Lockheed Martin, Juniper Networks Demonstrate Mission-Aware Routing Technology For Department Of Defense

5G.MIL® technology demonstrates resiliency, delivers optimized information at the edge

The Big Picture

In an industry first, Lockheed Martin and Juniper Networks successfully demonstrated mission-aware routing technology that will streamline and prioritize the flow of critical information from contested, remote environments to commanders stationed around the globe by connecting Lockheed Martin and Juniper products to create a hybrid software-defined wide-area network (SD-WAN) solution.

The companies demonstrated two key advances in technology that can provide critical applications for the Department of Defense (DOD):

- The mission-aware routing technology optimizes data flow to ensure commanders receive more important information first, securely and in real-time with 5G.MIL connectivity. The information is prioritized based on data content, information exchange requirements and mission phase priorities. It is delivered over available data links in a heterogeneous “network of networks,” including tactical links.
- The technology demonstrated it could withstand the connectivity challenges inherent to military environments. In the lab environment, the companies cut off primary communication channels, and the solution successfully rerouted the information through secondary links, verifying its resiliency in the face of jamming or other adverse conditions.

Strategic Perspectives

Dan Rice, vice president of 5G.MIL Programs at Lockheed Martin:

“In the face of 21st Century Security challenges, military commanders need access to the most critical information and to trust that it’s going to be delivered securely and on time, no matter the circumstances. By combining our secure 5G.MIL® technologies with Juniper’s industry-leading SD-WAN solution and routing capabilities, Lockheed Martin is delivering resilient, intelligent communications that keep our customers ahead of evolving threats.”

Greg Bourdelais, area leader, Federal Sector at Juniper Networks:

“Sending and receiving secure mission-critical information in real time is paramount for the military to achieve positive mission outcomes. We are proud to partner with Lockheed Martin to empower military leaders with industry-first AI-driven networking capabilities and communications that remain connected across a variety of

challenging environments experienced by the military around the world."

Additional Information

The companies integrated software into operational lab hardware that connected military platforms across domains, representing military bases, ground vehicles, crewed and uncrewed aircraft, and ships. The information collected by each of these assets was monitored and collected by Lockheed Martin's Dynamic Data Link Manager (DDLM) and passed to Juniper® Session Smart™ Routing (SSR) driven by Mist AITM to determine the optimal routing priority and channel based on pre-existing policy requirements. Then using secure 5G.MIL distributed open system gateway connectivity, the prioritized data was delivered to commanders to support prompt and well-informed decision-making. If the primary route for delivery was unavailable or degraded, the technology delivered the information through alternate routes.

Connecting the DDLM and the SSR created a hybrid software-defined wide-area network (SD-WAN) solution. The hybrid SD-WAN solution connects disparate tactical nodes and networks to form a decentralized, heterogenous network of networks with secure 5G and military data link connectivity.

In addition to mission-aware routing technology, Lockheed Martin and Juniper are actively collaborating to enhance RAN Intelligent Controller (RIC) functionality. RIC functionality improves the performance of radio access networks, a key component of secure 5G connectivity. These enhancements will enable 5G.MIL capabilities to optimize communication performance and provide additional radio frequency analytics. Coupled with mission-aware routing technology, these 5G.MIL capabilities will meet a variety of mission communication needs.

Lockheed Martin and Juniper Networks established a collaboration memorandum of understanding in 2022 to develop integrated hybrid SD-WAN solutions, enhanced RIC solutions, and customer demonstration objectives.

What's Next?

Future demonstrations between Lockheed Martin and Juniper are expected to expand hybrid SD-WAN experimentation from the lab to field exercises with additional network nodes.

For additional information, visit www.lockheedmartin.com/5G.

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About Lockheed Martin
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