

JADC2: Trusted, reliable, timely

Innovation that provides warfighter information and decision dominance

Enterprise integration

Experience a hybrid integration platform that provides container-based integration and API management capabilities, with native support for microservices-based solution design. Includes all modern agile integration requirements with rich numbers of connectors/adaptor, mediation/orchestration, data transformation, enterprise integration patterns and includes an integration developer toolset to use captured telemetry data or leverage the insights and information already produced by existing AI/ML workloads.

Data management and analytics

Employ a layer of deep analysis and artificial intelligence by receiving an asynchronous stream of compressed data produced by edge nodes and provide a mechanism for the system to become smarter over time with capabilities such as predictive analytics and auto-remediation. This analysis and output can be produced locally near the edge nodes or centrally against datasets that are gathered and curated from all edge nodes.

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Achieving unity of command and unity of effort

Combatant commanders must rely on a comprehensive set of digital capabilities that use decision-quality data to support the warfighter with trusted access to reliable and timely information. Therefore, the development and implementation of the Joint All-Domain Command and Control (JADC2) system prioritizes transforming voluminous amounts of data with varying levels of quality into actionable information leading to accelerated decisions.

Decision dominance is underpinned by architectural and operational decisions that create the foundation for multi-domain operations (MDO). The JADC2 construct requires organization-wide Department of Defense (DoD) information collection, analysis, and correlation of the “data enterprise” that generates actionable knowledge—a key enabler and catalyst in providing the warfighter an on-demand operational capability. Currently, DoD mission partners operate and maintain highly sophisticated, globally distributed environments that are often cumbersome and isolated. Cross-domain data ingress and egress, particularly during real-world events, further highlight these complex challenges.

Accelerating the transformation of raw data into actionable intelligence will equip Joint Forces to make timely and confident decisions concerning warfighter operations. The contents of the command and control (C2) systems, often just raw data, attempts to support decision-making. However, often operators and commanders struggle to find the information they need to make sound decisions. Valuable data is frequently trapped in organizational silos, inconsistently described and named, missing critical pieces of information, and frequently out of date. Also, sharing data across applications—despite the apparent benefits—introduces more uncertainty as these data problems multiply.

For Joint Force C2 functions to achieve decision dominance in all-domain operations, the implementation strategy requires a blend of planning guidance, industry advancements, and modernized technologies that use and combine existing data and infuse new data assets while adapting commercial solutions to military-specific requirements.

Those requirements, driven by lines of effort (LOE), will need to mandate that applications and data that will play critical roles in the ability to improve Joint Force C2, while also enabling commanders to “sense, make sense, and act,” will be re-composable and based on modern applications built using microservices. Also, given real-time access to data, the warfighter will need to overmatch the adversary in the globally distributed MDO world of modern warfare.

Modernizing the technical enterprise

Red Hat, the world’s enterprise open source leader, unlocks open source innovation in the complexity and scale of Joint Force warfighting domains.

Red Hat’s approach to a software-defined network (SDN) architecture provides the backbone for a security-focused and converged joint all-domain digital infrastructure solution. The solution includes data collection, integration, analysis, and syndication. The goal is to provide the warfighters

Re-composable capabilities

Get modular, interoperable warfighting capabilities that can be rapidly assembled or recomposed into novel kill-chains/kill-webs, providing the agility and flexibility to combat unpredictable adversarial strategies and capabilities.

Red Hat® OpenShift®

is a complete DevSecOps ecosystem that provides enterprise application container orchestration, with all the tools developers need to iterate quickly and efficiently, as well as the capability for operations engineers to have granular control and visibility of all deployed artifacts within each domain.

Red Hat Integration

provides a lightweight framework that is both cloud-native and edge-deployment-ready to integrate existing systems and to create and manage APIs.

Open Data Hub

offers a curated suite of widely championed, open source solutions in data in motion, storage, metadata management, data analysis, AI/ML, security, governance, monitoring, and orchestration. It carries everything you need to bring sensor data into an immersive data and AI platform.

and commanders with a single collaborative environment to access geospatial data combined with the latest analytic models and tools. Further, this solution encompasses the key tenants for mission priorities of security, latency, and speed across all topologies, end-to-end. This approach provides a rich transport, communication, and integration layer for success. The collaborative environment and analytic tools help the warfighter interact with data in a single common operating picture (COP) / common intelligence picture (CIP).

Artificial intelligence and machine learning (AI/ML) are strategic tools; however, today's AI/ML systems are far more dynamic and must be regularly updated, modified, and adjusted to maximize the accuracy and value of the insights they deliver. Thus, AI/ML tooling should be focused on containerization, data management, and configurable deployments. Red Hat's portfolio, combined with a powerful AI/ML platform, provides the flexibility and portability to use containerized AI/ML tools to quickly build, scale, reproduce, and share AI/ML results consistently with a joint community of interest (COI).

Additionally, a key differentiator of Red Hat technology is flexible messaging architectures to achieve near-real-time situational awareness. A robust messaging infrastructure will allow a rich and performant data exchange among all nodes in the JADC2 domains offering tremendous capability to process enormous volumes of data at speed. With Red Hat, you can bridge data between disparate systems with the ability to transform and enrich data at the edge of the network.

Shorten decision-making cycles

Our solution takes advantage of new and existing sensor data to form an edge-computing fabric, wherein initial data analysis and complex event processing occur at the edge of the network—in parallel to the sensors themselves. This also carries the benefit of real-time situational awareness, delivering sub-second results on data collected at the edge, allowing time-critical and dynamic mission processes to be changed quickly while processes are still in progress. This offers an alternative to the lag time required by systems that must amass collected data at a central data warehouse before any processing can occur.

Red Hat unifies components of the distributed JADC2 architecture providing the tools and capability to have granular control and visibility of deployed artifacts within each domain. This allows warfighters to deliver change from the initial idea, through the innovation, and to production as quickly as possible.

Together, the dynamic automation of integrated tools and automated data processing can provide combat forces with the global shared information and awareness they need to maintain C2 of their combined terrain in real time. The foundation for this comprehensive capability requires taking advantage of AI, data science, and emerging technologies. By adopting these technology enhancements, modern Red Hat capabilities can provide warfighters access to data while managing critical information and applications wherever and whenever needed.

Data-centric collaboration, speed, agility, and flexibility

Red Hat offers the DoD a low-risk, highly capable technology stack to support the strategic outcomes of information and decision advantage to meet the critical and timely challenges described in the recently released JADC2 Strategy.¹

¹ "Summary of the Joint All-Domain Command & Control (JADC2) Strategy." U.S. Department of Defense, March 2022.

Red Hat Ansible® Automation Platform

provides an enterprise framework for building and operating IT automation at scale.

Red Hat offers a partnership to bring world-class open source products and solutions, extensive DevSecOps expertise, industry-leading automation technology, a hybrid cloud strategy, and extensive technology training to the combined Joint Forces team. Our team reduces risk by making open source software usable for the enterprise with a dedicated Product Security team that monitors, identifies, and addresses vulnerabilities quickly. Additionally, we invest in strict engineering requirements to certify products to meet stringent government and commercial security standards such as Common Criteria, Security Technical Implementation Guides (STIGs), and Federal Information Processing Standards (FIPS).

Red Hat stands ready to help transform and operationalize the JADC2 vision and support the integration of fused data sources, develop analytics, and deliver security-focused data and interoperability standards—at scale—as identified and prioritized by the JADC2 cross-functional team (CFT).

Learn more

about how the defense agencies use Red Hat to achieve their mission objectives on our Department of Defense website at www.redhat.com/dod.



About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with [award-winning](#) support, training, and consulting services.

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