

Creating a Platform to Help Airlines Unlock Data



Summary

iJet Onboard envisioned an environment where aircraft data could be aggregated across proprietary and disparate avionics systems to give airlines real-time monitoring, preventative maintenance, and predictive analysis capabilities.

iJet needed help translating this vision into hard-coded reality. They turned to Base2 Solutions for architecture, design, development, and test services in the creation of the aerospace industry's first open platform- as-a service offering. This technology gives airlines insight into aircraft data to improve operational efficiency, discover cost-cutting measures, and develop new onboard services to improve passenger, pilot, and ground operation experience.

Results

In six months, a prototype was built consisting of real code running on real systems that could be demonstrated in the field to prospective customers.

iJet Onboard

When you step onto an airplane, it's natural to think that you're stepping into a world of space-age technology.

The truth is that many of the avionics systems inside airplanes have changed very little since the 1950s. Each system is responsible for a very specific task, such as flight management, engine monitoring, and flight document storage. Data is stored in proprietary formats and systems that are difficult to access and use by anyone but the avionics manufacturers. Getting access to this data can be cost prohibitive and time consuming.

If airlines had this data readily available to analyze and act on, it would dramatically increase operational efficiency and deliver value across the entire airline enterprise.

iJet Onboard was formed in 2010 to help airlines more easily and cost-effectively tap this data, translate it into an easily digestible format compatible with modern computer systems, and make it available in real time for analysis and action.

Jet Ahead

iJet Onboard set out to understand and connect with its audiences and understand their needs. They engaged a prestigious research firm to shore up its knowledge of the airline industry and hired pilots who understood data management needs. Once they knew what they wanted to build, they brought in Base2 Solutions, a Seattle-based technology consulting firm with deep roots in aviation, to show them what was possible and to create a plan to build it.

“Our idea was to evolve the aviation industry from its hardware centric architecture to a shared software and services infrastructure”

~ Michelle Saro, VP of Marketing and Business Development at iJet Onboard

“If we had to hire staff members with Base2 Solution’s expertise, it would have taken too long. We needed to get a product to market quickly, and Base2 people were able to hit the ground running,” says Saro. Base2 helped iJet Onboard refocus its development effort on creating an open platform rather than on developing a suite of discrete applications. The resulting product was the aerospace industry’s first open platform-as-a-service environment that created a new market around aircraft telemetry, he said. He had successfully partnered with Base2 on past projects, so he turned to the company again for assistance.

Creating Valuable IP and Resiliency

Along the way, Base2 developed unique intellectual property (IP) that became iJet Onboard’s valuable hedge against competitive threats. According to Saro, “Base2 was creative and industrious in figuring out how to solve our immediate problem while also creating IP that would create barriers to entry for future competition,” Saro says. “Their people were so bright that they understood that developing IP held far more value to us than developing a onetime application.”

Base2 took a modular approach to software development that ensured adaptability to evolving iJet Onboard and customer needs. “The iJet Onboard platform is resilient to changes in avionics hardware so that if those components change, it’s easy to change the platform. We made it very easy for airlines to get data out of these proprietary systems and integrate with third-party applications,” says Andrew Hosch, Director of Technology Development at Base2.

Airline Flexibility and Adaptability

The iJet Onboard platform can talk to all of the connectivity technologies that airlines have begun to install on planes—Wi-Fi, 3G, VHF, and D-Link— which gives airlines tremendous flexibility in relaying onboard data to ground systems. “We have very open, flexible integration capabilities, which is very different from how the industry has operated up to now,” Saro says. “Airlines can move much faster and less expensively.”

As an example, iJet Onboard recently used its platform to build a fuel analysis application for an airline that was evaluating the profit potential of various new routes. iJet Onboard was able to build the application in 10 days.

Unleash the Value of Avionics Data

What kinds of things do airlines want to do with onboard avionics data? “Anything that touches fuel consumption is huge,” Saro says. For example, often the auxiliary power unit (APU)—which provides power to the aircraft during flight—is left on after the plane is parked at the terminal. This consumes an enormous amount of fuel. An early iJet Onboard-based test application monitors the APU and lets the ground crew know if it’s still running so that the crew can shut it off and plug the plane into the terminal power, saving thousands of dollars per year. Another area of interest is engine health monitoring.

By connecting an iJet Onboard-based application to the engine health system, airlines can monitor data in real time, detect abnormalities, and identify problems that can be addressed with preemptive maintenance, saving money, avoiding delays, and protecting lives.

Faster Time-to-Market, Significant Savings

By refocusing its mission on a development platform rather than discrete applications, iJet avoided the significant cost of developing applications of unknown value. “Gaining rapid access to Base2 development experts with aviation experience was invaluable. We had the inspiration for what was possible, and Base2 confirmed that possibility and showed us how to do it,” Saro says. “In six months, its staff built a prototype consisting of real code running on real systems that we could demonstrate in the field to prospective customers. You can’t place a dollar value on that.”

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iJet Onboard

iJET’s Smart Aircraft System integrates existing aircraft operational data, IP commu-

nication links and airline ground systems into a single connected service that gets the right information, to the right place, at the right time. Proprietary iJET Actors perform real-time data processing to power on-board, ground and cloud based applications that provide operations personnel real-time cost savings input and analytics. The Actors provide a continuous loop that allows algorithms developed on the ground to be “forward deployed” to your aircraft so that aircraft and operations get smarter over time.



Base2 assists companies in giving form to Digital Innovation

and delivers the processes and practices needed to develop complex interconnected systems. We help companies solve challenging problems by taking a whole systems approach to designing and developing the technology, processes, security and Systems Engineering required for success. Companies across heavily regulated industries, such as aerospace, defense, transportation and medical devices, have utilized our expertise and best practices to speed up product development and accelerate time to market. To learn more about how Base2 helps drive Digital Innovation, please visit www.base2s.com.