Решения DELL Technologies для хранения неструктурированных данных

Ильдар Суханов
Технический консультант по решения ISG

DELL EMC

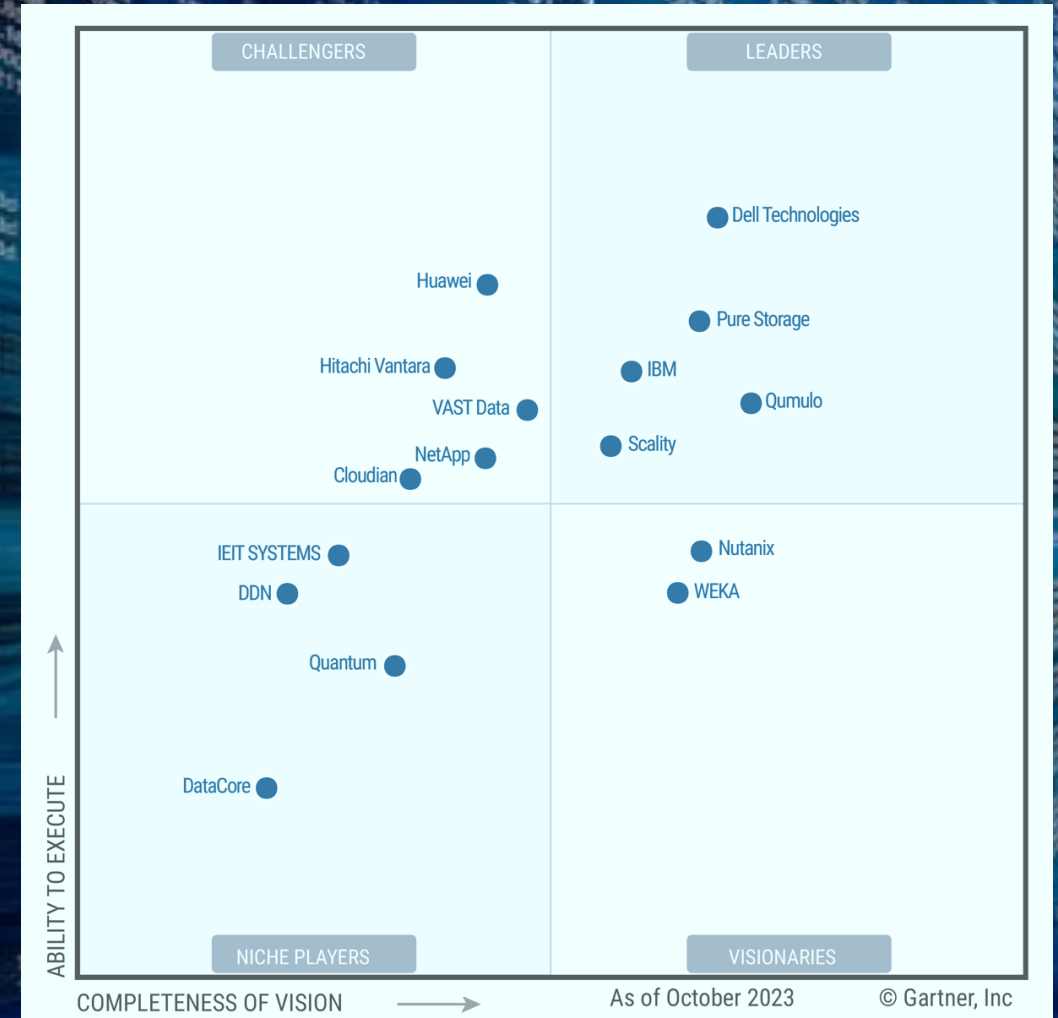# STRENGTH IN THE UNSTRUCTURED MARKET

#1
WW IDC Market share

60%
Fortune 500 customers

Over 17+
EB installed in field

8 years
Gartner Magic Quadrant Leader

Gartner Magic Quadrant:

- CHALLENGERS (top-left)
  - Huawei
  - Hitachi Vantara
  - VAST Data
  - NetApp
  - Cloudian

- LEADERS (top-right)
  - Dell Technologies
  - Pure Storage
  - IBM
  - Qumulo
  - Scality

