Unstructured Data
Emerging Technologies Division
Isilon & Elastic Cloud Storage Specialists

Matt Uvena

Isilon & ECS Territory Manager

Washington D.C., MD, DE – Commercial & SLED

(703) – 869-0436

matthew.uvena@dell.com

Ben Crist

Isilon & ECS SE

Washington D.C., MD, DE – Commercial & SLED

(443) 857-5073

benjamin.crist@dell.com

Dell - Internal Use - Confidential

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UNSTRUCTURED DATATA: COLLECT, STORE, ANALYZE & USE

Traditional and Emerging Sources

Traditional	Emerging

Video

Enterprise File Data

Archive

Machine Data

Public records
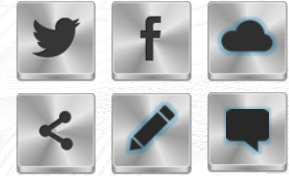
Internet Of Things

Social Networks, User Generated Content

Location Data

EMC

Unstructured Dataset Attributes

Shared
Many Users, Many Applications

Large
Petabyte Scale

Rapid Growth
Exponential

Dense
100's of Millions to Billions of objects
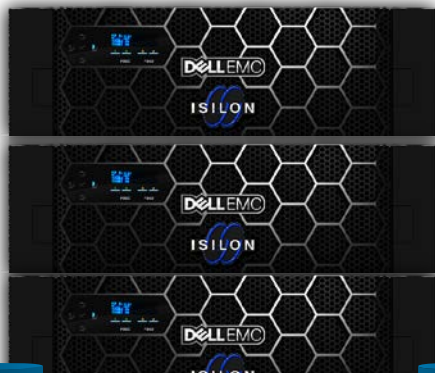
Performance
Must scale with capacity

Multiprotocol
Requires access from many platforms

May Not Compress or De-duplicate Well

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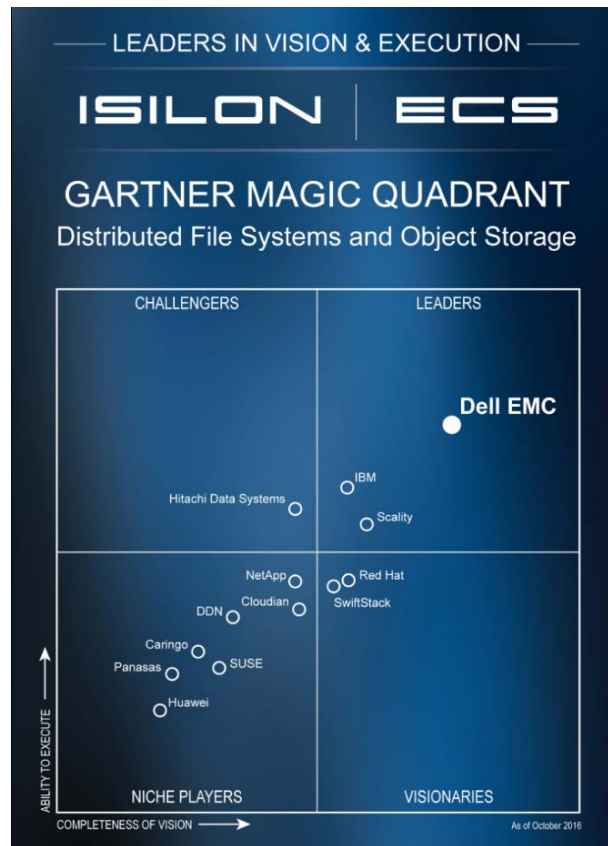
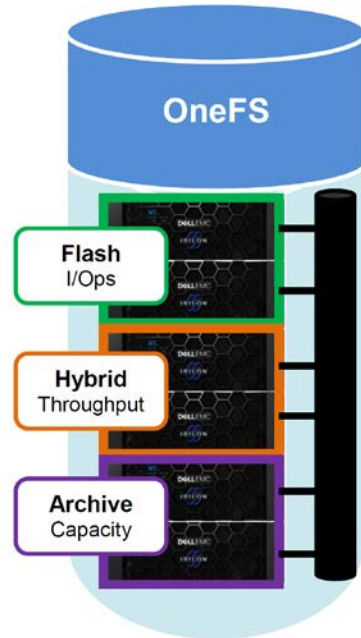# Dell EMC: THE Leader in Distributed File & Object

