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CHELSIO DEMONSTRATES 100 GIGABIT iSCSI PERFORMANCE

Chelsio T6 Controller Sets Extreme Performance Benchmark for Industry-Standard Ethernet Storage Networking

SUNNYVALE, CA – September 28, 2016 – Chelsio Communications, Inc., a leading provider of high performance (10Gb/25Gb/40Gb/50Gb/100Gb) Ethernet Unified Wire Adapters and ASICs for storage networking, virtualized enterprise datacenters, cloud service installations, and cluster computing environments, today announced the ultra-performance Ethernet storage network capabilities of its new line of T6 100GbE Unified Wire controller. The demonstration shows Chelsio T6 silicon enabling 100 Gigabits-per-second (Gbps) line-rate iSCSI performance for a cost-effective enterprise-class storage target solution built with volume, off-the-shelf hardware and software components.

Showcasing the iSCSI hardware offload capabilities of the Chelsio T6 Unified Wire controller, the demonstration shows how all-flash and hybrid storage array OEMs can easily enable such arrays with highest-performance iSCSI target capability that is fully compatible with the existing iSCSI ecosystem and seamlessly supports the routability, scalability and reach advantages of iSCSI. The complete Chelsio T6 iSCSI benchmark paper detailing the hardware/software configuration used and results achieved is available [here](#). A video of the actual demonstration is [here](#).

iSCSI offload is especially suited for enterprise deployments:

- It requires only software peers (that are supported in all volume operating systems) and as such can be non-disruptively deployed in existing environments.

- The second source consists of operating system built-in software-only stacks. The enterprise customer will never be in a line-down situation because of the adapter hardware. It is therefore much easier to address dual source requirements.
- It is supported in Linux (LIO Target, Open-iSCSI Initiator), FreeBSD (Target and Initiator), Windows (Initiator – the most popular iSCSI initiator in the industry), VMware, and other OSes and distributions.
- It is built on the proven TCP/IP protocol and as such can scale, route and handle congestion and network loss resiliently and robustly without needing special switch features.
- It allows the same redline performance as other storage networking protocols such as NVMe over Fabrics or iSER, and has built-in RDMA, but it does so over the proven TCP/IP protocol (removing any challenges pertaining to TCP/IP “overhead”).
- It does not suffer from interoperability requirements of fabrics-based storage protocols such as iSER or NVMe over Fabrics.
- It is a proven \$3.6B market today without any technology adoption risks.
- It runs at 100Gb and beyond, and will scale consistently with Ethernet evolution.
- The CPU savings resulting from iSCSI offload results in an immediate bill of materials reduction in storage applications – same or more performance at lower cost.
- iSCSI is mature, robust, tested, multi-vendor, deterministic, and ubiquitous. It has a much higher performance than FibreChannel which it replaces.
- It allows enterprise OEMs to consider consolidating their adapter vendor product line and hence truly leverages the economies of scale of Ethernet.

Chelsio T6 100G Unified Wire controllers enable enterprise storage systems that are purpose-built to deliver optimized storage performance for various application workloads in mission-critical virtualized, private cloud environments. The extreme efficiency of T6-enabled storage systems lets IT departments balance ultra-performance, capacity and features with game-changing storage economics. Chelsio-enabled storage systems also easily integrate into diverse enterprise IT environments by enabling SAN and NAS deployments from the same



array through iSCSI and TCP/IP protocol offload for iSCSI block-level protocol, as well as NFS and CIFS file-level protocols.

“The extreme performance benefits of All-Flash storage arrays can be unrealized if using inefficient networking” said Seamus Crehan, president of [Crehan Research](#). “Chelsio’s T6 100G Unified Wire solution with iSCSI offload enables consistent very high-throughput, low-latency access to Flash storage for datacenter applications.”

“Our T6 Unified Wire controller establishes a groundbreaking performance bar for Ethernet storage by enabling a 100 Gbps line-rate iSCSI storage target solution with very high efficiency,” said Kianoosh Naghshineh, CEO at Chelsio Communications. “Our iSCSI offload technology allows 100 Gigabit Ethernet to completely supersede proprietary storage fabrics, without requiring the deployment of new protocols that force an infrastructure forklift upgrade. With transition to All-Flash arrays, all storage systems are essentially HPC systems and require offload technology to realize the Flash performance capabilities and value.”

About Chelsio iSCSI

Chelsio’s Terminator 6 ASIC offers a high performance, robust fifth generation implementation of iSCSI protocol over 100Gb Ethernet. T6 delivers a low latency, low CPU utilization, high bandwidth, and high IOPs implementation of the iSCSI protocol at 100Gb and beyond. It is the only robust iSCSI implementation in the industry that has not changed for a decade, allowing the benefit of years of quality assurance and the only industry solution that has scaled to 100Gb and beyond, and thus is ideally suited for Flash applications.

Chelsio’s iSCSI implementation is in production with a variety of OEMs and support will be available from several distributions. It is a feature rich solution that enables turning on of the iSCSI digest protocol with no penalties, use of standard Ethernet frames, and support for T10 protocol. Chelsio’s iSCSI is available either in full offload form using Chelsio’s iSCSI stack, in



partial offload form using the OEM's software stack, or support of all the standard iSCSI offerings in the common distributions.

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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