



Three Providers of High-Performance Storage Interconnect NVMe over TCP Named IDC Innovators

FRAMINGHAM, Mass., June 5, 2019 – International Data Corporation ([IDC](#)) today published an IDC Innovators report profiling three companies supporting the nascent high-performance enterprise storage interconnect Non-Volatile Memory Express over Terminal Control Protocol (NVMe over TCP). The three companies are Lightbits Labs, Exceclero, and Pavilion Data.

With digital transformation under way in many IT organizations, enterprises are deploying a range of newer technologies to deliver the performance, availability, and flexibility demanded by next generation applications. These technologies include software-defined infrastructure, cloud, and solid-state storage along with NVMe. NVMe is a new storage protocol that was specifically developed for solid-state media that IDC believes will ultimately supplant SCSI as the storage protocol of choice for latency-sensitive primary workloads. By 2021, IDC predicts that NVMe-based storage solutions will be generating more than 50% of the revenues associated with primary external storage shipments.

NVMe over Fabric is an industry standard that enables low latency access to NVMe-based shared storage arrays across a switched fabric. Early production deployments of NVMe-oF started to become available in 2017, providing access across a switched fabric to high-performance NVMe-based storage with the same latencies as local NVMe-based solid-state disks (SSDs). Shared storage provides features typically not available with local storage such as much higher scalability, much better capacity utilization, and access to the type of data services (thin provisioning, snapshots, replication, etc.) only available in enterprise-class shared storage.

NVMe over Fabric has been available across Fibre Channel, Ethernet and InfiniBand transports. For greenfield deployments in both the enterprise and in cloud providers, Ethernet appears to be the preference. Two Ethernet options – Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) and internet Wide Area RDMA Protocol (iWARP) – have been available but both require custom drivers on the host side. Some customers have strong preferences for a standardized client since it simplifies installation and maintenance and makes it easy to potentially connect all servers in their infrastructure up to high performance NVMe-based storage as necessary. That is the value that NVMe over TCP brings to the table: it uses standard converged Ethernet adapters and host side drivers based on the NVMe 1.3 standard that was released in November 2018.

"To date, NVMe over Fabric has been selectively deployed by enterprises who were willing to deal with custom content on their servers to get local NVMe storage latencies out of shared storage," said [Eric Burgener](#), research vice president, Infrastructure Systems, Platforms and Technologies Group, IDC. "NVMe over TCP provides these same performance advantages with a solution that is easier and less expensive to deploy. Due to the availability of the TCP option, the industry will see strong growth in NVMe over Fabric use over the next two to three years."

Lightbits Labs played a key role in the development of the NVMe over TCP standard and offers a pure target-side solution that requires no client components. Their solution is based around a software-defined storage design that leverages commodity off-the-shelf server-based storage as node building blocks.

Excelero was an early entrant into the NVMe-based storage array market with a distributed, software-only design that enables excellent scalability. They offer a broad range of NVMe over Fabric options, which include NVMe over TCP, to give their customers maximum flexibility and choice.

Pavilion Data leverages a unique hardware architecture, based on industry-standard server and storage components. Their NVMe-based storage appliance scales up to 20 controllers to support massive parallelism and is a pure target-side solution with no client components. Pavilion Data also offers multiple NVMe over Fabric options, including support for NVMe over TCP.

The report, *[IDC Innovators: NVMe over TCP, 2019](#)* (IDC #US45088519), profiles three companies in the NVMe over TCP market, highlighting the key differentiators and challenges facing each company.

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For more information contact:

Michael Shirer
press@idc.com
508-935-4200
Eric Burgener
eburgener@idc.com
408-406-5699