



CASE STUDY: HARFORD COUNTY PUBLIC SCHOOLS – DISTRICT-WIDE NETWORK & CORE INFRASTRUCTURE REFRESH

CHALLENGE Harford County Public Schools (HCPS) faced multiple infrastructure challenges across the district:



Aging network switches and cabling in classrooms and administrative offices were insufficient to support high-density environments and increased bandwidth requirements.



Outdated data center core switches limited throughput, reliability, and scalability, affecting critical administrative systems and campus-wide services.



Fragmented visibility and management across wired networks made troubleshooting time-consuming and reactive.



Increasing demand for secure, high-performance connectivity to support remote learning, cloud applications, IoT devices, and 1:1 student device initiatives.



Compliance and funding requirements through E-Rate, which incentivized the district to implement eligible high-speed, modern networking solutions.

SOLUTION Copper River IT partnered with HCPS to deliver a district-wide network refresh aligned with E-Rate eligible technologies, combining edge and core infrastructure upgrades:



Wired Network Refresh

- Deployment of Juniper/Mist switches across all schools to replace aging edge switches, providing high-speed, resilient wired connectivity for classrooms, labs, and administrative offices.
- Implementation of Mist Wired Assurance, delivering real-time AI-driven monitoring, proactive troubleshooting, and deep visibility into wired network performance.
- Network segmentation for student, staff, and administrative zones, ensuring security, performance optimization, and compliance with district policies.
- Phased deployment strategy to minimize disruption in classrooms and administrative operations.



Data Center/Core Refresh

- Deployment of Juniper EX9208 core switches in the district data center, replacing end-of-life core switches.
- High-capacity switching backbone for all schools and district services, providing up to 100GbE uplinks and high-throughput aggregation.
- Redundant configuration for high availability and zero single points of failure in the core network.
- Integration with existing firewall, storage, and data center services for seamless operation.



SOLUTION Continued.



E-Rate Alignment

- All edge network refresh components selected and deployed to meet E-Rate eligible funding criteria, ensuring compliance and maximizing district funding efficiency.
- Documentation and reporting provided by Copper River IT facilitated E-Rate submission, validation.

IMPLEMENTATION APPROACH

Copper River IT followed a structured, collaborative deployment process:



Assessment & Design

Comprehensive audit of wired and core infrastructure, capacity planning, and identification of E-Rate eligible technologies.



Pilot Deployment

Initial edge and core deployments in selected schools to validate configurations, performance, and Wired Assurance monitoring.



Phased Rollout

Sequential deployment across all schools and the data center, maintaining operations with minimal disruption.



Integration & Optimization

Fine-tuning VLANs, QoS, redundancy, and wired monitoring dashboards.



Training & Handoff

Copper River IT provided training for HCPS IT staff to manage Mist Wired Assurance dashboards, EX9200 core switch, and end-to-end troubleshooting.

RESULTS

- **Enhanced Performance & Reliability:** Juniper/Mist switches with Wired Assurance ensure low-latency, high-bandwidth connectivity for classrooms and administrative systems.
- **AI-Driven Proactive Management:** Wired Assurance provides visibility into the wired network, enabling IT staff to prevent downtime, quickly resolve issues, and optimize performance.
- **Data Center Resilience:** EX9200 core switches deliver scalable, high-throughput backbone connectivity with redundancy, supporting district-wide services and applications.
- **Future-Ready Network:** Scalable architecture supports additional devices, cloud adoption, and IoT expansion.
- **E-Rate Compliance & Funding Maximization:** Infrastructure was aligned to E-Rate eligibility, ensuring cost-effective modernization and reimbursements for the district.
- **Operational Efficiency:** Centralized management reduced troubleshooting times and administrative overhead for IT staff.

TECHNOLOGIES USED

- Juniper/Mist Edge Switches (Wired Assurance enabled)
- Juniper EX9200 Core Switch

