

Main Benefits

MAXIMIZE THE NETWORK

- Maximize datacenter connectivity ROI through: Density, Scale, Performance

OPEN THE NETWORK

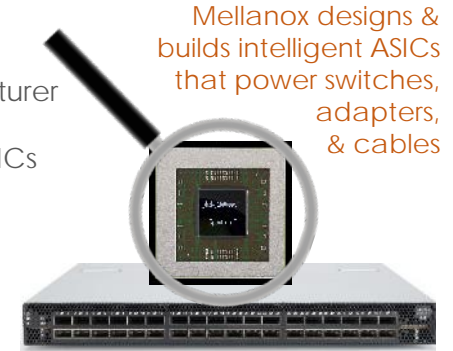
- Leverage new technologies that increase functionality, investment & ROI
- Freedom from vendor lock-in

Unique Capability

MELLANOX: THE DIFFERENCE IS IN THE CHIP

- Founded as a state-of-the-art silicon chip (ASIC) manufacturer
- Intelligence built directly onto our own chip
- Other switch vendors are forced to source expensive ASICs from third parties such as Broadcom
- Mellanox uses own chip & passes savings to customers

SwitchX.2 6th Generation 10/40/56GbE ConnectX.3 5th Generation 10/40/56GbE



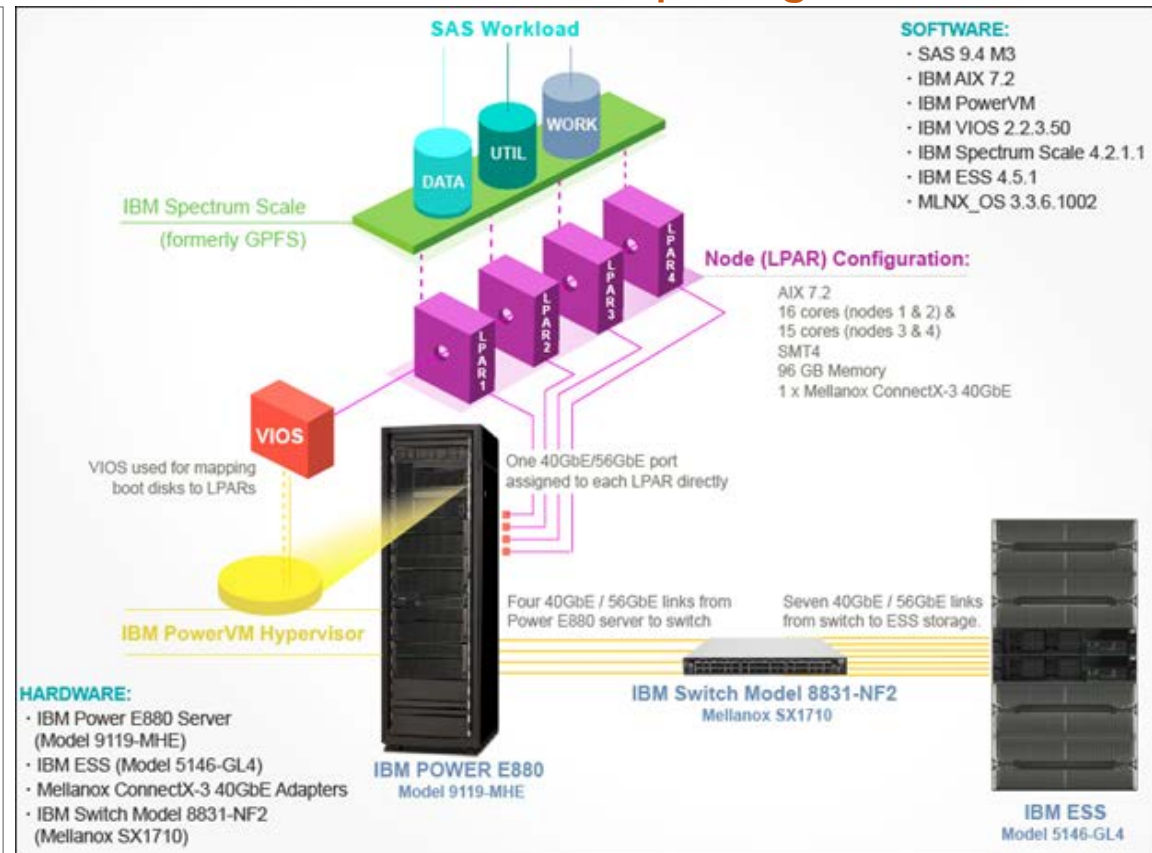
How to Succeed with SAS Foundation over TCP/IP Ethernet and Attached Spinning Disks

