elastic

Search. Observe. Protect.

Achieving the DoD Data Strategy with real-time, multi-domain search

Battlefield decisions are made in an instant. Using the best available information, warfighters, commanders, and partners take actions that define the outcome of the mission. Incomplete or out-of-date information adds tremendous risk, but making use of all the necessary data — across all domains — has been challenging, to say the least.

In an era where data-driven capabilities will be the deciding factor in future conflicts, the focus on how, when, and where information can be shared is pivotal to national security. This is the struggle across the Department of Defense (DoD), risking inflexibility and an inability to pivot based on mission requirements.

The DoD Data Strategy aims to remedy this situation by ensuring that trusted information gets to the right destinations at the right time. Not only will this greatly improve battlefield situational awareness, it's essential to everything from logistics and MRO to strategic decisions that impact readiness.

To put comprehensive, real-time information firmly at the center of decision making and operations, a number of steps need to be taken. In its problem statement, the DoD Data Strategy refers to key obstacles that must be overcome: enterprise data management, interoperability, operating at machine speed across all domains, and the need for data expertise.

Military branches are making strides towards addressing the need for data access within each service, while the Joint All-Domain Command and Control (JADC2) concept is driving interoperability across DoD services. Still, the fundamental principles of information sharing must be achieved — and can be, using technology and capabilities available today.

By democratizing data through real-time search, Elastic can equip users from frontline operators to the top echelons of leadership to make faster, fully informed decisions.

Empowering warfighters. Linking services.

The DoD, much like any compartmentalized organization with a global reach and purview, generates and captures an inordinate amount of data daily. But uncategorized data is merely bits and bytes; how it is aggregated, analyzed, and delivered is crucial to feed useful, actionable information to the people and systems that depend on it.

A huge hurdle to making data useful stems from where it resides. Each branch of service maintains its own processes, policies, and mechanisms for storing and accessing data, which can't interact across domains. Even within services, legacy systems and geographically dispersed data centers make sharing and utilizing data difficult, if not impossible.

This lack of standardization across services is a barrier to a basic tenet of the DoD Data Strategy: the need for "enterprise data management to ensure that trusted, critical data is widely available" — securely and in real-time — to those who need it. With the huge stores of data across the DoD, as well as the barriers to interoperability that are also called out in the Data Strategy, finding and delivering complete information in time to make a difference is akin to looking for a needle in a stack of needles.

This is the exact rationale behind Elastic's approach to data: real-time results that drive fully informed decisions and processes, no matter where the data resides. The Elastic Stack indexes data as it is captured, so search results are generated in seconds instead of hours.

Search underpins actionable results

For many people, the term "search" brings up images of web searches, where queries are answered with links to data sources. That's one aspect of search, but consider this: the ability to redraw a map as you drag it across a screen, update ETAs based on constantly changing weather and terrain information, or analyze the source of cyber attacks as they occur are all dependent on real-time search results.

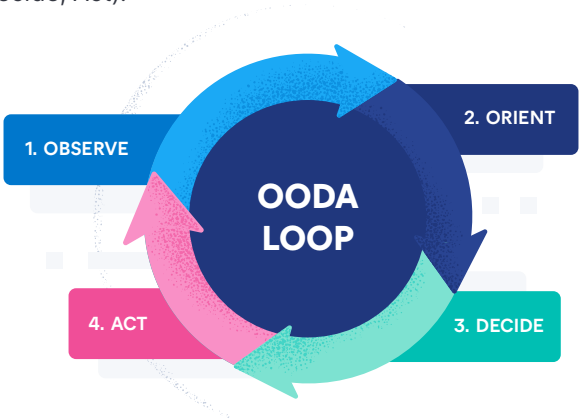
The value of data is directly related to the ability to understand and apply it at the right place and time; in a conflict, data that arrives too late is useless. Access to relevant information has to occur near-instantly to ensure the safety of troops and the success of the mission, and Elastic's solution is designed to do just that — enabling a "speed layer" that delivers answers almost as quickly as the question is asked.

Closing the multi-domain data gap

The DoD Data Strategy recognizes a huge hurdle to delivering meaningful results for multi-domain operations. Proprietary systems and the aforementioned lack of consistent standards mean that decisions affecting joint missions and big picture strategies alike are often made without complete information. Interoperability, then, is crucial to bridging data sources across DoD to gain full understanding of situations and status.

