Simplifying Deep Learning Infrastructure

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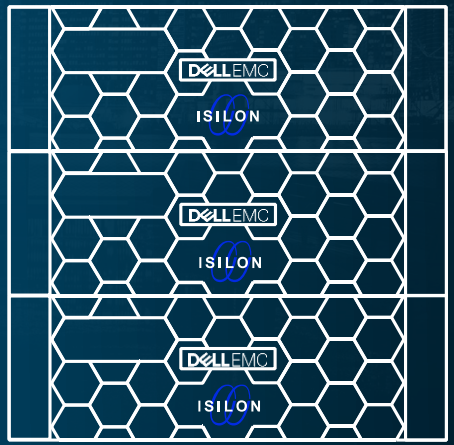
STAC SUMMIT - LONDON



Isilon with NVIDIA DGX-2

High Density, High Performance Deep Learning Reference Architecture

NVIDIA GPU Acceleration

- 16-way GPU with High Speed NVSwitch Interconnect
- Cloud-based Docker container registry for Deep Learning software

w/ 16 x V100 GPUs

NVIDIA DGX-2

Networking

- Ethernet used to connect the cluster
- 100G – 40G conversion as needed

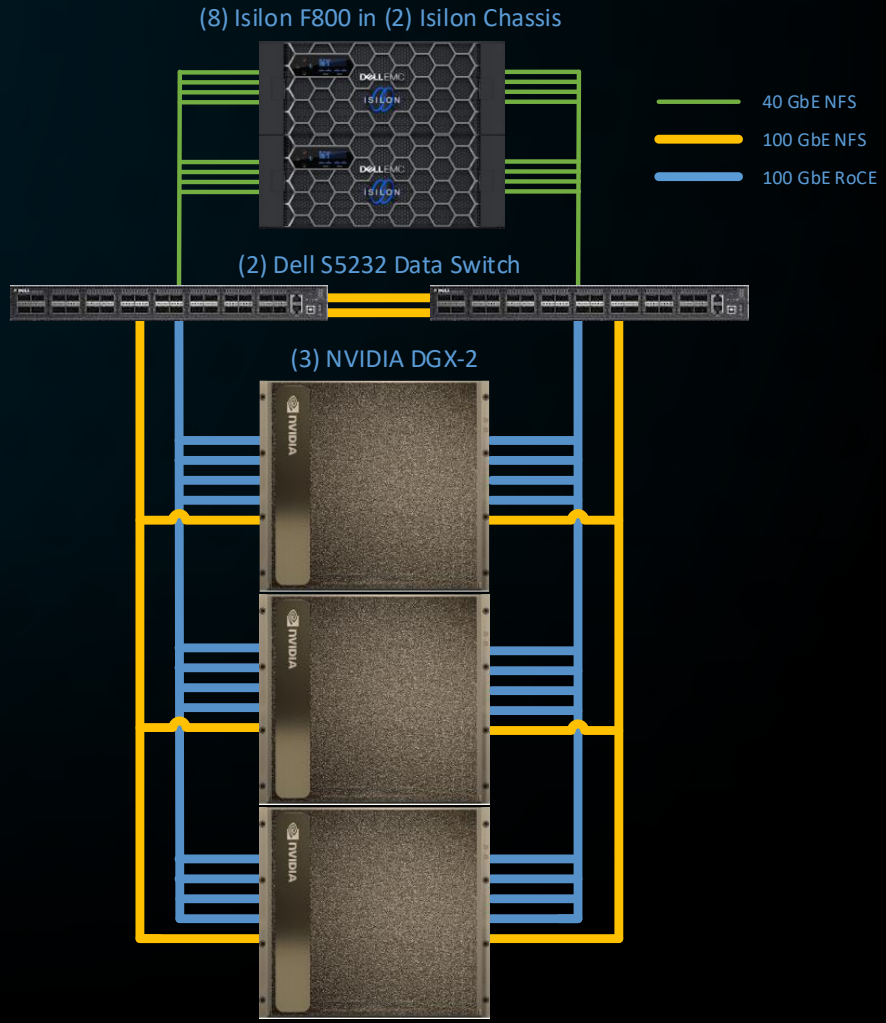
Dell S5232 Ethernet Switch

Dell EMC Storage

- Up to 250K IOPS & 15 GB/s bandwidth per Chassis
- Stores 96-924 TB capacity per chassis