- NICHE PLAYERS (bottom-left)
  - IEIT SYSTEMS
  - DDN
  - Quantum
  - DataCore

- VISIONARIES (bottom-right)
  - Nutanix
  - WEKA

ABILITY TO EXECUTE (y-axis)
COMPLETENESS OF VISION (x-axis)

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TRADITIONAL VS MODERN NAS STORAGE

Traditional Storage

Isilon Scale-Out NAS

NFS, CIFS/SMB, FTP, S3
Performance GB/s, file ops/s

NFS, CIFS/SMB, FTP, S3
Performance GB/s, file ops/s

NAS Gateway/Filer
MS Windows Server, Linux …

FC/iSCSI/NVMe – Performance IOPS

Multiple Volumes on Block Storage
NAS Filer/GW layer
Complex for management and support
Limited Scalability and Performance

Single Volume &
FileSystem & Namespace
Linear scalability of capacity and
performance
Purpose-built solution

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THE ARCHITECTURE REALLY MATTERS

Isilon – scale out – flexible scale

Scale-Up – limited scalability of RAID

Tune up capacity and performance

RAID Controller – I/O Threshold

PERFORMANCE

PERFORMANCE

Linear I/O performance

Non-linear I/O performance

CAPACITY

CAPACITY
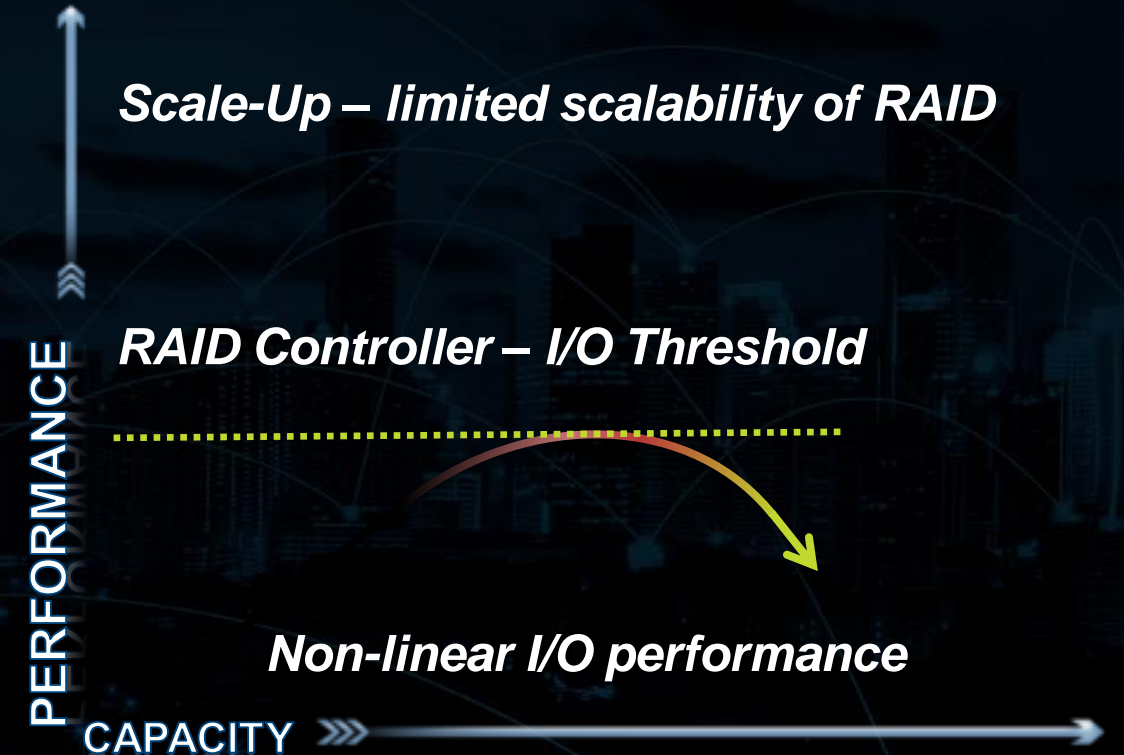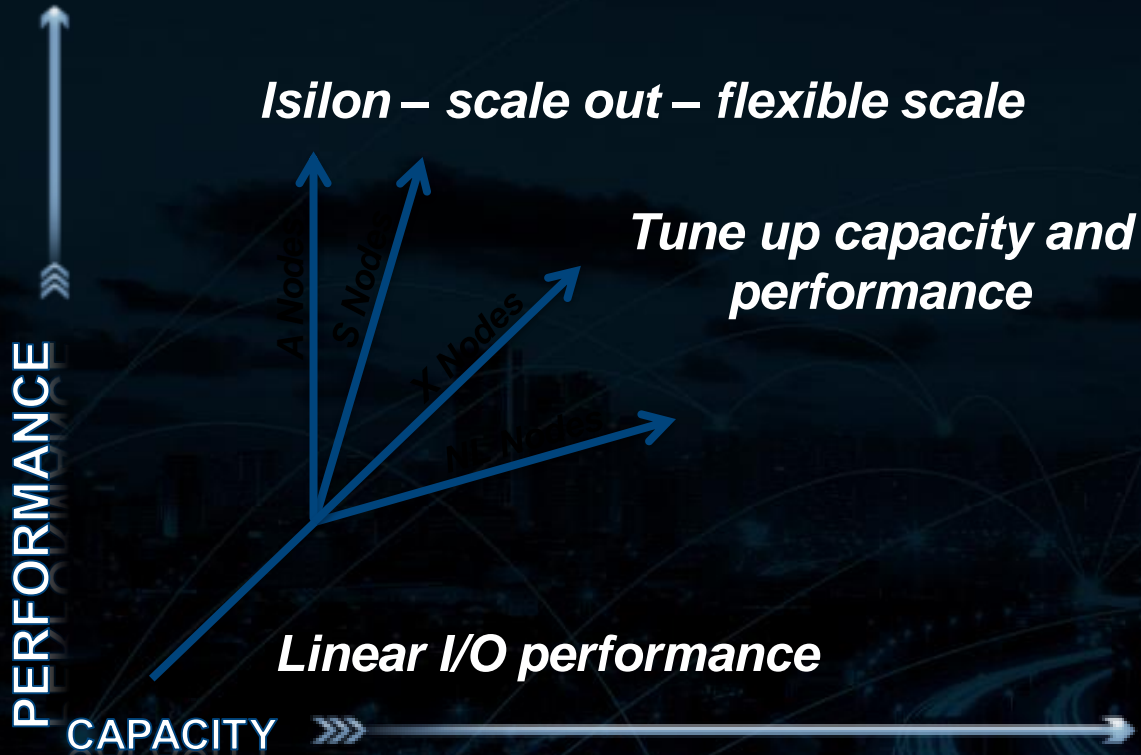
	Isilon OneFS	**RAID Technology**
Scalability	Scale-out Performance, capacity or both	Scale-up Capacity only, limited performance options
Performance	True linear predictable	Degradation of performance & capacity at scale