ISILON

IDC Gartner Scale-Out NAS Leader

Primarily File: SMB, NFS, HDFS

>80% Storage Efficiency

Why Isilon for Unstructured Data

OneFS

Flash I/Ops

Hybrid Throughput

Archive Capacity

Isilon is the leading Scale-Out NAS platform and ideal solution for creating a centralized Data Lake to manage all unstructured data.

Isilon's OneFS file system runs on a node-based architecture that helps customers optimize their cost-to-serve by intelligently tiering inactive data to lower cost tier. The system can scale to >50PB and Isilon drastically simplifies management by eliminating inefficient silos of storage.

This new world of Big Data is introducing major challenges for enterprise IT managers as well as significant opportunities for businesses across all industry segments. To deliver the optimal storage platform for Big Data, a storage system must provide:

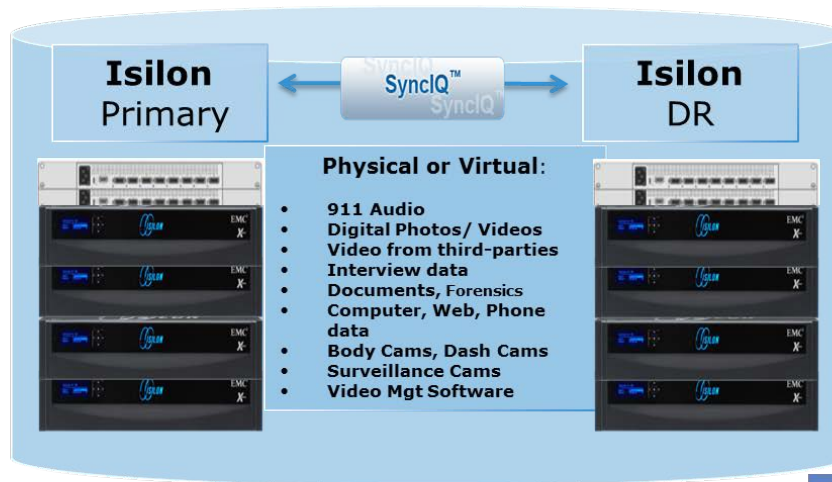- **Massive capacity:** To accommodate very large and growing data stores, or data lakes

- **Extreme performance:** To minimize response and data ingest times and thereby keep up with the pace of the business

- **High Efficiency:** To reduce storage and related datacenter costs

- **Operational simplicity:** To be able to manage a growing, large-scale data environment without adding more IT staff

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DATA LAKE: Consolidate All Unstructured Data on Isilon

File Shares and Home directories

SQL/DB Dumps

BLOBS

Microsoft® SharePoint 2010

Cloud/Object

VDI

Video/Surveillance

Call Centre CVR

Mobile Apps

Backup

Archive/Compliance

Vmware/NFS

PACS/ VNA

Social Media Feeds

Hadoop - Bigdata

DW – ETL Offload

Splunk/M2M Log Files

Broadcast/Content Streaming

ETHERNET

SMB   HTTP

SmartConnect   SED

SECURE   InsightIQ

FTP   CONFIDENTIALITY   REST

SmartDedupe   INTEGRITY   EFFICIENT   SIMPLE   Aspera

ISILON OneFS®

SCALABLE

SmartLock   NFS   SnapshotIQ   SWIFT

ETHERNET

SmartPools   AVAILABILITY   SmartQuotas

NDMP   HDFS

ETHERNET

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Evidence Management Data Lake

Isilon
Primary

SyncIQ™

Isilon
DR

Physical or Virtual:

