Western Digital.

Supercharge Your High-Performance Applications with Sharable Scale-Out NVMe™ Across the Network

Challenges

- Cloud-scale data centers are reaching the practical limits of DAS deployments
- Difficulty balancing flash storage to meet application SLAs while avoiding overprovisioning (under-utilization)
- Providing consistent, cost-effective and fast access to data – while allowing infrastructure flexibility – remains difficult to achieve

Highlights

- Existing applications can access pooled NVMe™ storage across a network at local speeds and latencies
- Enables 100% hyper-converged infrastructure by full logical disaggregation of storage and compute
- Shared storage enables customers to leverage NVMe at scale without having to change workflows

Solution

Together, Excelero and Western Digital help maximize the utilization of NVMe media and enable applications to enjoy the latency, throughput and IOPs of a local NVMe device with the convenience of centralized storage and the cost efficiency of shared storage.

The quest for zero-latency storage is real. In this era where technology is ubiquitous, the multitudinous latency-sensitive applications that surround us require fast and efficient processing of data at massive scale.

New-generation flash media, such as NVMe, are moving the bar by delivering single-digit μs (microseconds) latency. This is setting expectations for application developers, who now get much better performance from one local NVMe flash device than from an entire enterprise-grade all-flash array.

However, providing near-zero latency when sharing NVMe across the network is a challenge. This cannot be done with traditional controller-based architectures as those can only do low levels of IO processing before their bottleneck-design slows down, increases latency and eventually tops out.

Excelero Enables Scale-Out Shared NVMe Across the Network

Excelero NVMesh® enables shared NVMe across the network with support for local or distributed file system with low-latency (25 μs) distributed block storage for highperformance applications. The solution features an intelligent management layer that abstracts underlying hardware with CPU offload, creates logical volumes with redundancy, and provides centralized, intelligent management and monitoring.

Western Digital Amplifies Performance with OpenFlex™ Data24 NVMe-oF™ Storage Platform

The Western Digital OpenFlex Data24 NVMe-oF Storage Platform is designed to deliver high performance in demanding hyper-converged infrastructure (HCI) and scale-out software-defined storage environments. The OpenFlex Data24 provides the speed of NVMe SSDs in a 2U package, to deliver high density storage with extreme performance.

With Western Digital and Excelero together, applications can enjoy the latency, throughput and IOPs of a local NVMe device with the convenience of centralized storage to deliver up to 50% potential increase in storage performance for ethernet customers with a 50% latency reduction compared to iSCSI.

Flash technology has revolutionized the performance of storage systems; NVMe pushes flash storage to its full potential and NVMe-oF extends the high performance of NVMe flash to shared storage.

Use Cases

Accelerating AI Workflows by Eliminating Bottlenecks

GPUs have an amazing appetite for data, sometimes processing tens of gigabytes of data per second, often more than can be held in local storage. NVMesh enables customers to maximize the utilization of their GPUs leveraging the massive network connectivity of the GPU servers and the low-latency and high IOPs/BW benefits of NVMe in a distributed and linearly scalable architecture. Scalable, disaggregated NVMe storage enables AI applications to work on huge data sets and reduce training time from weeks to days.

Maximizing Efficiency for High-performance Databases

NVMe flash is a game changer for databases, delivering better performance, reduced latency and the need for fewer drives to achieve the concurrent performance levels required for their workloads. However, to enjoy the performance benefits of NVMe flash, the storage needs to be used by the application locally, in-server. NVMesh enables database providers to level out performance and capacity utilization across the entire infrastructure with shared NVMe storage.

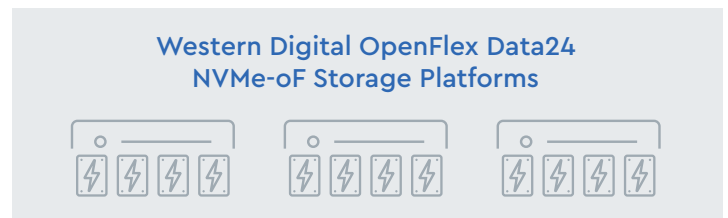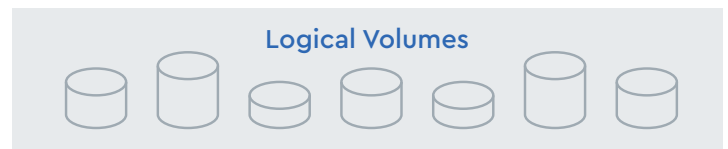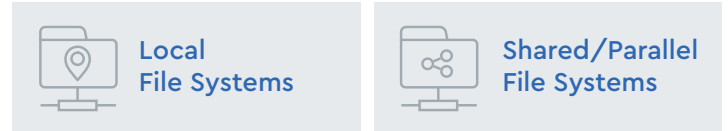## Faster and Better Results with Real-time Analytics

Top-performing financial companies make better business decisions when they have optimized infrastructures and applications to capture, store, and analyze more data faster. Analytics capabilities are heavily influenced by the volume of data that can be analyzed and the speed at which this can be done. Next-generation analytics essentially requires two fundamental changes: faster storage and more scalable architectures. NVMesh enables financial customers to deploy NVMe at massive scale to achieve millions of IOPS with the lowest latency.

Summary

Flash technology has revolutionized the performance of storage systems and NVMe extends flash storage to its full potential.

Western Digital's OpenFlex Data24 NVMe-oF Storage Platform maximizes the performance of NVMe by providing superior performance, parity- based data protection and improved storage efficiency. Excelero enables customers to maximize NVMe utilization (capacity, performance and endurance) across their infrastructure by providing a distributed block layer that allows unmodified applications to utilize pooled NVMe storage devices across the network at local speeds and latencies.

For more information on how the OpenFlex Data24 NVMe-oF Storage Platform and Excelero can turbo-charge applications with the latency, throughput and IOPs of NVMe and the cost efficiency of shared storage, visit westerndigital.com/platforms

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