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Storage – Which storage?

Storage Overview

	Block Storage	File Storage	Object Storage
Structure	Highly structured at block level	Hierarchically structured	Unstructured
Manages	Fixed sized blocks of bytes	Tree-like hiearchy	Unique keys
Examples	LUNs (often RAID based)	Filesystems (NFS, NTFS)	AWS S3, Swift, CAS
Used By	Systems	Users / Applications	Applications
Data Access	"Give me 512 bytes of block #12345"	"Give me file report.ppt from folder Annual Reports"	"Give me object with ID = ABC123"
Concurrency	Device-level locks	File-level locks	No locking (different consistency models does exist)
Scalability	Very limited scalability	Limited scalability	Unlimited scalabilty
Performance	Very low latency, high speed throughput in blocks	Low / medium latency, low to very high speed throughput	Medium / high latency, low to very high speed throughput
Metadata support	Fixed system attributes	Fixed file-system attributes	Fixed object attributes and custom user/app provided metadata
Replication	Sync/Async	Async	Async
URL accessible	No	No	Yes

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The type of storage depends on application requirements

Ready for your Workloads

Home Directories

File Shares

Archives & Backups

Rich Media

VR/AR

CAD

Artificial Intelligence

Hadoop

Radiology PACS

NGS and Digital Pathology

Drone, Aerial Video, GIS

CCTV/Surveillance

Unstructured Data Storage

UNSTRUCTURED DATA STORAGE PLATFORMS

Network-Attached Storage - NAS

Access over File Protocols:

NFS, SMB, FTP etc.

Object Storage

Access over APIs:

REST API, S3, S3a, SWIFT, CAS etc.

