To fulfill the vital promise of having a solid infrastructure and continuous production activity that complies with its SLA, Airbus ADNS opted for a Platinum license of the Elastic Stack right from the start of its development. The commercial features of the Elastic Stack, accessible to subscribers, ensured the ADNS platform's health and maintained access-based security.

With the Platinum subscription and the included support services, we did everything we could to help our chances of fulfilling our commitment to the time to market and availability of ADNS.

François Bedin

ADNS IT Project Manager, Airbus.

Powerful Search, Agile Development, and High Availability

The operational infrastructure of ADNS consists of two internal active/active redundant data centers with 25 Elasticsearch servers (nodes) in each.

It's the first time we've handled such a high number of interconnected servers for a customer service application. The Elastic Stack’s monitoring feature (X-Pack), coupled with its visualization tool Kibana, helps provide us with the visibility and proactivity required to maintain the high availability of ADNS.

François Bedin

ADNS IT Project Manager, Airbus.

Kibana dashboards offer visualizations that inform the IT team about the ADNS platform's current state of health, ensuring optimal functionality.

Elasticsearch was selected as the driving force behind ADNS for its real-time indexing and full text search capabilities. It replaces a solution intended to search open documents. Today, it is easy to find what you want with Elastic. Simply enter a keyword to search the entire database of more than 2 billion structured or unstructured fragments (or blocks of documents), whose features and formats have been constantly changing since the creation of the first Airbus aircraft in the 1970s.

The Results: Reduced Time to Market and Authorized Access to Documents in Less than 2 Seconds

Deployment of the Elastic Stack enabled production on a pilot version of ADNS to be started after 14 months, including a few initial features being made available to all users. A full-feature beta version was made available to everyone after 20 months. Today, the ADNS platform is complete and has achieved full operability.

François Bedin and his IT team have fulfilled their time-to-market commitment, from design to production, within 2 years, the result being ADNS, a modern and effective platform for consulting a 6 TB database of technical documents relating to Airbus aircrafts. To date, all requests are satisfied with relevance in less than 2 seconds via the aircraft manufacturer's portal. Information is available to numerous authorized internal and external users who need access, using an automated rights management system.

All the end users are unanimous about the performance and the functional maturity of ADNS since its implementation. Its availability is close to 100%, and major changes can be made within the application without any downtime. While the agile development strategy involving a panel of customers was critical to our success, the high-value-added technology of the Elastic Stack also contributed greatly.