Excelero NVMesh® Lenovo

EXCELERO NVMesh® FOR LENOVO SERVERS

SOLUTION SHEET

Lenovo

USE CASES
HPC - Burst Buffer
M&E - Any-k video Analytics

CHALLENGE
Sharing NVMe over the network with local performance

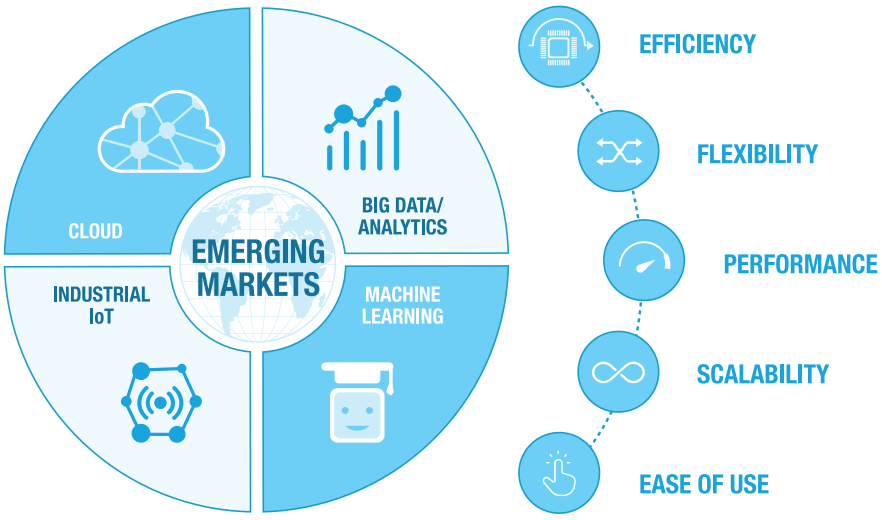
SOLUTION
NVmesh Server SAN

NUMBERS
(Tested on 4 x 3650 M5 Servers)
- 500K IOPS per server
- Virtually no impact on target CPU
- 242µs average write response time
- 8.73GB/s aggregate bandwidth

INTRODUCTION

New application workloads are driving the need for new storage architectures. Cloud and mobile applications, Industrial IoT and machine learning have a massive impact on the volumes of data that need to be transferred, stored and processed. To meet these new requirements, enterprises and service providers are seeking to optimize their infrastructures in the same way as the hyperscale data centers have done. For storage, this means they want to deploy scale-out storage infrastructures using standard servers.

Lenovo and **Excelero** have joined forces to deliver a high-performance, low-latency Server SAN solutions leveraging Lenovo servers with NVMe flash, high-performance networking and Excelero NVMesh® – a Software-defined Block Storage solution that allows unmodified applications to utilize pooled NVMe storage devices across a network at local speeds and latencies.



EXCELERO NVMesh

NVMesh is a Software-Defined Storage solution that enables customers to design Server SAN infrastructures for the most demanding enterprise and cloud-scale applications, leveraging standard servers and multiple tiers of flash. The primary benefit of NVMesh is that it enables true converged infrastructures by logically disaggregating storage from compute. NVMesh features Elastic NVMe, a distributed block layer that allows any application to utilize pooled NVMe storage devices across a network at local speeds and latencies, 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 KEY BENEFITS:

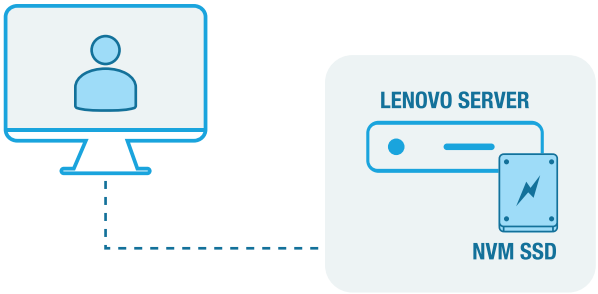
- Maximize the utilization of your NVMe SSD's.
- Predictable application performance – no noisy neighbors.
- Easy to manage & monitor, reduces the maintenance TCO.
- Mix different storage media types to optimize for cost, scale or performance.

LENOVO SERVERS

Lenovo rack servers feature innovative hardware, software and services that solve customer challenges today and deliver an evolutionary fit-for-purpose, modular design approach to address tomorrow's challenges. These servers capitalize on best-in-class, industry-standard technologies coupled with differentiated Lenovo innovations to provide the greatest possible flexibility in x86 servers.

KEY BENEFITS OF LENOVO RACK SERVERS:

- #1 in Reliability – An independent survey of 550 companies shows Lenovo servers have the industry's highest availability[1].
- Multiple world records for performance[2].
- High-efficiency power supplies with 80 PLUS Platinum and Titanium certifications.
- Lenovo servers use hexagonal ventilation holes, a part of Calibrated Vectored Cooling™ technology. Hexagonal holes can be grouped more densely than round holes, providing more efficient airflow through the system.
- Expansive storage capacity and flexible stor age configurations for optimized workloads.



For cloud deployments, database, or virtualization workloads, trust Lenovo rack servers for world-class performance, power-efficient designs and extensive standard features at an affordable price.

