



CASE STUDY: DEPARTMENT OF ENERGY

CHALLENGE

Department of Energy (DOE) faced increasing demand for higher bandwidth, resiliency, and long-term scalability across its optical transport infrastructure. Existing architectures were constrained by legacy designs, limited wavelength utilization, and operational complexity, making it difficult to efficiently support growing data movement requirements, emerging research workloads, and future encryption needs—while also maintaining strict security and reliability expectations.

SOLUTION

DOE partnered with Copper River and Nokia Federal to evaluate and implement a modernized optical transport approach focused on simplicity, flexibility, and lifecycle longevity. The solution emphasized clean architectural design, minimizing unnecessary configuration, and leveraging wavelength separation to enable scalable growth. The approach was deliberately phased to allow coexistence with existing infrastructure while reducing operational risk and enabling gradual migration.

RESULTS

The resulting transport architecture delivered improved bandwidth availability, greater operational clarity, and a scalable foundation capable of supporting future capacity and security enhancements. Sandia gained increased confidence in its ability to evolve the network without disruptive overhauls, while positioning the infrastructure for decades-long fiber utility, improved fault isolation, and more efficient operational workflows.

TECHNOLOGIES USED

The solution leveraged Nokia Federal optical transport technologies, including DWDM-based wavelength separation, modular optical components, and standards-based interfaces. The design supports both current and future encryption methods, flexible service provisioning, and multi-vendor interoperability, ensuring long-term adaptability and alignment with Sandia's evolving mission requirements.

COPPER RIVER DATA SOLUTIONS AT A GLANCE



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