Excelero

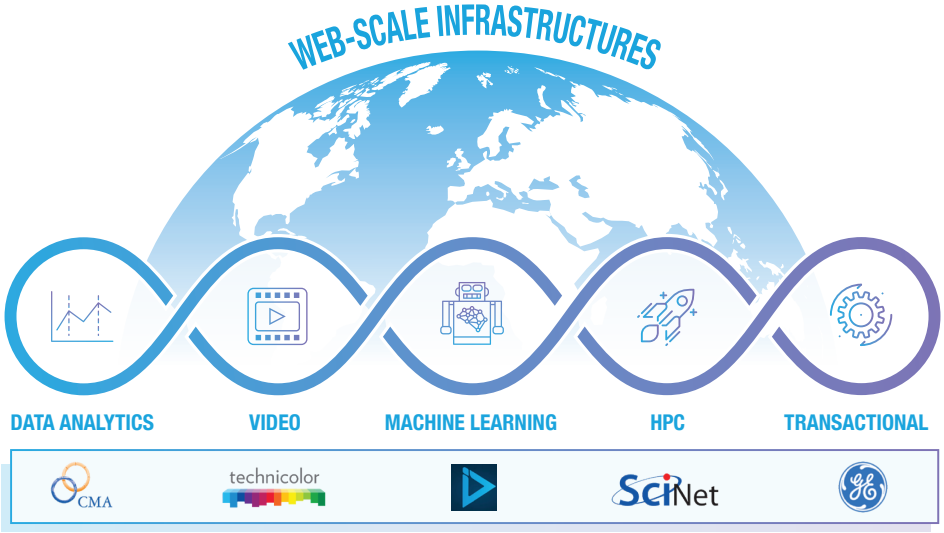
NVMesh®2

LOWEST-LATENCY DISTRIBUTED BLOCK STORAGE FOR SHARED NVMe

DATA SHEET

INTRODUCTION

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. Providing near-zero latency at such scale is the remaining storage challenge and by extension, the most pressing technology challenge for web-scale data centers.

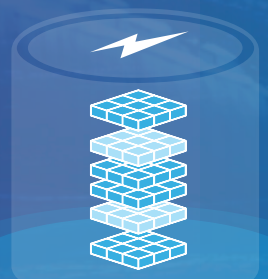


New-generation flash media, such as NVMe, are moving the bar on storage latency. Single-digit microseconds latency is a reality when used locally. This is setting expectations for application developers, who now get much better performance from one local NVMe flash device than an entire enterprise-grade all flash array.

Excelero delivers the lowest-latency (5µs) distributed block storage for web-scale applications: NVMesh enables shared NVMe across any network and supports any local or distributed file system. Customers benefit from the performance of local flash with the convenience of centralized storage while avoiding proprietary hardware lock-in and reducing the overall storage TCO.