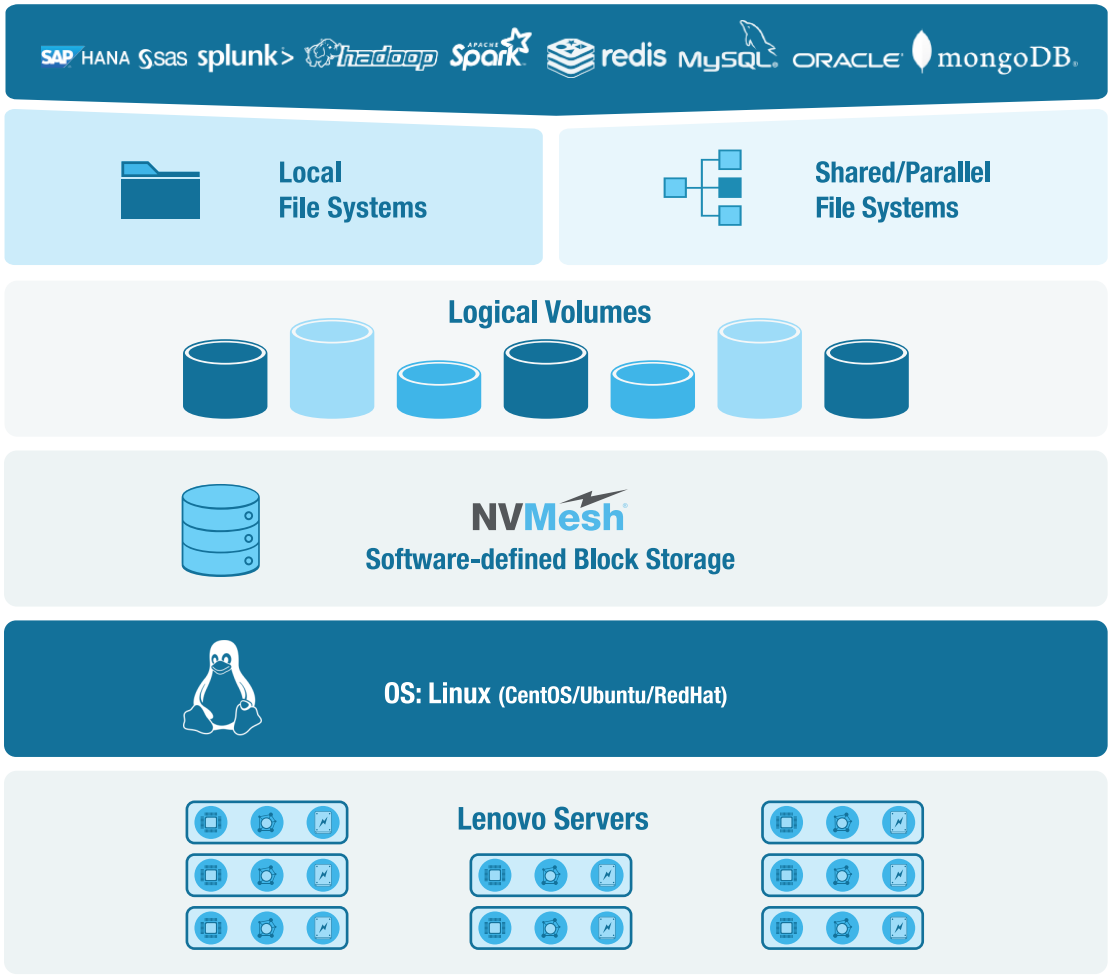
[1] ITIC Global Server HW: http://www.lenovo.com/images/products/system-x/pdfs/white-papers/itic_2015_reliability_wp.pdf

[2] Based on #1 in x86 2P SPECvirt_sc2013PPW, SPECvirt_sc*2013, SPECvirt_sc2013 ServerPPW, TPC-E, SPECfp*_rate_base2006, SPECfp*_base2006

EXCELERO VIRTUAL SAN SOFTWARE FOR LENOVO SERVERS

By combining the Lenovo advanced server designs with Excelero NVMesh software, customers can use the hardware they deployed to run their application cluster to run a virtual, high-performance Server SAN. With this software-only approach, customers remove storage bottlenecks without the need to purchase external storage arrays or additional servers dedicated to storage purposes.

EXCELERO NVMesh ON LENOVO SERVERS



Marrying high-performance, reliable, standard servers from Lenovo with innovative and revolutionary software from Excelero enables what was previously unattainable: The costsavings of standard servers, the performance of local flash with the convenience and protection of centrally managed storage.

BENEFITS OF NVMesh ON LENOVO SERVERS:

- Build a high-performance Virtual SAN without needing to purchase additional or dedicated servers.
- Utilize pooled NVMe storage across a network at local speeds and latencies to maximize NVMe utilization and avoid data locality issues for applications.
- Logical disaggregation of storage and compute allows applications to leverage the full capability of CPU.
- Scale performance linearly at near 100% efficiency by shifting data services from centralized CPU to client side distribution.

ABOUT EXCELERO

Excelero enables enterprises and service providers to design scale-out storage infrastructures leveraging standard servers and high-performance flash storage. Founded in 2014 by a team of storage veterans and inspired by the tech giants' shared-nothing architectures for web-scale applications, the company has designed a software-defined block storage solution that meets performance and scalability requirements of the largest web-scale and enterprise applications.