- **911 Audio**
- **Digital Photos/ Videos**
- **Video from third-parties**
- **Interview data**
- **Documents,** Forensics
- **Computer, Web, Phone data**
- **Body Cams, Dash Cams**
- **Surveillance Cams**
- **Video Mgt Software**

5 Simple Reasons Customers Choose Isilon

- Never Tech Refresh Again…
  - *Scale linearally on Demand, Single Node at a Time*
  - *No Dual Controller Limit*

- No Forced Data Migrations Again…
  - *Save Time/Money/Hassle*
  - *All future Migrations are Backend/100% Transparent to EU*

- Lowest $/GB in NAS Today
  - *80%+ Storage Efficiency*
  - *Native Storage Tiering*
  - *Native Cloud Tiering*
  - *As low as…..Active FS $0.03/GB/MO / Deep Archive FS $0.01/GB/Mo*

- 85% Less System Mgmt
  - *Single FS Scales to PB's*
  - *No More Capacity Management (Silo's of Under-Utilized Storage)*
  - *No More Performance Tuning (Luns/Aggregates/Hot Spots/Raid Groups)*

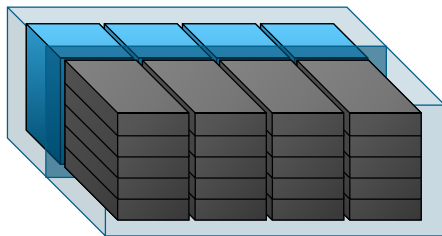- *SW Defined and Cloud-Enabled*

SCALE-UP

VS.

SCALE-OUT

ISILON

PERFORMANCE

Controller Performance

CAPACITY

PERFORMANCE

N-Nodes

CAPACITY
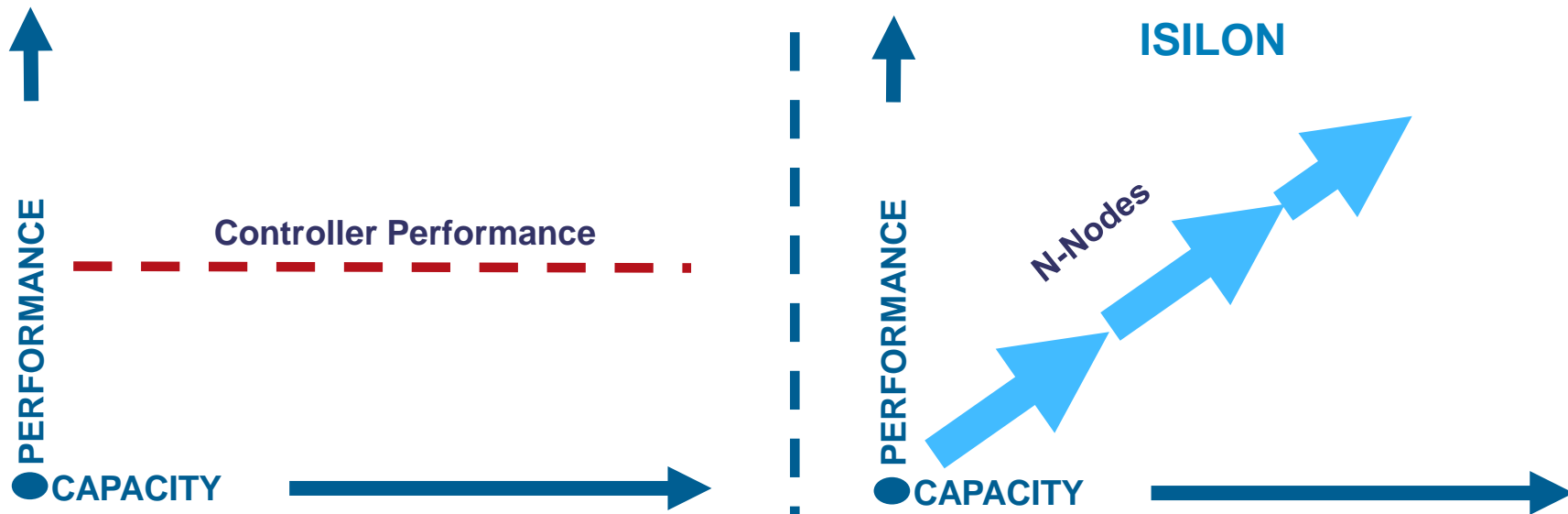
"With traditional storage, my best day is always my first day…"
"But with Isilon, everyday is my best day"