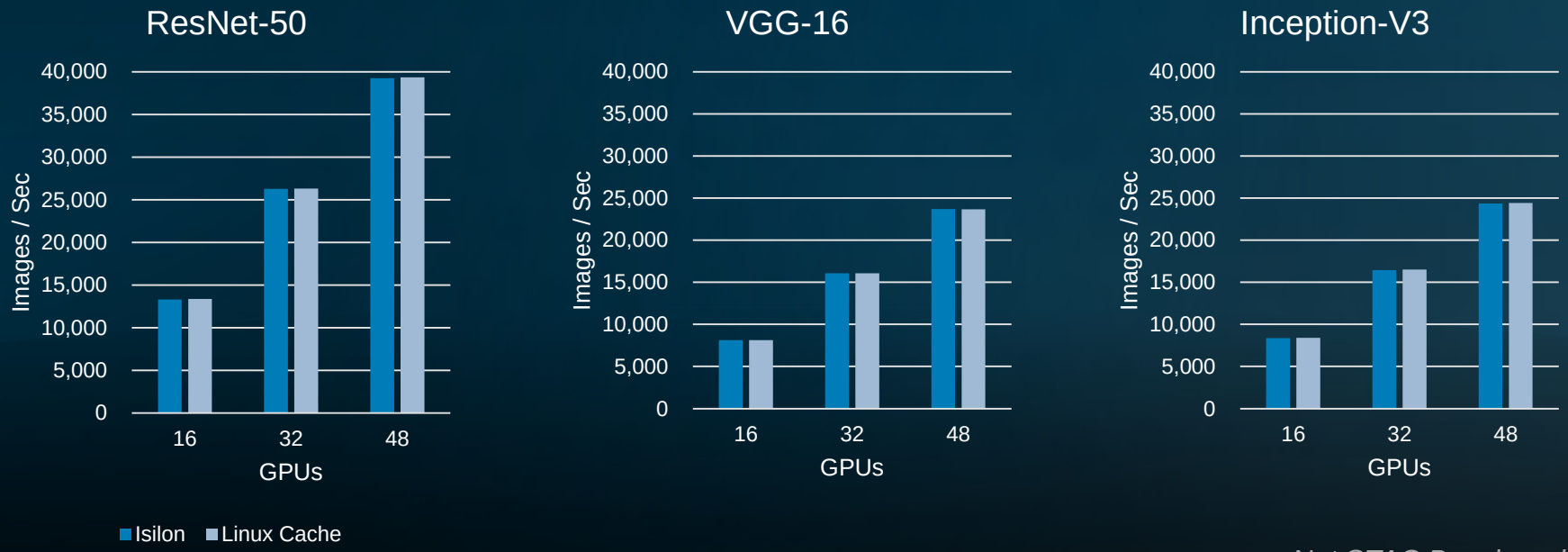
Isilon F800 all-flash scale-out NAS

Reference Architecture



Isilon with DGX-2: Benchmark Results

Training: Image Classification with TensorFlow and ImageNet Data Set



Not STAC Benchmarks

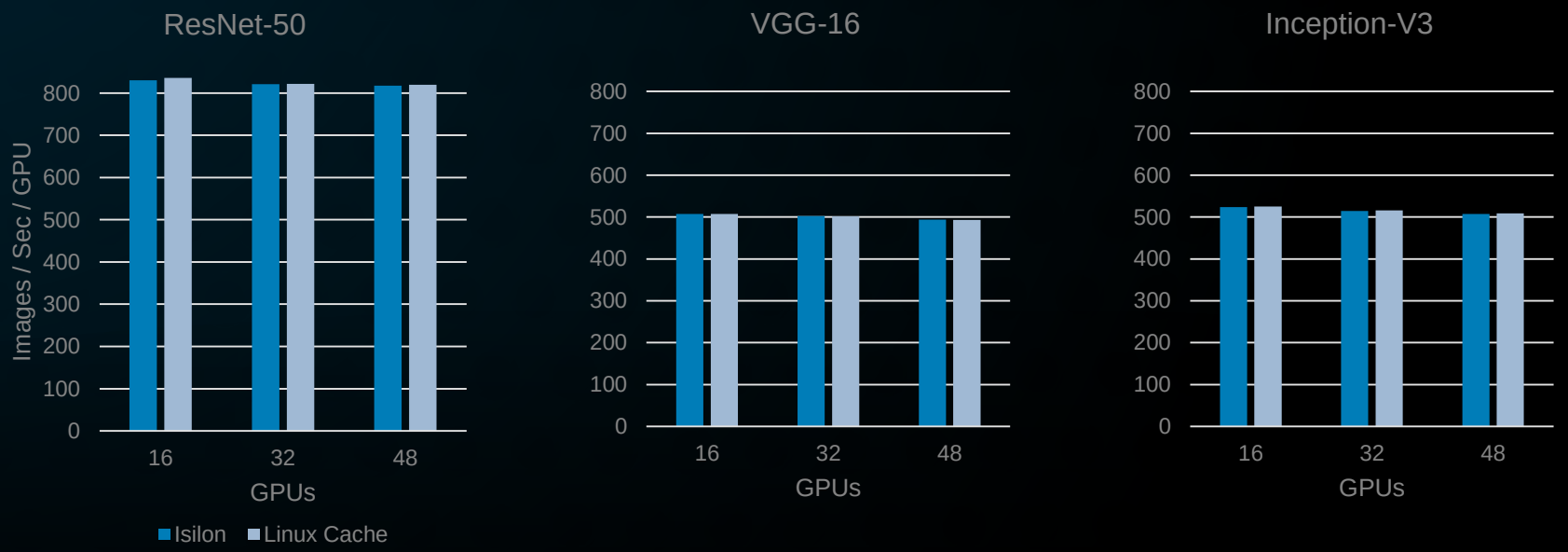
Training

- 97% GPU utilization or higher
- >99% of local memory (cache) throughput with Isilon
- Linear Scaling from 16 to 48 GPUs

Isilon with DGX-2: Benchmark Results

Training: Image Classification with TensorFlow and ImageNet Data Set

Training → Inferencing → Run-time Scoring



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TRADITIONAL CLUSTER

Workload Profile:

Financial Services Company

192TB data set

16 years, 68 quarters

34.7 Million Customers

1.85 Billion performance records

XGBoost training set: 50 features

300 Servers | $3M | 180 kW

Dell EMC Solution

1/6 the Cost

1/14 the Space

1/9 the Power

Isilon eliminates the I/O bottleneck for AI at any scale

Ultra Dense

72TBs up to 924TBs in 4U

Seamless Scale to Over 58PBs

In a Single File System

No Special Storage Drivers Needed

Simply use NFS for data access

- Faster training and validation of AI models
- Higher model accuracy
- Improve data science productivity
- Maximize ROI of compute investments

Additional Reading Material…

- Tick Data Analytics – Scaling Concurrency and I/O Performance
- Deep Learning with Dell EMC Isilon
- Digital Banking


DELL EMC


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