

Intelligent Data for CJADC2: Powering Mission-Critical AI

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Featuring:



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The Department of War faces immense pressure to enhance operational effectiveness, yet critical initiatives like Combined Joint All-Domain Command and Control (CJADC2) are complicated by overwhelming volumes of fragmented, siloed data and persistent challenges with outdated legacy systems. These issues hinder efficient data migration, leave vital information unprepared for scalable AI and cause modernization delays that impact mission readiness.

Cloudera addressed challenges related to siloed data and inefficient data migration by outlining strategies to enhance operational effectiveness, accelerate decision-making and reduce complexity through strong, secure data governance.

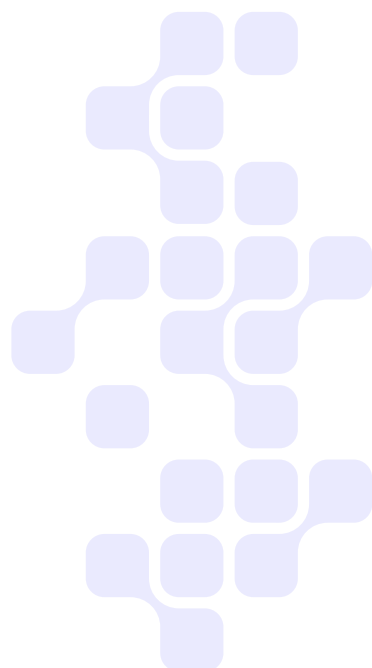
Let's start off with an introduction – who and what is Cloudera Government Solutions?

Founded in 2008, Cloudera is a trusted data cloud company. The vision of Cloudera was to have one platform that comprehensively manages the full end-to-end data lifecycle, from the edge to AI and to deploy it on any infrastructure: public cloud, private cloud, multi-cloud and hybrid. That vision is now a reality, allowing Cloudera customers to leverage data from any sensor across any environment.

In 2014, Cloudera created a subsidiary called Cloudera Government Solutions, focusing on the government sector and their priorities. To support mission critical environments, we maintain MOSA and URDA compliance and all our support personnel are cleared and based in the United States. We have multiple ATOs and are deployed on all three DoW networks.


What is Combined Joint All-Domain Control (CJADC2)?

CJADC2 is the Department of War's vision for a unified, data-centric enterprise that integrates sensors and platforms across military domains. By synchronizing data from the tactical edge to the enterprise, CJADC2 provides commanders with a real-time, shared understanding of the battlespace. This unified foundation eliminates silos and fuels AI-driven analytics for faster, more informed decision-making.



What demonstrates Cloudera's ability to support CJADC2?

Cloudera has powered major defense programs for years, with many directly advancing the goals of CJADC2. Across the Department of War, Cloudera provides the data foundation required to integrate, secure and analyze information at scale for real-time, multi-domain operations, including:








Turning complex defense data into real-time operational advantage

- **C4ISR:** Used to integrate and analyze data in a private, cloud-based analytics environment to deliver national-level visibility across multiple military branches
- **Predictive Maintenance:** Applied across aircraft platforms to enhance readiness, improve safety and reduce lifecycle costs
- **Cyber:** Enables large-scale data processing and analysis while safeguarding and unifying data, allowing agencies to detect and respond to threats in real time
- **Edge Data Systems:** Ingests and delivers incoming data at scale to any destination, with primary applications across the Navy
- **Logistics & Supply Chain:** Improves visibility and decision-making through advanced data analytics to optimize supply chain operations

PUBLIC SECTOR USE CASES

POWERED BY CGSI

					
	C4ISR	Predictive Maintenance	Cyber	Edge Data Systems	Logistics & Supply Chain
Results	Cloudera delivers common operating picture capabilities across DoD C4ISR systems, improving joint visibility across service branches	The U.S. Navy improved operational readiness (Ao) by 31% for all airframes by implementing Cloudera for proactive maintenance operations	The government's largest cybersecurity agency realized a 52% reduction in false positives after implementing Cloudera in its cybersecurity sensor systems	Cloudera improved operational capability for naval platforms in the U.S. Navy, enabling data collection and movement in contested environments	The Defense Logistics Agency improved time to insight by more than 50% by deploying Cloudera across its logistics data enterprise

What challenges in the battlefield does CJADC2 aim to address?

