



ATTO

Orchestrating Smarter, More Efficient Data Management Practices in Data Security & IT Asset Disposition (ITAD) with ATTO ExpressNVM™

Learn how a leading systems integrator created a next-generation NVMe erasure platform that processes drives at scale, boosting throughput while cutting down costs and eliminating unwanted complexity

ATTO ExpressNVM™ NVMe Switch Host Adapters

The Challenge

A leading systems integrator aimed to break the traditional data erasure appliance model by creating a next-generation solution specifically designed for today's hyperscale environments. The goal: build a high-density, secure NVMe erasure platform that could process 8 or 16 concurrent U.2 or M.2 PCIe NVMe drives—delivering aggressive sanitization at scale.

They faced a daunting obstacle: existing connectivity solutions were too limiting, too power-hungry, and lacked the hooks for customization to integrate into their advanced erasure cycles. They needed a platform that could scale and evolve, support hot-swapping, provide drive-level analytics, and remain within a confined chassis without compromising throughput, upgradability, and serviceability in the field. This solution had to keep pace with increasing data center workloads—without adding costs or complexity.

ATTO ExpressNVM™ Switch Host Adapters were chosen as the cornerstone of their NVMe erasure platform—and the impact was immediate.

KEY CHALLENGES

- **Connectivity Limitations:** Existing connectivity solutions are **too limiting** and **too power-hungry**.
- **Lack of Customization:** Solutions lack the necessary **hooks for customization** to integrate into their advanced erasure cycles.
- **Scalability & Flexibility:** They required a platform that could **scale and evolve**, support **hot-swapping**, provide **drive-level analytics**, and remain within a confined chassis without compromising throughput, upgradability, and serviceability in the field.
- **Maintaining Pace:** They needed a solution that could scale to keep pace with **increasing data center workloads**—without adding costs or complexity.

The Solution

ATTO ExpressNVM™ Switch Host Adapters were chosen as the cornerstone of their NVMe erasure platform—delivering immediate impact. By introducing ExpressNVM, the IT integrator was able to transform their vision into a next-generation NVMe erasure appliance. This solution provided a smarter approach to integrating robust data management practices by leveraging a dedicated hardware architecture

ATTO ExpressNVM enables them to:

- **Deliver Deterministic, Low-Latency Performance:** ATTO ExpressNVM features a **dedicated FPGA**, offering significant performance and architectural advantages over typical NVMe switch adapters. This provides **tight control over data paths, error-correction, and fault isolation** for deterministic, **ultra-low-latency performance** between the host and connected drives without overheads or delays.
- **Achieve Direct, Efficient Communication:** The HBAs deliver **native PCIe-to-NVMe drive support** and high-speed connectivity without **CPU bottlenecks**. This allows for **full bandwidth utilization** across all ports without the need for additional CPU resources.
- **Simplify Management and Hot-Plug Support:** The solution includes **automatic drive discovery, hot-plug support**, and drive management capabilities without requiring external software dependencies.
- **Enhance Real-Time Monitoring:** The architecture allows for **real-time performance and health monitoring** at the drive level, enabling the necessary drive-level analytics for secure erasure cycles.

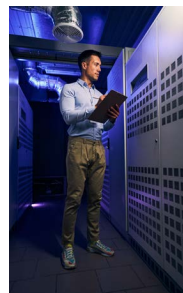


ExpressNVM™ Switch Host Adapters

Benefits

- **Improved Erasure Efficiency and Throughput**
The platform delivered the required aggressive sanitization at scale. By eliminating CPU bottlenecks and enabling full bandwidth utilization, the solution meets the demands of high-density, concurrent drive erasure processes.
- **Reduced Complexity and Cost**
The integration of a dedicated FPGA platform simplified the architecture and avoided the need for complex middleware or excessive power draw. This helps manufacturers avoid over-provisioning of resources and simplifies IT management without re-architecting their existing ecosystem
- **Better Visibility, Compliance, and Control**
Tight control over data paths and fault isolation, along with drive-level health monitoring, ensures the integrity and verifiability of the erasure process, which is non-negotiable in data security and ITAD.
- **Simplified Scalability and Serviceability**
Direct, native PCIe support and hot-plug capabilities ensure the platform can scale and evolve, supporting upgradability and easier serviceability in the field to keep pace with increasing data center workloads.

Unlocking Performance, Flexibility, and Value



In data centers, uptime is revenue, and data security is non-negotiable. ATTO ExpressNVM™ bridges the gap by effortlessly integrating high-speed NVMe drives into a simplified, yet highly specialized network age. It unlocks the performance, flexibility, and cost-efficiency needed for secure, high-volume ITAD operations.

Learn More:

<https://www.atto.com/products/smart-nvme-switch-host-adapters/>

For more Solutions:

www.atto.com/solutions

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