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Introducing Isilon Infinity

Internal View
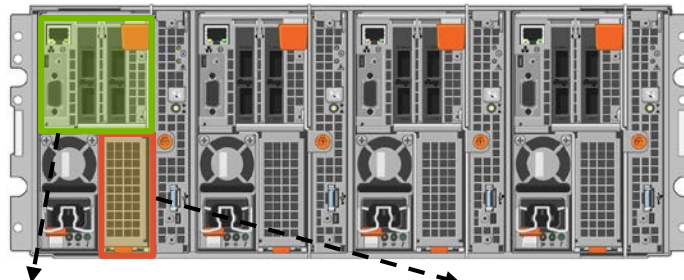
Front
(without faceplate)
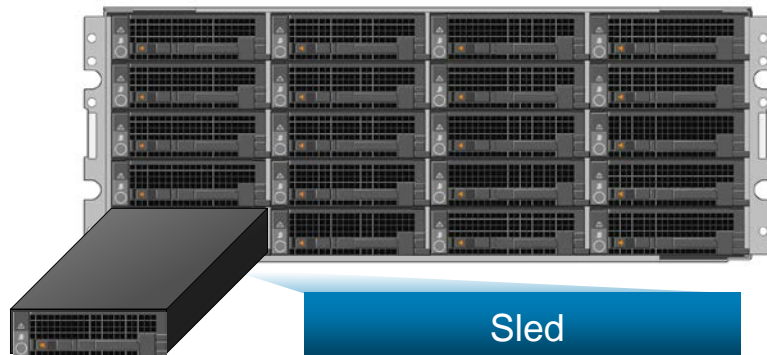
Back