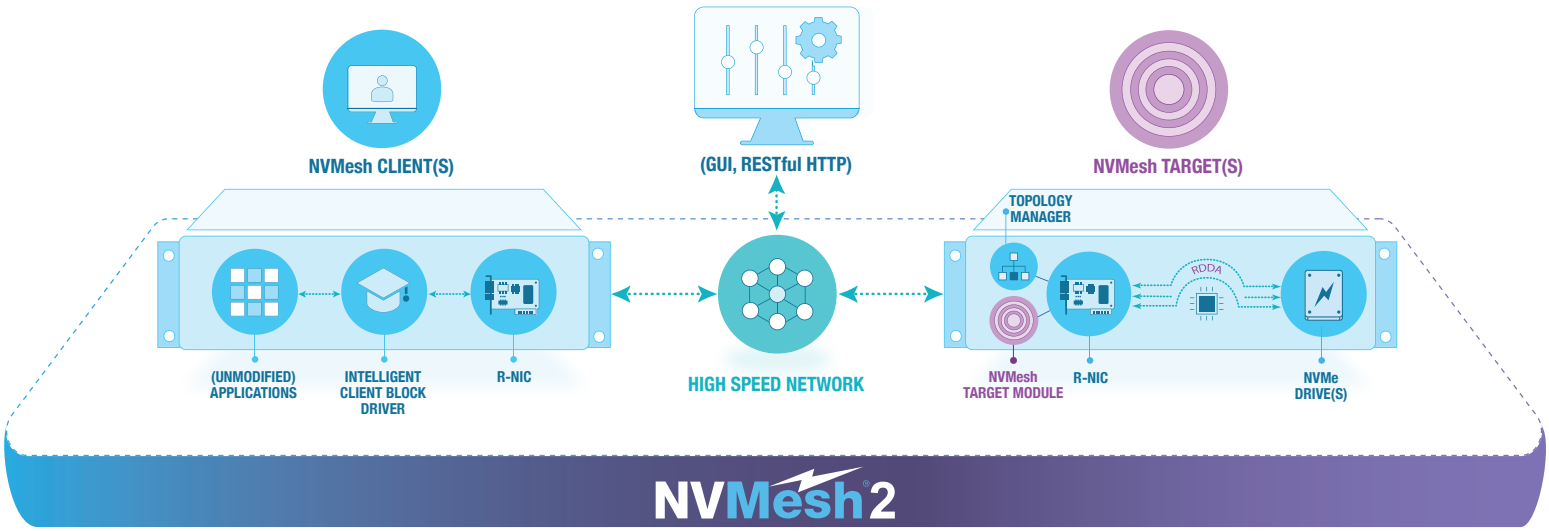
100% SOFTWARE-DEFINED	LOWEST OVERHEAD	BLOCK STORAGE
Use any Hardware	Local Flash Latency across the Network	Use any File System

NVMesh was inspired by how Tech Giants like Amazon, Facebook and Google have redefined infrastructures for web-scale applications, leveraging standard servers and shared-nothing architectures to ensure maximum operational efficiency and flexibility. For their web-scale applications, enterprises and service providers are seeking to optimize their infrastructures in the same way as the Tech Giants. For storage, this means they want to deploy scale-out storage infrastructures leveraging standard servers and software-defined storage solutions.



Excelero's NVMesh is the lowest latency distributed block storage for shared NVMe on the market. It's a 100% software-defined solution that supports any hardware. Being pure block storage, NVMesh runs any local or distributed file system. NVMesh 2 adds critical sets of capabilities that make it easier for enterprises and service providers to deploy shared NVMe storage at local performance across a far wider range of network protocols and applications.

NVMesh features a distributed block layer that allows unmodified applications to utilize pooled NVMe storage devices across a network at local speeds and latencies. Distributed NVMe storage resources are pooled with the ability to create arbitrary, dynamic block volumes that can be utilized by any host running the NVMesh block client. In short, applications can enjoy the latency, throughput and IOPs of a local NVMe device while at the same time getting the benefits of centralized, redundant storage.
NVMesh is deployed as a virtual, distributed non-volatile array and supports both converged and disaggregated architectures, giving customers full freedom in their architectural design.



