Moving Towards an Effective Joint Information Environment (JIE)

Juniper Technologies Stand Ready to Enable Military and Intelligence Customers to Meet Global Missions
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Executive Summary
The U.S. Department of Defense (DoD) is focused on trusted information sharing and decision support tools for streamlining its global operations. To support this objective, DoD is in the process of implementing a unified command, control, communications, and computing (C4) environment to enable trusted, flexible, and cross-boundary information sharing for all DOD organizations. Known as the Joint Information Environment (JIE), this multiyear, department-wide initiative is tasked with connecting global commands with military leadership under a common set of enterprise services and capabilities. Among the core services are enterprise e-mail and Internet/Web access, as well as provisions for cloud computing and common software applications.

JIE is comprised of enterprise services and capabilities based on open standards-based network architectures that enable robust cloud applications, storage, and simplified data center infrastructures. Juniper Networks technology supports JIE with comprehensive network and data center security, access control, and hosted computing infrastructures, available as certified products on the DoD Approved Products List (APL).

Introduction
With the size and complexity of the JIE, the Defense Information Systems Agency (DISA) has been tasked with coordinating its implementation, with joint governance by the military departments and DoD leadership. The first phase is well underway, with regional data centers closing and DoD moving toward an end state environment that provides trusted, interoperable, cloud-based computing to deliver the services and information needed by warfighters and command staff—wherever they may be. Based on a federated trust model and fortified identity management system, DoD personnel will be able to collect, share, analyze, and act on timely and valuable information, whatever the circumstances.

What We’re About: Mission Assurance
Providing access to information on any device, at any time, under all conditions, wherever the warfighter needs it.
The Joint Information Environment Infrastructure

The JIE infrastructure will include regional operations centers, consolidated data repositories, and hosted services and applications designed to support secure mobile operations. Of particular importance is the JIE vision for an open standards-based network architecture that will support not only streamlining and flattening of data center architectures, but also enable an environment that leverages software-defined networking (SDN) in the future.

Relying on an open standards-based network architecture that is vendor-agnostic, the JIE’s overarching framework is designed to support DoD common goals for data center consolidation, aggregation of services, broad use of virtualization technologies, and cloud-enabled applications. The JIE strategy is intended to provide department-wide capabilities to facilitate consistent, manageable, cost-effective, and responsive cybersecurity operations.

Major Components of JIE

- Network Normalization Transport (NNT)
- Single Security Architecture
- Enterprise Operations (GEOC/EOC)
- Data Center Consolidation
- Identity and Access Management (IdAM)
- Enterprise Services
- Mobility
- Gateways
- Governance

The Benefits of JIE

Why are these important and distinguishing characteristics of JIE? This new operations framework will allow DoD professionals—from the soldier to the most senior leader—to respond to dynamic requirements as they develop around the world. By phasing out legacy hardware and maintenance-intensive networks, the JIE’s unified capabilities will deliver greater flexibility to implement policy changes and protect valuable information assets for:

- Enhanced mission effectiveness
- Increased security
- Improved IT efficiencies

DoD is planning for enterprise transformation that will match resources to missions, and accordingly, align information technology infrastructure with the Department’s enterprise and top priority objectives. As part of the Secretary of Defense’s program for institutional reform, senior leaders are questioning past assumptions, calling for new approaches to maintain military readiness, and ensuring that the U.S. defense capabilities maintain a decisive technological edge characterized by fortified cyber operations.

To this end, the JIE will focus on enabling military organizations to deploy a consistent IT architecture that leverages commercial-off-the-shelf (COTS) products, maximizes open standards-based networks, reduces CapEx and OpEx, emphasizes resilient network security, and avoids single vendor lock-in. Most importantly, by developing and implementing consistent technical capabilities on an unprecedented scale, DoD organizations will benefit from the agility and scalability of secure hosted solutions and dynamic enterprise management.
MPLS and Open Standards

One foundational component of the JIE will be an MPLS methodology that supports streamlined communications within the Continental United States (CONUS) network. Already in use in a number of defense networks, DoD planners envision MPLS as a critical way to align the until-now independent service branches with the JIE, to conserve ever needed bandwidth, and to facilitate hosted computing environments and trusted data sharing across department operations.

Implementation and management experience with previous innovative networks, including those deployed for Joint and Coalition Warfighting (JCW) and the Joint Training and Experimentation Network (JTEN), demonstrate how leveraged MPLS and other standards can and will be used to create joint service solutions that are open and extensible. This network architecture is designed to allow the JIE to evolve and adapt to ever-changing network capabilities and global information management requirements.

This DoD-wide effort toward the JIE will:

- Realign, restructure, modernize how IT (NIPRnet and SIPRnet) networks and systems are constructed, operated, and defined
- Consolidate and standardize the design and architecture of the Department’s networks
- Change cyber security tactics, techniques and procedures

Conclusion—Why Juniper as a JIE Partner

As the DOD seeks to connect and evolve from previous architectures, Juniper Networks is poised to support the Joint Information Environment by facilitating efforts to consolidate data centers and networks, expand virtualized environments, and ensure data and operational integrity. In its continuing role as a trusted DoD partner, Juniper will continue to deliver reliable, standards-based technology to enable:

- Virtual security for data center and hosted computing infrastructures
- On-demand scalability and agility for cloud-based environments
- Network access control (NAC) with host-based endpoint validation
- Comprehensive network and data center security for resilient, real-time computing environments
- Secure DoD-approved UAC solution

Juniper is recognized as a premiere innovator and leader in data center, cloud, and enterprise services, and has a proven track record for delivering secure network operations to global military and intelligence organizations. To support the demand of mission-critical government networks, Juniper products are offered as part of the U.S. Department of Defense (DoD) Approved Product List (APL) and are certified to meet Common Criteria and Federal Information Processing Standards (FIPS) requirements.

With this experience, technical foundation, and willingness to innovate, Juniper is positioned to apply its collective skills and technologies to help military and intelligence customers control and adapt their network environments to meet dynamic and global missions with flexible, trusted, and unified capabilities from headquarters to austere operating environments.
For more detailed information on technologies that directly support JIE, visit:

- MPLS
- Virtualization
- Data center consolidation, management, automations Tools
- SDN and government opportunities
- Cloud network management tools—big data, analytics, identity, threats
- Security—Juniper Networks® Firefly Suite
- Juniper Networks SRX Series Services Gateways
- Unified Access Control (UAC)

Technical professionals are available to help your organization make a smooth transition to JIE and leverage the benefits of this evolving architecture. Connect with Juniper Networks at www.juniper.net. Call 1-866-308-5692, option 3, or send your inquiry by e-mail to DoD-JIE@juniper.net.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.