Sled

Future proofed…
- Drive Technology
- Drive count

Compute Suitcase

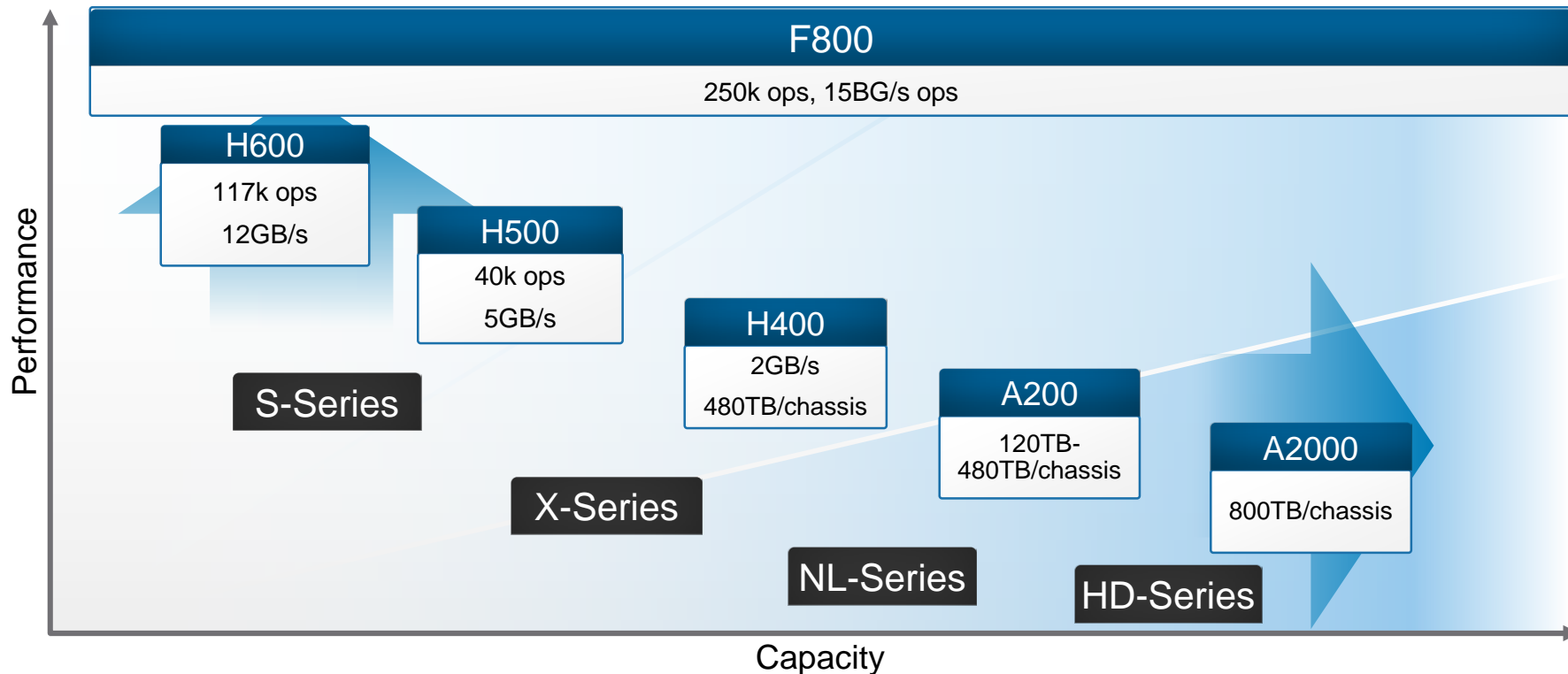**Performance-Cost optimized**
- CPU
- Memory

Cache SSD

Dedicated slots
- Capacity
- Count
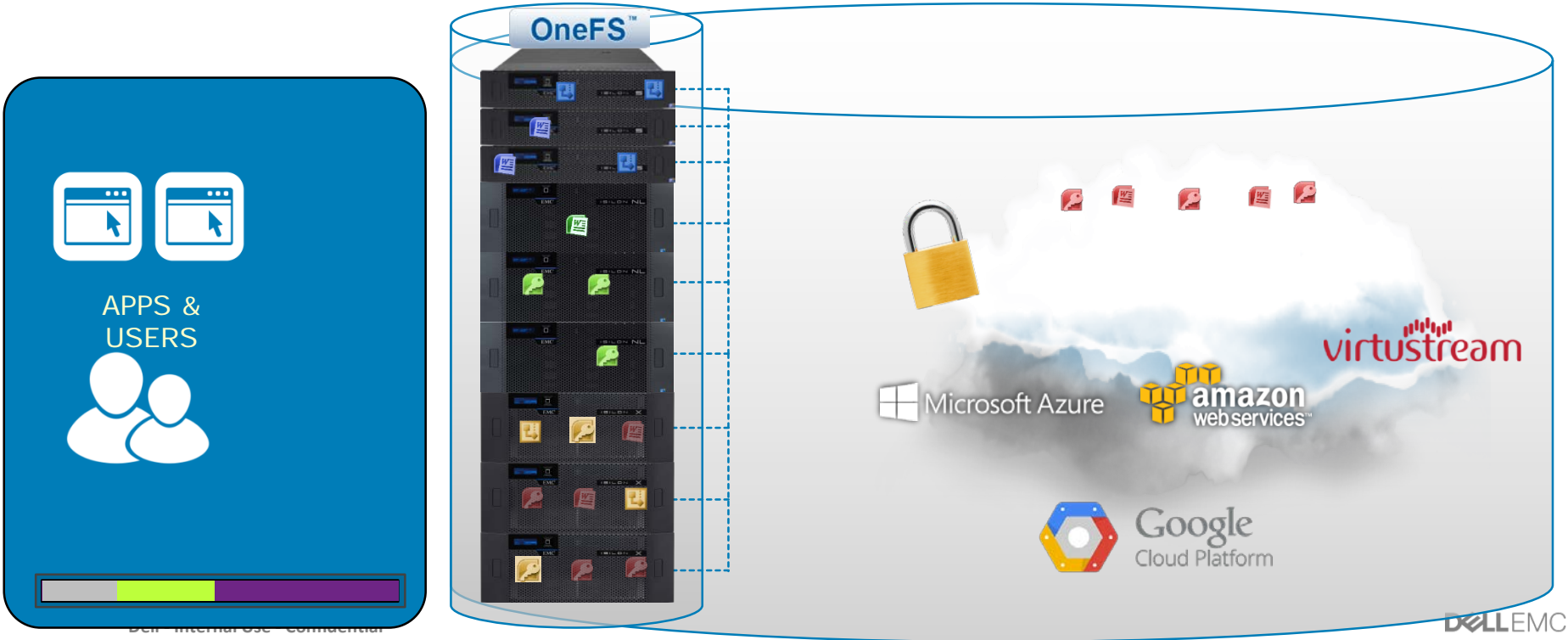
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Isilon Family

