



10 WAYS SNOWFLAKE ENABLES DECISION DOMINANCE FOR JADC2

As military technological advances from top adversaries have significantly increased over the years, the United States Department of Defense (DOD) has had to reevaluate its strategy toward military operations and the development of capabilities to enable a truly joint force.

Recently, the DOD asked the technology industry to assist in concept development for Joint All-Domain Command and Control (JADC2). This concept is designed to enable data sharing among all military services—Air Force, Army, Marine Corps, Navy, and Space Force—on a single platform, enhancing their interoperability to unprecedented levels. Traditionally, each of the military services developed its own systems that were often incompatible with those of the other services. For instance, an Army combat vehicle could not share situational awareness data with a Navy aircraft fighting in the same battlespace. This severely limited the ability to generate a holistic common operational picture (COP) across the military services.

DOD leadership predicts that future conflicts will require decisions to be made in minutes or seconds, compared to the current operating environment in which decisions can often take days. In the future operating environment, access to clean data and information is paramount. To challenge peer adversaries, a data-centric and multi-domain approach is a must. The concept brought forward by JADC2 will provide commanders with simultaneous access to battlespace data, continuous collaboration across all domains, and streamlined decision-making.

REQUIREMENTS OF JADC2

Military commanders must make high-stakes decisions at the speed of mission—decisions that impact the actions and safety of U.S. troops. The speed and effectiveness of the decision-making process is at the core of JADC2. To achieve decision dominance—making the right decisions faster than adversaries—DOD leaders need timely, actionable, and reliable data from a unified platform.

A foundational element of the JADC2 strategy is the development and modernization of data applications and data platforms that enable access to all relevant data at the speed of operations. A modern, connected system of sensors, platforms, and data must provide the following:

- 1 A **single source of truth** for all data sources that updates in real time
- 2 **Simultaneous access to data sets** without resource contention
- 3 Ability to **access data globally**, regardless of where the data resides

- 4 Ability to **securely share data across the joint force**, regardless of the domain
- 5 Ingestion of data streams from across the force that inform the COP, train machine learning models relied upon by autonomous systems, and provide data-driven mission applications with **real-time data feeds**

The Snowflake Data Cloud is an enterprise data platform composed of two components:

- 1 **Platform.** Snowflake is a market-leading cloud data management platform that powers the Data Cloud and features a unique architectural design that connects your data to the mission at practically any scale.
- 2 **Content.** Relevant and valuable content that populates the Data Cloud can be mobilized to impact the mission. The Data Cloud can connect the nation's military to partners and content, regardless of the expanding intelligence, accelerating decisions, and increasing collaboration.

HOW SNOWFLAKE ENABLES DECISION DOMINANCE FOR JADC2

Snowflake's multi-cloud, multi-cluster, shared data architecture provides the scale, performance, elasticity, and concurrency today's military requires for multi-domain operations, and Snowflake's software-as-a-service model eliminates the complexity that exists in both open-source and legacy systems alike. Removing obstacles associated with technology adoption should not be a concern for military leaders. These leaders should simply have the data they need to make decisions, and the enabling technology *should just work*.

Here's how Snowflake's features meet the requirements of JADC2 and enable better, faster decision-making:

- 1 Flexibility:** The Snowflake platform is delivered as a fully managed software service (or "software as a service"). Customers have the freedom to choose their preferred cloud service provider, including Amazon Web Services (AWS), Google Cloud Platform (GCP), and Microsoft Azure. Snowflake's unique multi-cluster, shared data architecture provides even further deployment and data sharing flexibility by enabling cross-cloud, cross-region data sharing. This unique and differentiated capability provides the warfighter with the data they need, when they need it, without the concern of technical details. Geospatial data from the Intelligence Community can be shared with Special Forces for immediate action, regardless of the underlying cloud service provider serving its Snowflake accounts. The Air Force, despite not having a Snowflake account, can receive a curated data set from Special Forces, enabling its decision-making process at machine speed, using a no-cost Snowflake reader account.
- 2 Scalability:** The scalability of the Snowflake Data Cloud enables near-unlimited storage of structured, semi-structured, and unstructured data (support in public preview), including sensors, satellites, imagery, and military IoT.
- 3 Availability:** Building a unified, joint battle system for data sets across the military will require a tremendous amount of compute and storage resources. With Snowflake, data workloads have dedicated resources available on demand; ready when needed, and no cost when idle. Snowflake's multi-cluster, shared data architecture provides mission owners with its own clusters, isolated from all others, to meet peak demand needs.
- 4 Speed:** In today's contested environment, military forces need to move rapidly to ensure advantage over adversaries. Sensors give military forces the ability to see, hear, and understand their environment, but the systems ingesting this sensor data were not developed to be interoperable. This creates bottlenecks in a Joint battle scenario. A ground sensor, for example, may produce intelligence that is significant for nearby aircraft, but without interoperability across the platforms ingesting this data, the intelligence may lose relevance by the time it reaches the aircraft. Snowflake loads continuously generated sensor data for up-to-the-minute analysis, regardless of the source or type of data, and can securely share live data feeds. This capability automates data capture, load, and share processes with a cloud-agnostic platform, allowing decisions to be made at the speed of relevance.
- 5 Data Sharing:** The scenario of cross-agency, all-domain data sharing is a requirement of JADC2, and requires the scale and performance of the public cloud. Traditional applications and data architectures are too complex, too slow, and too costly to enable Joint command and control across all domains. Snowflake provides mission owners with access to live, authoritative data regardless of the organization that is the data steward for that specific data set. These live data feeds can be shared in real time—generally without moving or copying the data—across the military services, and with external mission partners (for example, Intelligence agencies and allies). In addition, Snowflake makes it easy to push data to the tactical edge so warfighter support elements get the right data from high echelons, effectively allowing for better battlespace decision-making.

- 6 **Accessibility:** Snowflake's Data Cloud allows access to the same data cross-cloud or cross-region, which is in alignment with the DOD Joint Warfighter Cloud Capability (JWCC) contract providing access to cloud services for our military. This allows all of the necessary parties to access relevant data, whether they are in the military services, on the tactical edge, or mission partners.
- 7 **Predictive Analytics:** Post-operation, relevant battlespace telemetry, sensor, and awareness data can be fed into Snowflake for further analytics. With predictive analysis, simulations, and other advanced analytics, and near-unlimited scale and performance for these compute and storage intensive workloads, operations can be re-created and analyzed in preparation for future missions.
- 8 **Advanced Analytics:** Legacy systems do not provide the guardrails that speed the adoption of emerging technologies such as machine learning and artificial intelligence, which can provide advanced analytics to speed and automate processes. Snowflake can assist in the development of artificial intelligence and machine learning by continuously updating modules with relevant mission data.
- 9 **Third-Party Data Insights:** Snowflake provides customers with the unique ability to share a curated subset of data with partner organizations without the data ever leaving its original location. This data sharing capability is at the heart of the Data Cloud. Organizations can combine their own data with Snowflake Data Marketplace data sets, provided by a global network of partners, including historical weather, demographic, transportation, geographic, and cybersecurity data, for better situational awareness and operational understanding.
- 10 **Security:** All data shared across Snowflake accounts is encrypted by default, with the controls and security necessary for the nation's most sensitive data.

CONCLUSION

Snowflake enables the U.S. military to have necessary data at its fingertips to achieve decision dominance in its operations. Snowflake can help the DOD meet the JADC2's goals of making all data widely discoverable, accessible, understandable, and usable across the battlespace to enable better, quicker decision-making. Military services and their partners can collaborate at the data level so that everyone has a unified, holistic COP for planning and executing in all military situations. All of this can be achieved at a cost-effective price point.

ABOUT SNOWFLAKE

Snowflake delivers the Data Cloud—a global network where thousands of organizations mobilize data with near-unlimited scale, concurrency, and performance. Inside the Data Cloud, organizations unite their siloed data, easily discover and securely share governed data, and execute diverse analytic workloads. Wherever data or users live, Snowflake delivers a single and seamless experience across multiple public clouds. Snowflake’s platform is the engine that powers and provides access to the Data Cloud, creating a solution for data warehousing, data lakes, data engineering, data science, data application development, and data sharing. Join Snowflake customers, partners, and data providers already taking their businesses to new frontiers in the Data Cloud. snowflake.com/federal



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