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Cyberspace Operations in Multi-Domain Operations

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Abstract:

In the landscape of the modern warfighter, data is a strategic asset. Data drives decisions and decisions drive outcomes. Access to data at the tactical edge for the warfighter and at the strategic level for decision-makers is imperative, and it is this integration of multi-domain operations that is essential for maintaining superiority in modern warfare, where the convergence of cyber and physical domains is increasingly critical. The Elastic Search AI Platform can ingest, store, and analyze petabyte-scale data from virtually any source, and is fully deployable in disrupted, disconnected, intermittent, and low-bandwidth (DDIL) environments. At the tactical edge, Elastic's real-time analytics, integrated AI/ML capabilities, and scalable architecture enable rapid and informed decision-making, ensuring operational effectiveness and resilience no matter the domain. In the broader multi-domain context, Elastic's cross-cluster search (CCS) capability enables the Army to establish a true global data mesh. By bringing the question to the data and eliminating the need for data backhaul, data remains at the tactical edge while enabling decision-making at higher echelons. The Army is already standardizing on the Elastic Search AI Platform for its Unified SIEM (U-SIEM) initiatives, and the platform is well-suited to meet the aim of Unified Network Operations (UNO) to reduce operational complexity through machine learning and artificial intelligence. Benefits of the Elastic Search AI Platform at the tactical edge include:

* Real-Time Data Aggregation and Analysis: Ingest, search, and analyze large volumes of data from various sources quickly.

* Monitoring and Alerts: Real-time monitoring with customizable alerts for rapid threat detection and response.

* Machine Learning: Support for a wide range of out-of-the-box machine learning models for anomaly detection, outlier detection, natural language processing, pattern analysis, classification, and vector search, as well as support for many more 3rd-party machine learning models for more specific use cases.

* Scalability and Flexibility: Fully deployable at scale in DDIL environments.

* Visualization and Dashboards: Out-of-the-box dashboards and intuitive self-service dashboard creation for real-time data visualization, aiding decision-making.

* System Integration: Seamless integration with many existing Army systems, ensuring comprehensive situational awareness.

* Data Mesh: Cross-cluster search eliminates the need for data backhaul and brings the question to the data, enabling decision-making across multiple domains.