Introducing Isilon Infinity

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Isilon Gen6 Node Positioning

		Performance (Per Chassis)		Capacity Range (Per Chassis)		
All-Flash Nodes	F800	250K ops/s, <1ms / 15 GB/s read		96 TB	924 TB	Extreme Performance and Scalability
Hybrid Nodes	H600	120K ops/s / 12 GB/s read		72 TB	144 TB	Performance, Capacity and Value
	H500	5 GB/s read		120 TB	480 TB	
	H400	3 GB/s read		120 TB	480 TB	
Archive Nodes	A200			120 TB	480 TB	Capacity & Economics
	A2000				800 TB	

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SmartPools – Policy Based Tiering

DATA CENTER

Extend Single File System
to the Cloud

OneFS™

APPS &
USERS

Microsoft Azure

amazon
web services™

virtustream

Google
Cloud Platform

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NITRO EXTREME PERFORMANCE AND SCALABILITY

250K IOPs
15GB/s Bandwidth
Per Chassis

920TBs FLASH
Per Chassis

ULTRA Density & Deep Archive

ISILON

75% Reduction
in Floor Space

800TB RAW in 4U Chassis

NEW MODULAR
ARCHITECTURE

4 HD400's compared to one A2000 chassis

Isilon Security & Compliance Options

- Roles-based access control (RBAC)
- Access Zones for secure isolation
- WORM Data Protection
- File System Auditing
- Data at Rest Encryption (DARE) with Self-Encrypting Drives (SEDs)
- Security and Technical Implementation Guide (STIG) hardening
- CAC/PIV Smartcard authentication
- FIPS OpenSSL support

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Isilon Combats, Prevents & Recovers from Ransomware

Combat

Isilon's deep integration with Varonis SW allows EU's to monitor for Encrypted Files for early detection

Prevent

Isilon's SmartLock SW is can prevent Ransoware Attacks altogether. Once a file is committed to a Smartlock folder with a retention policy, it cannot be re-written in an encrypted format.

Recover

Isilon snapshots are <u>*READ-ONLY*</u>

SnapshotIQ is the best protection for ransomware because snapshots cannot be encrypted during an attack!

"SnapshotIQ alone helped us recover from 10 ransomware attacks in the past year!".

