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CHELSIO DEMONSTRATES NVMe OVER FABRICS
WITH 40GbE iWARP RDMA AT FLASH MEMORY SUMMIT 2016

Showcases the Reach of NVMe Drives Over High-Performance Ethernet Networking, Providing Foundation for Improved Storage Performance and Lower Total Cost of Ownership

SUNNYVALE, CA – August 10, 2016 – Chelsio Communications, Inc., a leading provider of high performance (10Gb/25Gb/40Gb/50Gb/100Gb) Ethernet adapters for storage networking, virtualized enterprise datacenters, cloud service installations, and cluster computing environments, today announced a demonstration of NVM Express (NVMe) over Fabrics using the Chelsio T5 40GbE iWARP RDMA adapters and Samsung Electronics' enterprise-class NVMe solid state drives (SSDs). The demonstration is based on software conforming to the specification of NVMe over Fabrics as defined by the NVM Express, Inc.

NVMe provides a standards-based approach for PCI Express (PCIe) SSD access that significantly improves performance by reducing latency and streamlining the command set, while providing support for security and end-to-end data protection. NVMe over Fabrics defines an efficient mechanism to utilize these devices in large scale storage deployments and provides investment protection by allowing the latest in innovations and advances in low latency SSD flash to be used over proven Ethernet iWARP (RDMA/TCP) networking. This enables the NVMe storage devices to be shared, pooled and managed more effectively. The Chelsio demonstration is aimed at providing a foundation for lower latency and increased performance, while providing improved iWARP integration for flash-based storage.

With its ultra low-latency T5 40GbE iWARP solution, which can reliably operate with Ethernet PAUSE frames disabled, Chelsio demonstrates that accessing flash remotely does not need to

come at the expense of performance, scalability or error recovery. Chelsio T5 10/40GbE Unified Wire offering enables a seamless migration path to 25/50/100GbE later in 2016 and 200/400GbE in the future, while offering the flexibility to fully leverage existing software investments.

Chelsio's technology inherits the resilience and congestion management capabilities of TCP/IP and as such can turn any Ethernet topology into a resilient fabric. Unlike competing technologies, it does not require a lossless fabric or special switch features to operate. Therefore, end users can decouple the storage and switch upgrade cycles, and benefit from incremental installs. Storage vendors in turn can deploy into any preexisting Ethernet infrastructure.

By adding less than 13 microseconds latency (tuning continues) for remote versus local NVMe device access, iWARP can enable leading NVMe over Fabrics high-performance solutions. Using iWARP, storage system OEMs and device vendors can also easily add fabric connectivity to any existing NVMe device. The complete T5 40GbE iWARP NVMe over Fabrics benchmark paper, detailing the hardware/software configuration used and results achieved, is available **here**.

"We are pleased to work with Samsung on development of the next generation flash-optimized enterprise storage. Our 40GbE iWARP RDMA delivers 'no compromise' efficiency for NVMe Fabrics and flash applications," said Kianoosh Naghshineh, CEO at Chelsio Communications. "Customers acquire flash storage to share it across multiple applications using the most efficient networking available to maximize ROI. iWARP-enabled storage solutions will be a critical tool in meeting these business goals."

"Maximizing the efficiency of server CPUs is a major priority for datacenter architects," said Michael Williams, Vice President, Memory Product Planning at Samsung Semiconductor, Inc. "The Chelsio demonstration provides yet another example of how our high-performance NVMe

solid state drives can help datacenters get the most out of their infrastructure assets, and drive down latency at the same time."

About Chelsio Communications

Chelsio is a recognized leader in high performance (10Gb/25Gb/40Gb/50Gb/100Gb) Ethernet adapters for networking and storage within virtualized enterprise datacenters, public and private hyperscale clouds, and cluster computing environments. With a clear emphasis on performance and delivering the only robust offload solution, as opposed to simple speeds and feeds, Chelsio has set itself apart from the competition. The Chelsio Unified Wire fully offloads all protocol traffic, providing no-compromise performance with high packet processing capacity, sub-microsecond hardware latency and high bandwidth. Visit the company at www.chelsio.com, and follow the company on Twitter and Facebook.

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