



## Broadcom Showcases NVMe Technology Firsts with Industry's Most Comprehensive NVMe over Fabrics Adapter Portfolio

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### Broad NVMe portfolio enables customers to build end-to-end solutions with NVMe over Fibre Channel and NVMe over RDMA solutions

SANTA CLARA, Calif., Aug. 08, 2017 (GLOBE NEWSWIRE) -- **FLASH MEMORY SUMMIT** -- Broadcom Limited (NASDAQ:AVGO) is featuring the industry's first complete portfolio of NVMe over Fabrics adapter solutions at Flash Memory Summit. The new NVMe over Fibre Channel and NVMe over RDMA solutions make Broadcom a one-stop shop for NVMe over Fabrics. The new technology comes at an ideal time with the release of powerful new server and storage platforms that combine Intel® Xeon® scalable processors and NVMe drives that have been optimized for hybrid cloud infrastructures and mission-critical applications that require low-latency, scalable fabrics. NVMe over Fabrics enables customers to scale the number of NVMe SSDs an application can access from tens of NVMe drives to 1000's of NVMe drives across the data center and between multiple data centers.

#### NVMe over Fibre Channel:

With the imminent FC-NVMe T11 standard ratification and FCIA plug-fests, Emulex-branded HBAs by Broadcom have demonstrated multi-vendor interoperability. Emulex® Gen 6 Fibre Channel HBAs by Broadcom have been qualified for NVMe over FC support on Fibre Channel Switches including Brocade's X6 Director and G620 switch as well as Cisco's MDS 9000 family of products.

Broadcom, NetApp and Brocade are demonstrating the first-ever NVMe over Fibre Channel end-to-end solution comprised of Emulex Gen 6 Fibre Channel HBAs by Broadcom and a Brocade Gen 6 Fibre Channel switch connected to a NetApp all-flash array. The technical preview highlights:

- NVMe over Fibre Channel on Linux and Windows
- Concurrent NVMe over Fibre Channel and SCSI over NVMe
- NVMe over Fibre Channel support by enterprise-class storage arrays
- NVMe over Fibre Channel integration into SPDK (Storage Performance Developer's Kit)

"We are excited to be demonstrating the world's first end-to-end NVMe over Fibre Channel solution with a NetApp all-flash array and a Gen 6 Fibre Channel network," said Jeff Hoogenboom, general manager, Emulex Connectivity Division at Broadcom. "NVMe over Fibre Channel is purpose-built for tomorrow's mission-critical workloads leveraging today's infrastructure."

This technology preview validates the investment protection that NVMe over Fibre Channel brings to enterprise customers that have built their networks on the proven Fibre Channel fabric, and extends that fabric to service increasingly important and new mission-critical workloads such as business analytics and NoSQL databases. NVMe over Fibre Channel works with current Gen 6 Fibre Channel networks with no changes required. Storage arrays that leverage Broadcom Gen 6 Fibre Channel can add NVMe over Fibre Channel through a simple software upgrade.

**NVMe over RDMA:** Broadcom is also featuring NVMe over RDMA based on Broadcom's market-leading NetXtreme® networking solutions:

- Scalable Ethernet NIC solutions to 100Gb built on industry-proven Broadcom NetXtreme Ethernet controller technology that incorporate Smart Congestion Control for RoCEv2 providing deterministic NVMe-oF performance
- Optimized 100G NVMe-oF SoC integrating our industry-leading 3GHz Octal-core ARMv8 Cortex-A72 CPU architecture, HW-based RAID/Erasure and Dedup offload engines targeting highly-scalable disaggregated NVMe-oF solutions with minimum latency

#### Supporting Quotes:

##### Brocade

"NVMe is the next wave of storage innovation and Brocade is modernizing Fibre Channel to help enterprises derive more value and performance from their applications and infrastructure," said Jack Rondoni, senior vice president of storage networking at Brocade. "The solution that we're demonstrating at Flash Memory Summit highlights the rapid evolution of NVMe with the industry's first server, SAN, and storage array solution for NVMe over Fibre Channel. It's an important industry milestone that demonstrates the business value of providing a seamless transition to NVMe and unprecedented investment protection for existing Fibre Channel SANs."

##### Cisco

"Cisco recently announced production support for NVMe over Fibre Channel for Cisco's MDS 9000 16G and 32G product line," said Becky Marques, director, Product Management DC Switching, Cisco Systems, Inc. "We are pleased to see more industry adoption and a growing ecosystem of vendors delivering NVMe to the market."

##### Demartek

"Broadcom is demonstrating two solutions for NVMe over Fabrics (NVMe-oF) at the Flash Memory Summit 2017," said Dennis Martin, president of Demartek, an industry analyst firm with its own test lab. "The Fibre Channel implementation can run NVMe and SCSI traffic over the same port at the same time with simply an adapter software upgrade that works with existing Fibre Channel equipment. The RDMA implementation runs on its Ethernet adapters and includes offload technologies to help improve performance. Both solutions showcase the importance of NVMe-oF and its expected

impact on storage fabrics in modern data centers.”

### **SANBlaze**

“FC-NVMe provides an ideal opportunity to combine the low latency and high performance of the emerging NVMe storage technology with the reliable and secure Fibre Channel storage infrastructure, addressing both the I/O and bandwidth-intensive workloads that are becoming the mainstay of the modern data center,” said Vince Asbridge, president of SANBlaze Technology, Inc. “SANBlaze is pleased to work with the leading NVMe, Fibre Channel and network vendors to provide cross vendor emulation and validation tools as the industry evaluates this game changing storage technology.”

Visit NetApp booth number 632 to see the end-to-end NVMe over Fibre Channel demo. For information on Broadcom's NVMe over RDMA solutions, please visit Broadcom booth number 729.

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