

# Innovative Technology with Real World Impacts

Case Study:  
Jira Cloud Implementation and Custom  
Workflows, Kairos Aerospace

## Company Details

**Industry:** Aerospace

**Company Size:** 20 Employees

**Location:** U.S.

**Products:** Identifying fugitive methane, or natural gas emissions, environmental benefits



*In today's world, new and flashy technology is popping up every day. Sometimes it's important, sometimes it's silly. But, it's rarely world-changing. Kairos Aerospace bucks that trend.*

*Founded in 2014 by PhD physicists and business partners, Steve Deiker and Brian Jones, Kairos Aerospace has pursued one mission with laser focus: to help companies turn data into positive change. Their high-impact niche? Identifying fugitive methane, or natural gas, emissions so oil and natural gas companies can quickly and accurately fix leaks, saving a tremendous amount of time and money while offering huge environmental benefits as well.*

## Overview

Steve Deiker and Brian Jones developed the prototype hardware and software that became LeakSurveyor™, the company's patented data collection and analysis system. Since those early days, the expanded Kairos team of engineers and data scientists launched the system and continue to refine it.

The technology is cutting edge and the value is clear from scientific, environmental, and commercial perspectives. In order to deploy the technology as quickly and flexibly as possible, the airborne imaging hardware is custom fitted to lightweight Cessna aircraft – the most common plane in the world and readily available for lease – allowing for efficient scanning of 50 to 100 square miles for methane leaks per flight. Compared to the three or four square miles a drone can cover, this unconventional approach for the 21st century results in strong returns for companies that leverage the Kairos approach.

In order to help its oil and natural gas industry clients unlock the value of rapid methane identification, Kairos was faced with the challenge of processing enormous amounts of data at a speed that works for industry, and not research. In order to help its oil and natural gas industry customers unlock the value of rapid methane identification. "We need to process huge amounts of data quickly," Deiker explains, "in order to effectively find, measure, and prioritize the most important leaks quickly enough to make a difference." That's not just a matter of saving money, because these leaks can represent health risks as well. If the team identifies a dangerous leak near homes or schools, "we pick up the phone and call the operator immediately, whether they're a customer or not," because every hour counts.

## The Cost of Pushing the Envelope

Kairos Aerospace relies on a highly-automated cloud-based data analysis pipeline built around Amazon Web Services, Airflow cloud orchestration, tied together with custom Python code. Speed and accuracy are paramount, so the system is kept as lean and agile as possible.

"We run very lean," Brian Jones, "and tend to rely on a few highly skilled engineers." But, at the same time, there is a tremendous amount of data coming in consistently, day after day.

"With multiple flights per day, an automated data analysis pipeline, a stage of human data analysis, and an asynchronous reporting cadence, the hardest thing was just knowing the current status of all the data was."

### *Innovative technology:*

- *Kairos Aerospace has developed and patented an innovative, airborne, spectrometer-based methane detection system called LeakSurveyor™ that can detect methane leaks (among other things) from 3000 feet in the air.*
- *A well-honed, proprietary data analysis pipeline serves up actionable insights from the data collected by LeakSurveyor™.*

- *The result is faster, more accurate identification and analysis of potentially dangerous and costly gas leaks than ever before. This technology saves time, money, and lives.*

With a quickly expanding client list and ambitious projects in the works, the Kairos team recognized that their internal processes needed to adjust to keep pace with the ballooning volume of data without sacrificing efficiency or value.

“We needed a scalable way to track our flights, datasets, and reports, so we could make sure nothing fell through the cracks,” Brian Jones explains, “not to mention costs — weather, hardware problems, and personnel availability can all impact our ability to operate, so we needed to be able to track all of that.”

*Kairos: (noun) The opportune time to take action; awareness of the circumstances that open moments of opportunity”*

The Greek word kairos can be translated, “the opportune time to take action.” The team at Kairos Aerospace has certainly taken action at the right time in the development, launch, and growth of their specialized sensing solution. And now, with challenges mounting behind the scenes, they again chose the opportune time to act by reaching out to Cprime.