CJADC2 is fundamentally about speed and decisiveness in an era where modern battlefields generate massive data volumes across every domain. By liberating information trapped in isolated systems, CJADC2 enables the warfighter to detect and understand threats instantly through AI-driven analysis.

Traditionally, battlefield data silos kept information isolated within domains such as naval platforms limiting coordination with the Air Force, Army and other branches. These stove-piped environments slow coordination, delay decisions and often force commanders to rely on manual workarounds to piece together an operational picture.

Under CJADC2, these barriers are removed so that threats and anomalies can be identified and shared across all domains in real time. By integrating these disparate streams, AI-driven recommendations significantly reduce decision latency and enable faster, more synchronized responses across the Department of War.

How does Cloudera enable advanced data visualization for CJADC2 operations?

Cloudera provides a specialized data-visualization capability known as the Commander's Dashboard, which serves as a single pane of glass for a unified, real-time view of the battlefield across air, sea and space. By visualizing data the moment it arrives, the dashboard allows commanders to instantly identify changes and anomalies across multiple domains. An integrated domain distribution chart offers an immediate snapshot of incoming data streams, helping users spot sudden shifts or emerging activity as it happens. Through these synchronized visualizations, commanders can compare domain activity, recognize critical patterns and maintain the high-level situational awareness required to meet CJADC2's mandate for instant, unified visibility.

ABOUT CLOUDERA:

Cloudera is the only true hybrid platform for data, analytics and AI. With 100x more data under management than other cloud-only vendors, Cloudera empowers global enterprises to transform data of all types, on any public or private cloud, into valuable, trusted insights. Our open data lakehouse delivers scalable and secure data management with portable cloud-native analytics, enabling customers to bring GenAI models to their data while maintaining privacy and ensuring responsible, reliable AI deployments. The world's largest brands in financial services, insurance, media, manufacturing and government rely on Cloudera to be able to use their data to solve the impossible – today and in the future.

ABOUT CARAHSOFT:

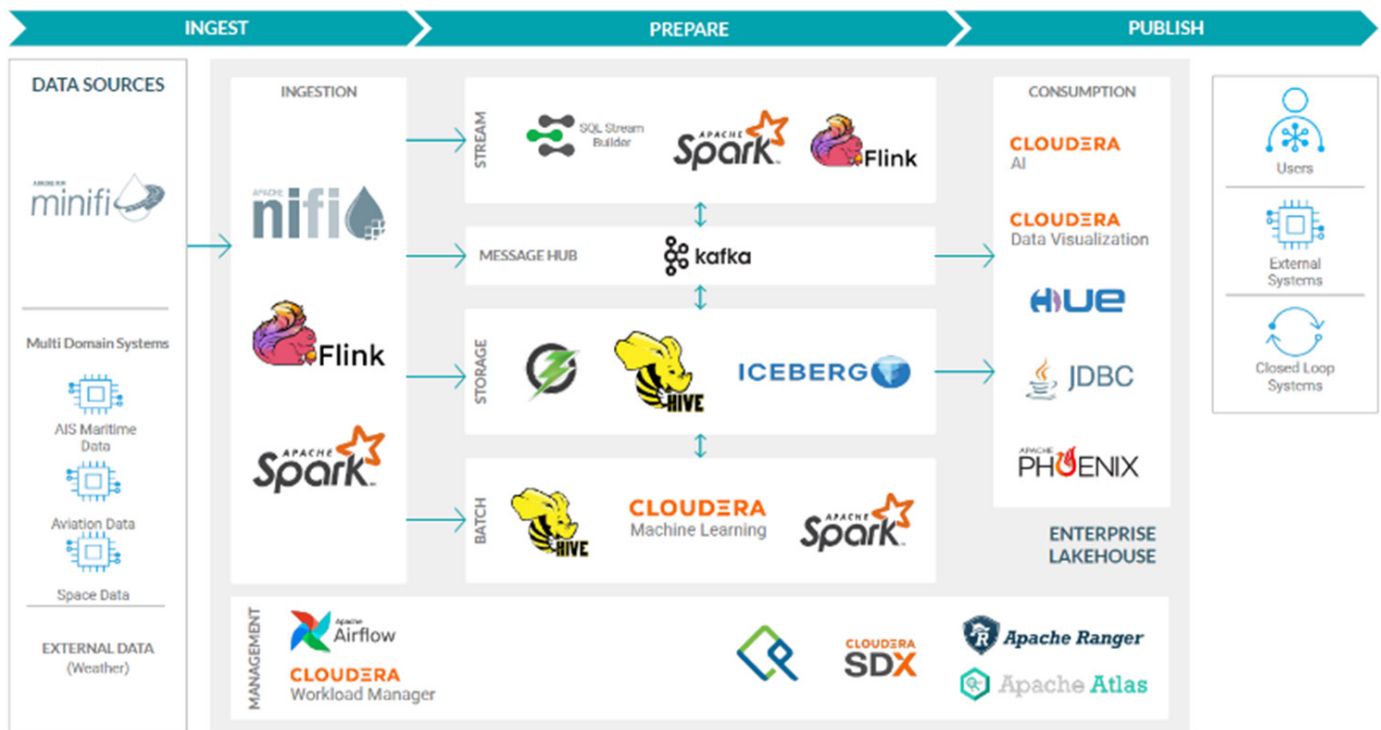
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How does Cludera move and monitor real-time mission data using NiFi and Stream Messaging Manager?