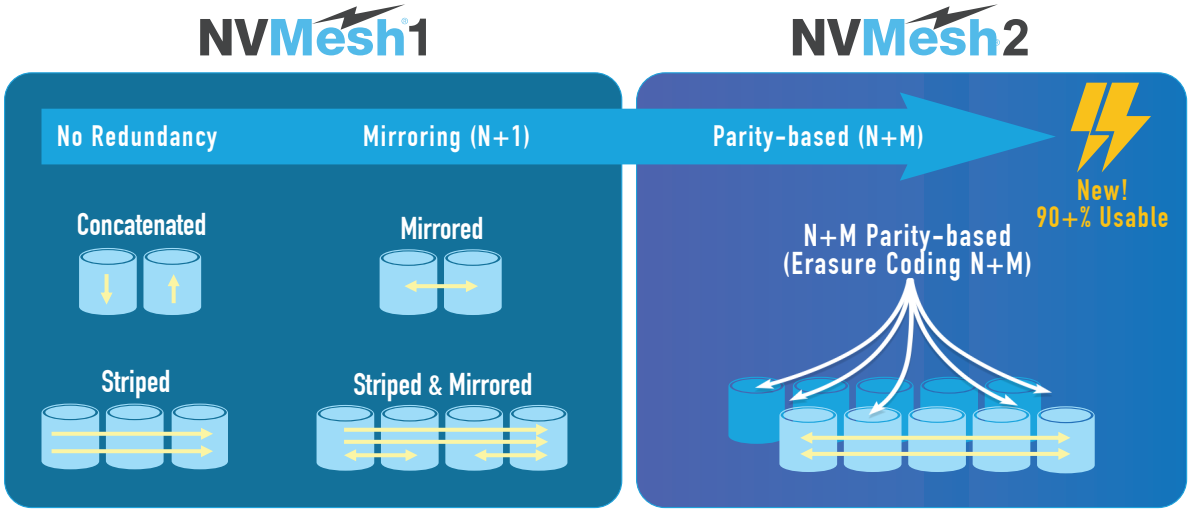
NVMesh 2 FEATURES

As most enterprise servers become NVMe-enabled, the rush is on to allow more teams to share NVMe SSD resources. Excelero's NVMesh 2 is a complete web-scale SDS solution with the distributed data protection and storage provisioning that make shared NVMe storage practical, efficient and readily managed.

MeshConnect™	MeshProtect™	MeshInspect™
More Networks	More Data Protection	More Analytics

MeshConnect™ features new support for traditional network technologies, giving NVMesh the widest selection of supported fabrics and protocols. Supported protocols are TCP/IP, RDMA and Fibre Channel; supported fabrics include Ethernet, Fibre Channel and Infiniband.

MeshProtect™ is a flexible, distributed data protection architecture offering different protection levels, matching resiliency and performance to application needs. Options range from no redundancy, mirroring (N+1) to parity-based (N+M). The latter provides over 90% storage efficiency, yet delivers ultra low-latency performance on large-scale configurations.



MeshInspect™ provides performance analytics for pinpointing anomalies quickly and at scale. Customers benefit from elaborate cluster-wide and per-object performance and utilization statistics that help with the monitoring and analysis of the storage environment performance. Administrators can benefit from fully customizable display of detailed metrics of application workloads and datasets.

NVMesh 2 BENEFITS

MAXIMIZE RESOURCE UTILIZATION

NVMesh was designed to enable customers to maximize NVMe utilization (capacity, performance & endurance) across their infrastructure. Leveraging the new parity-based data protection, NVMesh 2 delivers over 80% greater storage efficiency, which helps further drive down the NVMe TCO.

STANDARD HARDWARE & PROTOCOLS

NVMesh was designed from the ground up to support any hardware. With the added support for traditional network fabrics and protocols, enabling NVMe over Ethernet, Fibre Channel and Infiniband, customers don't have to invest new networking technologies to deploy NVMesh.

MORE DIAGNOSTIC CAPABILITIES

NVMesh 2 enables users to analyze cluster-wide and per-object performance and utilization, and build a customized dashboard from a selection of data visualization widgets.

NVMesh SPECS

NEXT-GEN DATA CENTER

Flexible Topologies	Physically converged, disaggregated or mixed
Scalability	Single server to 128-node cluster
High Performance	Only +5 to +10us additional latency, near 100% linear performance
Scale-Out Architecture	Intelligent clients utilizing multiple hosts, drives
Connectivity	Ethernet, RoCEv2, Infiniband

MANAGEMENT & MONITORING

Interactive Interfaces	Web GUI & CLI commands
Automated Provisioning	RESTful API, Docker Persistent Volumes

DATA MANAGEMENT & PROTECTION

Multiple Transports	NVMf-ready, Patented RDDA
MeshProtect	Virtual volumes in flexible choice of redundancy - Concatenated, RAID 0, RAID 1, RAID 10, Parity-based 8+2
Multiple Drive Types	NVMe, NVMf, SATA, SAS, 3D XPoint
Failure Domains	Host, rack & row aware