## **The Opportune Time to Act**

Recognizing the need for an internal system that could effectively track all ongoing issues and give the team insight into potential future threats to avoid and opportunities to exploit, the Kairos team did their research and settled on Atlassian’s Jira Software.

As one of the leading issue tracking solutions on the market, Jira was a natural choice. Even more than its core tracking functionality, however, the team decided to move forward with

Jira because of its flexibility and the opportunity to create seamless integrations with the rest of their established tech stack.

But, with the lean engineering team at Kairos already stretched to meet their growing demand, tackling a complex implementation and integration project could have turned into a costly, laborious process. To avoid those issues and ensure they started building ROI from Jira immediately, Kairos Aerospace turned to Cprime.

“We knew we wanted to use Jira to manage our workflows, but didn’t have much direct experience with the solution,” said Ari Gesher, CTO at Kairos. “In particular, we needed guidance around the best practices for creating custom workflows. We realized Cprime could jumpstart our process by guiding us through the workflow creation process, making good design choices early on, and avoiding common pitfalls along the way.”

*Real world impact:*

- *In 2019 alone, Kairos Aerospace technology prevented over 3.9 billion cubic feet of methane from entering the atmosphere. Environmentally, that’s the equivalent of 425,585 cars coming off the road.*
- *Leaks identified by LeakSurveyor™ in 2019 saved their clients over \$3 million and reduced methane emissions by over 40 percent.*
- *To accomplish all this, Kairos sensors spent 941 hours in the air and flew 135,360 miles.*

Of the 20 team members that make up Kairos Aerospace, 18 of them would routinely need to work with the Jira system in one way or another. So, this was an all-hands-on-deck undertaking for the Kairos team.

Ari Gesher describes the process Cprime followed: “We had some video calls where we talked through our real-world processes. We’d done quite a bit of work internally to analyze and document our processes, so that helped move things along nicely. Cprime proposed a structure for Jira projects and workflows to perfectly complement our internal processes, and then led the Jira implementation with those workflows at the center.”

Of course, a successful solution implementation is just the beginning of the journey. After creating and implementing the custom workflows, the team from Cprime kept in close contact with the Kairos team. “Cprime helped us troubleshoot and refine our workflows as we put them to use. Some of our people are quite Jira-savvy while others were brand new, so it took some time to really get each flow where it needed to be.”

Additionally, the Cprime team created a webhook that allowed the Kairos engineers to start integrating Jira with the cloud-based data pipeline and other software they relied on. With that assistance as a solid jumping-off point, the Kairos team has since set up a number of useful omnidirectional integrations and automations that have truly embedded Jira into the heart of their tech stack.

Summing up the entire implementation and integration process, said Brian Jones. “We learned a ton from it. Now, our engineers are confident working with Jira and they’ll be able to adjust or create new workflows as the need arises in the future.”

## **Key Results**

The ultimate goal of the project was clearly achieved.

“Our tech people can now easily get a handle on the status of all our flights and data. Additionally, it’s much easier to find relevant paperwork for a job because everything lives in the Jira ticket.”

An added bonus came to light shortly after implementation. “I was surprised at how much our non-technical people have embraced the system, especially in Finance. They had to climb a learning curve, but the quality of the information design means they can get answers quickly when they need it, and they really appreciate that.”

There were more quantifiable results as well.

“We saw an overall drop in our operational costs of about 33 percent,” Brian Jones explains. “We made a lot of other hardware and software improvements across the board, but the Jira implementation definitely played a large part in that because it freed up our engineers to focus their efforts on making those other improvements that otherwise may not have gotten done. The most powerful direct impact of everyone now using Jira is that we simply drop fewer plates, meaning our team is more efficient, and it provides a better experience to our customers.”

By taking advantage of the opportune time to act – partnering with the professionals at Cprime – Kairos Aerospace was able to streamline and optimize their internal processes and significantly reduce operational costs. Most importantly, they’re now able to focus, once again, on their main mission of helping companies turn data into positive change. But now, they can do so at a much larger scale.