What is in DNA of Isilon/PowerScale - NAS storage
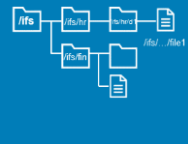
Linear Scale Out Architecture

- Grow from terabytes to 100's of PB
- 83% Useable to Raw storage efficiency
- Performance and connectivity grow with capacity
- Combination of different generations of storage nodes –seamless and non-disruptive tech-refresh WITHOUT migration

## Multi-tier architecture with automated tiering

- Nodes matched to workload (performance, archive)
- Single Filesystem and namespace without capacity limit
- No need of multiple copy of data across tiers - data duplication
- Tiering the data across the cluster (SmartPools)
- Tier to Cloud or external S3 on-prem storage (CloudPools)

Ease of Management

- Effortless configuration & automated policy-based operation
- Simplified management at any scale Terabyte - Petabyte
- Non-disruptive upgrades and maintenance
- Transparent non-disruptive technology refresh without migration
- Automation with REST API, CSI into K8S and Ansible

Massive Concurrency / No File Handle Limits

- Scale-out architecture – 1000's of simultaneous streams
- Native, Multi-protocol – SMB, NFS, FTP, HTTP, S3, HDFS
- Various workloads: High-Performance, Mixed workloads, Archive
- Automated load balancing within the cluster
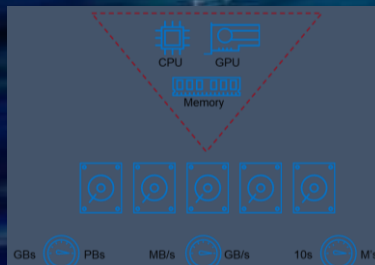
POWERSCALE PLATFORMS

Archive
Best Cost and Density

Hybrid
Best Cost Versus Performance

All Flash
Best Performance and Flexibility

Price per node

Isilon **A2000**

PowerScale **A3000**

PowerScale **A300**

Isilon **A200**

Isilon **H5600**

PowerScale **H7000**

Isilon **H600**

Isilon **H500**

PowerScale **H700**

Isilon **H400**

Isilon **F8x0**

PowerScale **F900 All-NVMe**

PowerScale **F600 All-NVMe**

PowerScale **F200 All-Flash**

PowerScale OneFS

Inline Data Reduction

DELL Technologies

What is in DNA of Elastic Cloud Storage – Object storage

Dell EMC Object Evolution – 20 years of experiences

Multiprotocol access and API support

Support for multi-site deployment

Scale-Out "Lego" architecture
- **More than 20 years of experiences in object world**
- **Build your solution as you need like a Lego**
- **Linear scalability of capacity AND performance**
- **No ever migration while technology refresh**

Infinite storage architecture
- **No realistic limit of scale in terms of capacity, number of objects, number of nodes, buckets etc.**
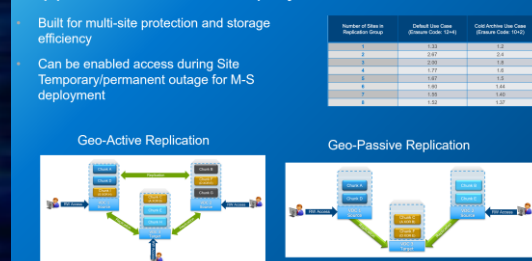- **Sky is the limit**

Rich Data Access
- **API-based access (S3, S3a, Centera CAS, SWIFT, ATMOS)**
- **File Protocol over NFS, CIFS with GeoDrive; Hadoop HDFS**
- **Management API and REST API**

Geo-dispersed deployment
- **Strong-consistency data mode**
- **Flexible deployment across many sites (A-A, A-P and combination)**
- **Unique technique of geo-distributed data protection with XOR**

ECS platform family

Standard

Dense

All Flash

ECS EX500

ECS EX5000

ECS EXF900

PROTECTION AGAINST RANSOMWARE

Superna Ransomware Defender

- **Real-time procession of audit data**
- **User behavior detection**
- **Detection rules**
- **Automated reaction**
  - **User Data Access lockout**
  - **Automated Snapshot**
  - **Management of replication**
- **Detailed logging**
- **Building cyber-vault - AirGap**

Audit of data access

Managed replication

Actions

Production NAS/Object

Ransomware Defender

Deep Archive AirGap

Thank you