The key to interoperability is standardization. DoD leaders have long recognized that standardization enables smarter, faster, more precise action.

Standardizing data formats and functions across the DoD would enable greater agility and responsiveness by joint forces and partners, driven by the agility of data — the ability to access it, apply it, and derive value from it at the point and time of need — thereby speeding up the OODA loop (Observe, Orient, Decide, Act).



> **INTEROPERABILITY DRIVES JADC2**
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> Powered by data and supported by artificial intelligence and machine learning, JADC2 is a warfighter-centric solution that aims to overcome issues that emerged from each military service developing its own tactical networks. The program is designed to mesh sensors and shooters across all domains, commands, and services, empowering better, faster decision making and responsiveness at mission tempo.

Currently, sharing data requires significant effort or duplication of records and resources. Not only does this create issues of latency, but it also leads to concerns about version control and the bandwidth needed to move large databases, especially in austere or degraded environments.

Interoperability amplifies capability at machine speed

Interoperability is native to Elastic's core design. The free and open foundation of Elastic's solutions means that data can be searched, analyzed, and presented without the restrictions of proprietary

solutions, freeing data to flow wherever and as needed. This achieves the Data Strategy's goal of ensuring all allied forces, in a low-side, high-side or Delayed/Disconnected, Intermittently-Connected, Low-Bandwidth (DIL) environment, can easily access both their own data and interconnected resources to extract relevant information.

In addition, consistent data formats, achieved via Elastic's open source schema, mean there's no need to replace legacy systems that are still vital to mission operations.

The Elastic Stack is built to manage and search data wherever it resides, creating a single source of truth for joint operations. Data can be collected and indexed as close to the source as possible; rather than bringing the data to the question, users take the question to the data. In doing so, Elastic helps realize another goal of the DoD Data Strategy: operating at machine speed. Searching data where it resides removes layers of complexity and latency. This enables actionable intelligence to be delivered — and decisions to be made — exponentially faster than is currently possible.

Engaging data expertise

Another core challenge that must be addressed is the skills gap. To truly take advantage of the knowledge hidden in the vast stores of data across the DoD, the services must recruit, train, and enable data experts. This means onboarding data scientists throughout the enterprise, but it also means developing the data-related skills already in use by the workforce, allowing leaders to level up junior personnel.

The Elastic Stack is already in use in many commands throughout the DoD — a level of expertise that can be tapped to deliver faster results from multi-domain and multi-domain data. Elastic's global community of users, over 200,000 strong, is a potential source for expert capabilities, which can quickly energize the level of innovation needed.

At the same time, applications displaying the data gleaned through enterprise search can allow more junior operators to easily understand the results and take action quickly. This gives them the ability to develop data skills while providing immediate value to the mission.

Data as a strategic asset

The benefits of comprehensive, up-to-the-second answers to mission-critical questions are many: fostering greater situational awareness and rapid responses, improving the services' cybersecurity posture, supporting faster technology development via DevSecOps, and enabling new concepts for warfighting, including JADC2.

Achieving the goals of the DoD Data Strategy isn't an issue of data. It's an issue of knowledge. And turning data into actionable intelligence is the job of search.

Real-time results powered by search enable us to defend better, defend more quickly, and prevail over adversaries. Accessed and applied from wherever it resides, data becomes a force multiplier — delivering speed, agility, and actionable intelligence for all warfighters.

CAN SECURITY AND REAL-TIME ACCESS COEXIST?

Ensuring instant access to all necessary information across all domains would, on the surface, appear to introduce security challenges. In addition to security measures in place at each data source, it's essential to effectively prevent corruption and exfiltration while allowing multi-domain access.

Is this achievable? It is with a Zero Trust architecture that ensures only people or systems with a defined, authorized need and the proper authentication are allowed access to specific resources and data assets.

Elastic can enforce access controls based on user roles or detailed attributes that enforce policies based on users, resources, and environment. The Elastic Stack can also monitor data from intake through delivery, observing activity and events infrastructure-wide. Not only does this enable faster responses to suspicious activity, but it also ensures the DoD's most strategic asset — information — is secure and available.