- DC area utility company

SmartLock
Policy-based Compliance and WORM Data Protection

SnapshotIQ
Fast, Efficient Data Backup And Recovery

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Isilon Gen6 Platform Benefits
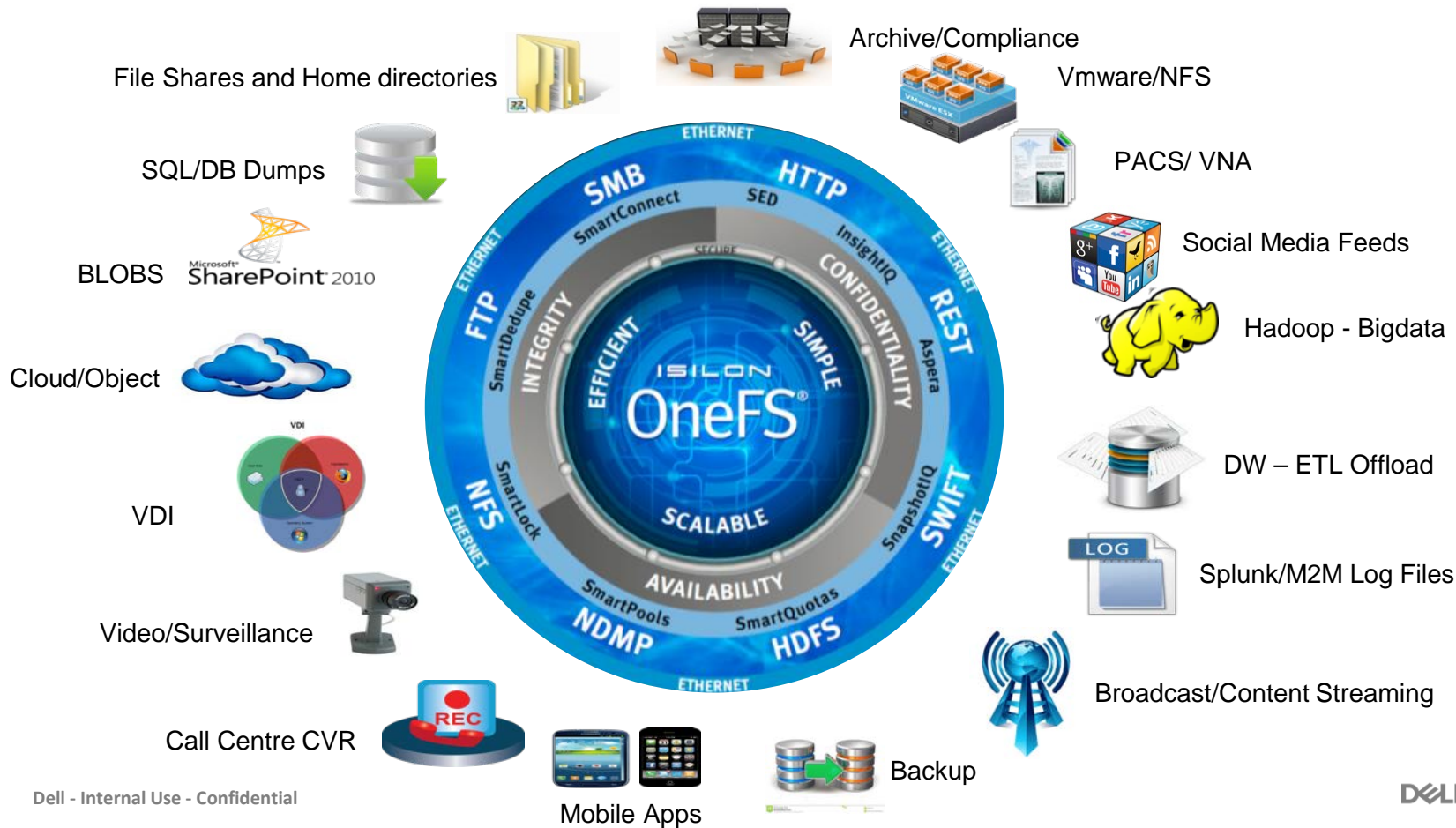
No Compromises

Investment Protection

Dramatic OPEX Reduction

Unmatched Reliability, Availability and Scale

Unconstrained Scale and Performance

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Cloud/Object

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Video/Surveillance

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Mobile Apps

Backup

Archive/Compliance

Vmware/NFS

PACS/ VNA

Social Media Feeds

Hadoop - Bigdata

DW – ETL Offload

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