Collaboration and Teamwork

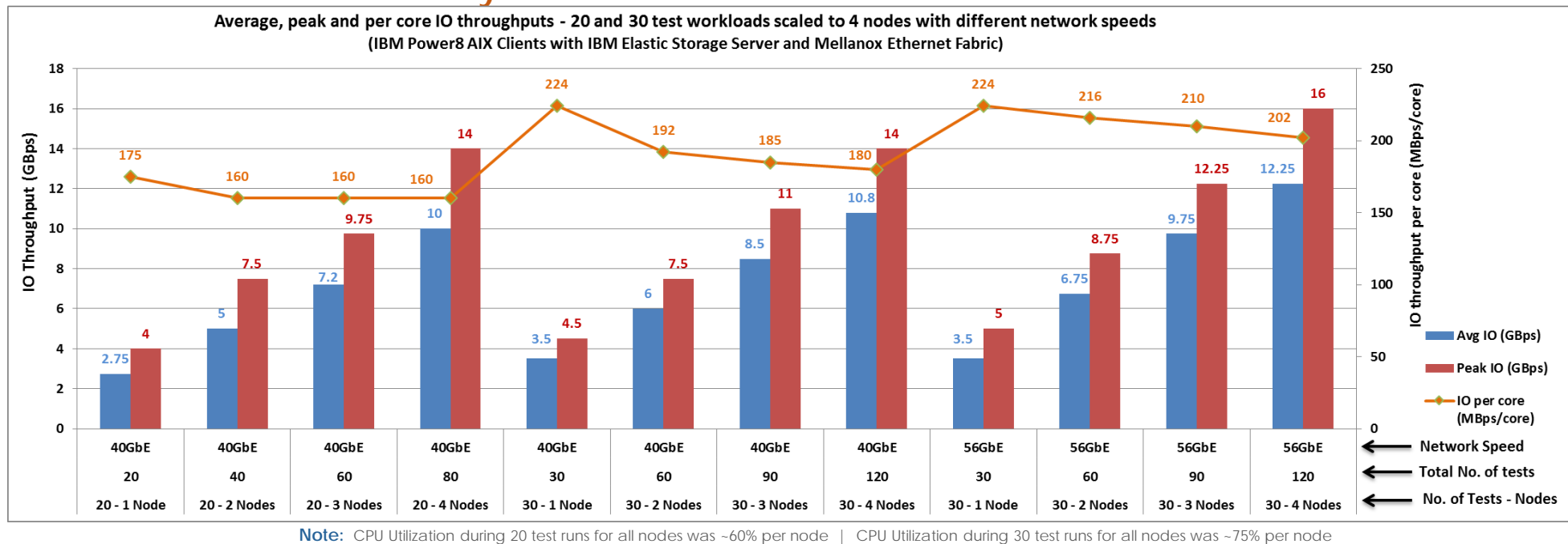
- Architect the solution as a cross platform/cross technology overlapping end-to-end team
 - SAS client server/VM/LPARs O/S tunables, network tunables, NIC tunables
 - Storage capacity, optimization, network, disk, and parallel filesystem tunables, virtualization SDS
 - Network fabric end to end optimization, hashing algorithms, modes
 - SAS application buffer size, filesystem block size optimization
- Address server, network, storage, and application performance optimization/tuning as one team across individual expertise/disciplines.

Buy the Best Proven Hardware and Software

- IBM[®] POWER8[®] servers = unequaled extreme SAS MA workload clients
- IBM Spectrum Scale[™] Elastic Storage[™] Server with GNR RAID = Affordable Ethernet converged/SDS spinning disk solution performing at mid-tier Fiber Channel/SAN attached Flash IO rates
- Mellanox Ethernet switch, cables, adapters = Industry leading 56GbE network performance at 40GbE price



SAS Foundation Mixed Analytics Workload Results



SAS Foundation Mixed Analytics Workload Deliverables

- 8% SAS MA cumulative response time improvement with no CPU utilization change at 56GbE when 30-tests scaled to four nodes
- 20-test workload was not resource constrained so no change from 40GbE to 56GbE
- IO throughput indicate the 4 node 30 tests 56GbE test hit ESS GL4 theoretical best case spinning disk drive performance limitations
- nsdperf test results show Mellanox 56GbE network capable of 20+ GB/s without disk constraints
- 30 sessions at 56GbE was disk constrained, but not CPU, Memory, or Network Constrained
- Ran 30 tests with 62 cores total (2 nodes 16 cores each, 2 nodes 15 cores each), 96 GB memory per node, 1 x 40GbE / 56GbE NIC per node
- 40GbE to 56GbE network is a simple Mellanox switch port change and network restart. The 56GbE capability is included at no additional charge.

Helpful URL's

- Product briefs [E880](#), [Switch](#), [Cabling](#), [Adapter](#), [ESS](#), [SAS](#)
- Technical brief [Converged infrastructure for SAS Foundation mixed workloads](#)
- Technical article [Deep dive into converged infrastructure for SAS Foundation mixed workloads](#)

Contacts

- IBMSales@mellanox.com
- IBMBPSales@mellanox.com
- IBMTech@mellanox.com
- [IBM SAS contact](#)
- [IBM Systems contact](#)
- [IBM Elastic Storage contact](#)