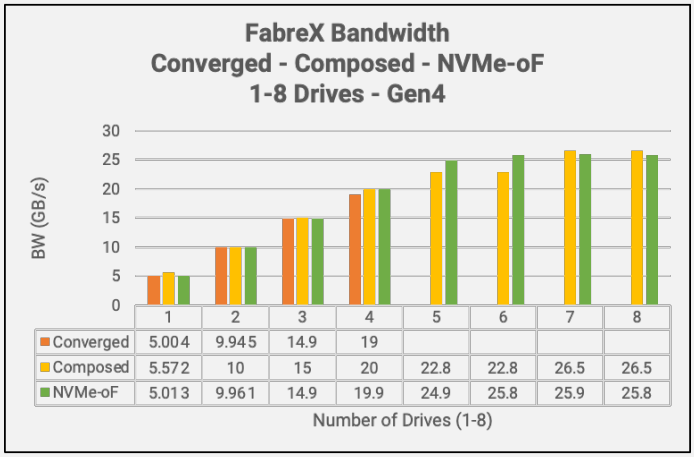
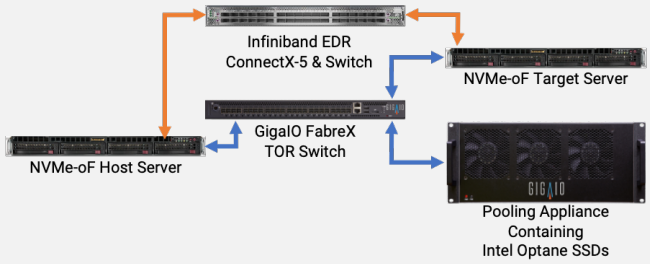
No Bandwidth Penalty Using FabreX NVMe-oF Compared to Converged and Composed Configurations



Configuration



With FabreX Intel Optane Delivers Lower Latency Compared to NVMe SSDs -- FabreX NVMe-oF Latency Lower Than Infiniband

	Read (randread)		Write (randwrite)	
	Optane	SSD	Optane	SSD
Converged	9	84	10	13
Composed over FabreX	9	85	11	18
NVMe-oF over FabreX	12	88	14	21
NVMe-oF over Infiniband	32	113	32	40

FabreX™ PCIe Network Delivers Lower Latency and Higher Bandwidth than InfiniBand

Configuration – The testing configuration utilizes a 1U server that can be configured as 1) converged with the Intel Optane storage inside the server using the internal PCIe bus, 2) composed with the Optane storage inside a pooling appliance connected via the FabreX PCIe Network fabric, then two different NVMe-oF configurations using a second server - 3) running NVMe-oF over FabreX, and 4) Running NVMe-oF over Infiniband EDR.

Software – FIO benchmark with a block size of 128KB.

Results Summary – The converged configuration, DAS (Direct Attached Storage), supports a maximum of 4 drives and demonstrated 19 GB/sec bandwidth with 4 drives. This compares to the composed, NAS (Network Attached Storage), at 20 GB/sec and NVMe-oF bandwidth of 19.9 GB/sec. Essentially identical performance for the three configurations.

The composed and NVMe-oF test configurations supported 8 drives and returned 26.5 GB/sec and 25.8 GB/sec respectively, essentially identical.

NVMe-oF delivers equal performance compared to DAS with the flexibility and sharing of NAS – performance without compromise.

Additionally, FabreX with Optane demonstrates over 70% lower latency compared to SSD and over 60% lower latency comparing NVMe-oF over FabreX with NVMe-oF using Infiniband.

GigaIO FabreX is a Rack-Scale composable infrastructure solution that delivers the unlimited flexibility and agility of the cloud, at a fraction of the cost. Benefits include:

Improved system agility by disaggregating system resources on the fly and creating shared resource pools that can then be dynamically composed in real-time.

Slashed Total Cost of Ownership by enabling device sharing which increases resource utilization and eliminates over provisioning, resulting in reduced CapEx and OpEx.

Simplified and automated system set-up, administration and serviceability with freedom of choice for management tools from powerful CLI and Redfish APIs to ready-to-run, off-the-shelf enterprise-class orchestration software.

Seamless support for any PCIe-compliant device including servers, CPUs, memory, 3D-XPoint, storage, GPUs, FPGAs, specialty ASICS and NICs.

Blazing system performance with industry leading PCIe latency and bandwidth throughout the rack and beyond. As PCIe resources are added they immediately benefit from the native PCIe performance as all data transfers and buffers are completely eliminated.

Visit www.gigaio.com to discover more about GigaIO and FabreX, the industry's only pure PCIe Network Fabric.