Cludera moves real-time mission data through Cludera Flow Manager, powered by Apache NiFi—an open-source project Cludera has championed since its inception. Flow Manager ingests data from across multiple domains and battle spaces, allowing users to create and manage complex data flows without the need for extensive programming. By applying geo-enrichment, metadata tagging and routing logic, NiFi prepares incoming data for the broader CJADC2 framework, transforming raw information into immediately actionable intelligence.

To ensure the integrity of these pipelines, Cludera utilizes Stream Messaging Manager, a capability exclusive to our platform that provides real-time visibility into message throughput, latency and delivery. This gives commanders a clear, high-level view of data pipeline health and allows for the instant detection of anomalies. Together, Cludera Flow Manager and Stream Messaging Manager ensure that mission-critical data is ingested, processed, monitored and verified in real time, meeting the rigorous standards required by CJADC2.

REFERENCE ARCHITECTURE



Key NiFi Processing Steps

Supporting CJADC2:

- **Geo-Enrichment:** Adding geographic context to incoming mission data
- **Metadata Tagging:** Labeling each record with essential identifiers such as domain, source and classification
- **Routing Logic:** Automatically directing mission data to dashboards, AI models or storage layers based on different mission workflows

View the live demonstration

to see the Cloudera Data Science Workbench in action.



How does Cloudera analyze mission critical data, and how does it function?

Cloudera empowers warfighters through the Cloudera Data Science Workbench, providing a centralized environment for advanced AI and traditional machine learning. Within this platform, analysts can execute CJADC2-aligned workflows and perform critical data preparation—such as identifying outliers and cleaning datasets—to build models that detect hidden patterns or emerging risks. By streamlining these Python-based notebooks, Cloudera ensures that complex data science is both accessible and scalable for the modern battlefield.

Anchored in Cloudera’s reference architecture of “Ingest, Prepare, Publish,” this process demonstrates how enriched data flows directly into advanced analytics and visualization. This seamless end-to-end pipeline accelerates the OODA (Observe, Orient, Decide, Act) loop, enabling commanders to outpace the adversary through faster, more effective decision-making.

Summary

Defense agencies are increasingly adopting the Cloudera Government Solutions platform to modernize data management and provide the backbone for real-time, multi-domain operations. By integrating, securing and analyzing mission-critical data across every domain, the platform serves as a force multiplier for operational decision-making. Through Cloudera Flow Manager and Stream Messaging Manager, agencies achieve continuous real-time data monitoring, while the Commander’s Dashboard and Data Science Workbench transform that data into actionable, AI-driven insights. Together, these capabilities allow the Department of War to accelerate mission readiness and identify emerging threats with the speed and confidence required for the modern battlespace.

