XIO demos WSSD cluster at Microsoft Ignite 2018

XIO demonstrates great performance with Chelsio 10Gb adapters

Introduction

XIO demonstrated at the Microsoft Ignite 2018 conference a four node WSSD cluster on Windows Server 2016 using Storage Spaces Direct (S2D) technology and Chelsio 10Gb iWARP RDMA adapters. With a Chelsio T520-BT (2-port 10GBase-T RNIC) in each node and four Samsung NVMe devices per node, the cluster achieved 1.6 Million IOPS.

Results

Using vmfleet, 2 threads of 4K 100% read with a queue depth of 256 were run using the following command line:
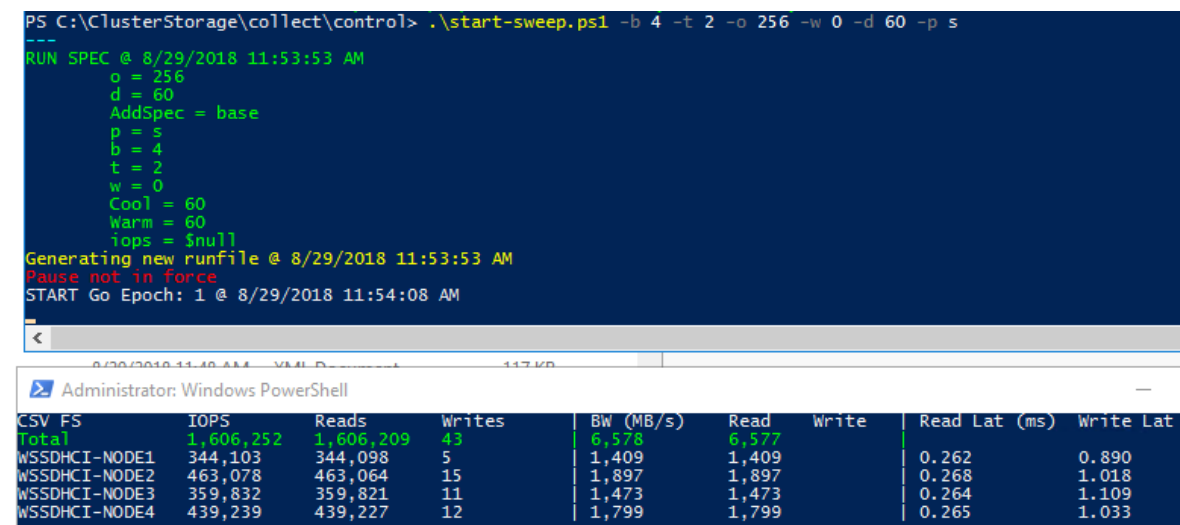
`.\start-sweep.ps1 -b 4 -t 2 -o 256 -w 0 -d 60 -p s`

Figure 1 – Command line in use and result

As can be seen, 1.606 Million IOPS was achieved!

Configuration

The demonstration was with a 4-node cluster as shown in the Figure 2. Each node had dual 10 core CPUs, 128GB of RAM per node, 4 x 800GB Samsung PM1725 NVMe drives. 80 Virtual Machines (VMs) were created (20 per host), with 1 CPU core and 4GB of memory per VM.
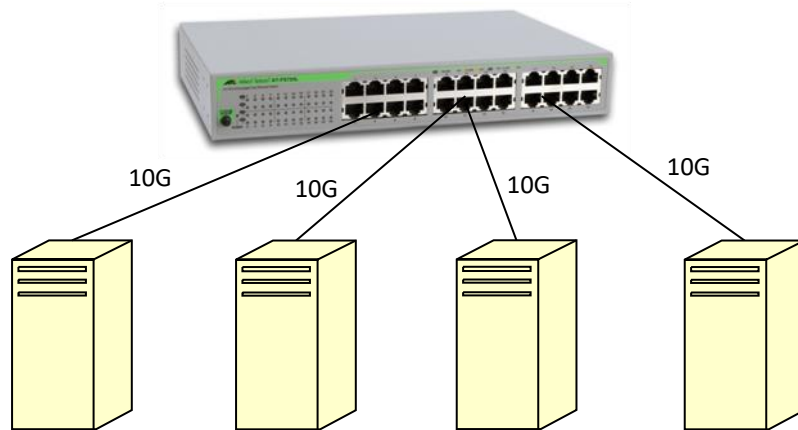
Figure 2 – Topology of the XIO demonstration with Chelsio T520-BT adapters

Chelsio iWARP RDMA does SMBDirect/S2D/WSSD

Chelsio's T5 & T6 ASICs both have iWARP, Microsoft's preferred flavor of RDMA, built-in. That means any Ethernet adapter Chelsio markets has the ability to highly efficiently run SMBDirect. The available adapters from Chelsio are based on these two ASICs and depending on the model, can achieve 1/10/25/40/50/100 Gb Ethernet speeds. In this demonstration, XIO demonstrated with one of several 10Gb models, the T520-BT, which has a 10GBase-T interconnect.

Figure 3 – Chelsio's T520-BT

Conclusion

Chelsio's affordable 10GBase-T adapters are perfect for environments that demand high performance yet must keep costs under control. Using the T520-BT RNIC adapters, XIO has achieved in the Ignite demo an outstanding 1.6 Million IOPS.

Related Links

Chelsio Adapters: https://www.chelsio.com/nic/unified-wire-adapters/
Migrating to S2D: https://www.chelsio.com/wp-content/uploads/resources/t5_s2d_dataon.pdf
S2D Performance with Network QoS: https://www.chelsio.com/wp-content/uploads/resources/s2d-network-qos.pdf