The Air Force Technical Application Center (AFTAC) needed a data processing upgrade that would accommodate increased collection and analysis of publicly available information (PAI) and enhance the overall mission of the center.
Problem:

- AFTAC needed simplified, powerful system to collect, store, and analyze publicly available information (PAI)
- Dataflow processes needed to be simplified to support AFTAC missions

Solution:

- Provided system upgrades to simplify the dataflow process
- Enhanced AFTAC mission by providing system upgrades to source and store more publicly available information (PAI)
- Delivered a solution that condensed multiple contracts into one, mitigating costs for AFTAC

Overview: AFTAC Needs Dataflow and Storage System Upgrades to Enhance Organization’s Mission.

As a trusted partner to the US Federal Government for over twenty years, we have consistently worked with the United States Air Force on their mission-critical IT needs. The Air Force Technical Application Center (AFTAC) receives and stores data in many different formats on multiple domains. This data must be made accessible to applications and users on other domains. AFTAC needed support with evaluating and developing the acquisition of publicly available information (PAI), as well as the use of said data to enhance the AFTAC mission.

This project was shaped by ID Technologies and Cloudera (formally Hortonworks). Our past performance and certified personnel qualifications were a major determining factor in the award. Our superior service capabilities with unmatched CDRL’s influenced AFTAC’s final decision. The solution delivered by ID Technologies greatly increased the amount of data that can be acquired, analyzed, and stored by the United States Air Force.

Challenge: More Data to Source. Not Enough Storage or Processing Power.

AFTAC needed specialized IT support to build a system that can evaluate and develop the acquisition of PAI and use said data to enhance the AFTAC mission by increasing the amount of data that AFTAC can source and store.
Our Approach: Strategic Partnership, System Design, Dataflow Implementation.

The ID Tech/Cloudera Team worked with AFTAC engineers to understand the required flow of data within AFTAC. We leveraged our proven capabilities to author an engineering study on how to implement a new data flow management system.

The ID Tech Team designed and developed a dataflow implementation for acquisition and distribution of data across multiple classification domains, as well as designed and implemented a system for the acquisition and analysis of PAI to enhance AFTAC mission capabilities. We concurrently acknowledged our responsibilities for ensuring that the subsystem meets program performance objectives and successfully integrates with and operates within AFTAC.

The ID Technologies/Cloudera team was responsible for demonstrating the performance of the system and providing documentation regarding its performance, installation, maintenance and operation.

Solution: Simplified Data Collection and Analysis.

We collaborated with Cloudera on utilizing multiple layers of subject matter expertise in order to deliver with our mission of “Accelerating Simplicity” in mind. Our collaboration created ease of communication with the customer, accommodating lightning fast responses to technical questions for both ID Technologies and Cloudera engineering teams. Ultimately, our solution was focused on the development and implementation of new software, along with heavy consulting and training as explained in the figure to the right.

The figure presents the ubiquitous flow design implemented on each network (green/red/yellow) for both PROD and COOP utilizing both known guard implementations.

The ID Technologies/Cloudera team realized the following:

- Measured current data ingest (size per day, number of files, average file size, identify peaks)
- Recommended a solution for handling various filetypes and transformations
- Identified the Level of Effort to refactor existing (both intra- and cross-domain) NiFi dataflows (version 0.7) into the target NiFi system(s)
- Consulted with AFTAC to support the design of an end-to-end test and evaluation process, including best practices consulting on change and configuration management practices
- Provided detailed analysis of PAI source data types and locations
• Designed and implemented Ingest and analysis methodologies in alignment with AFTAC mission objectives

**Result: A Simplified Process.**

AFTAC Dataflow and PAI Analysis was initially a Single-Phase effort with 2 additional options dependent upon meeting milestone requirements and excellent CDRL's. The 3 phases are as follows:

• Phase 1 – Analysis and Engineering Study for use at AFTAC
• Phase 2 (Optional) – AFTAC Development Data Flow System
• Phase 3 (optional) – AFTAC PAI Exploitation

ID Technologies was awarded Phase 1 and Phase 2 with Phase 3 currently under review. This is a single award contract with modifications ongoing to add to the total contract value, effectively condensing multiple contracts into one.
1. Pull workload metadata from Edge Node
2. Push workload metadata to Kafka
3. Pull workload metadata from Kafka
4. Pull workload content from Edge Node
5. Push workload content to Edge Node