Christoph Hesse
Senior Manager
📞 +49 89 4208 – 3150
✉ Christoph.Hesse@ingrammicro.com

Dell Technologies Pre-Sales Team

Michael Fischhold
System Engineer
📞 +49 89 4208 – 2797
✉ Michael.Fischhold@ingrammicro.com

Nikola Grujicic
System Engineer
📞 +49 89 4208 – 1035
✉ Nikola.Grujicic@ingrammicro.com

Philipp Lehnart
System Engineer
📞 +49 172 - 285 9691
✉ Philipp.Lehnart@ingrammicro.com

Dell Technologies Außendienst

Manfred Honsdorf
Key Account Manager
📞 +49 172 - 102 9012
✉ Manfred.Honsdorf@ingrammicro.com

Martin Schnelldorfer
Senior Key Account Manager
📞 + 49 152 – 288 88301
✉ Martin.Schnelldorfer@ingrammicro.com

Dell Technologies Sales Team

Thomas Mack
Supervisor Sales
📞 +49 89 4208 – 2537
✉ Thomas.Mack@ingrammicro.com

Özhan Bakar
Technical Sales Consultant
📞 +49 89 4208 – 2728
✉ Oezhan.Bakar@ingrammicro.com

Katrin Klose
Technical Sales Consultant
📞 +49 89 4208 – 3351
✉ Katrin.Klose@ingrammicro.com

Max Riedel
Senior Sales Consultant
📞 +49 89 4208 – 1684
✉ Max.Riedel@ingrammicro.com

Natasa Stojanovic
Sales Consultant
📞 +49 89 4208 – 3285
✉ Natasa.Stojanovic@ingrammicro.com

Hristiana Staenova
Sales Consultant
📞 +49 89 4208 – 3747
✉ Hristiana.Staenova@ingrammicro.com

Gabriele Yordanova
Sales Consultant
📞 +49 89 4208 – 3755
✉ Gabriele.Yordanova@ingrammicro.com

Martina Geßl
Senior Sales Consultant
📞 +49 89 4208 – 1470
✉ Martina.Gessl@ingrammicro.com

Atilla Kumbaraci
Sales Consultant
📞 +49 89 4208 – 3055
✉ Atilla.Kumbaraci@ingrammicro.com

Jutta Obermeier
Technical Sales Consultant
📞 +49 89 4208 – 1035
✉ Jutta.Obermeier@ingrammicro.com

Felix Schüler
Sales Consultant
📞 +49 89 4208 – 3171
✉ Felix.Schueler@ingrammicro.com

Michael Stalmach
Sales Consultant
📞 +49 89 4208 – 3234
✉ Michael.Stalmach@ingrammicro.com

Markus Ungnadner
Sales Consultant
📞 +49 89 4208 – 34611
✉ Markus.Ungnader@ingrammicro.com

DELLTechnologies
AUTHORIZED DISTRIBUTOR

Wir unterstützen Sie kompetent und persönlich!

INGRAM MICRO®

Dell Technologies Business Management Team

Martina Kern
Senior Business Development Manager
📞 +49 89 4208 – 1306
✉ Martina.Kern@ingrammicro.com

Thorsten Lieser
Business Development Manager
📞 +49 89 4208 – 2136
✉ Thorsten.Lieser@ingrammicro.com

Rouven Scharrenberg
Business Development Manager
📞 +49 89 4208 – 2071
✉ Rouven.Scharrenberg@ingrammicro.com

Ludwig Steffel
Product Manager Marketing
📞 +49 89 4208 – 1785
✉ Ludwig.Steffel@ingrammicro.com

Ramona Klix
Marketing Manager
📞 +49 89 4208 – 3386
✉ Ramona.Klix@ingrammicro.com

✉ **DellEMC@ingrammicro.com**

📞 **089 4208 – 2020**

Dell Technologies
Midrange Storage Update

Christian Stein
Dell Technologies Adv. PSE
christian.stein@dell.com

10.March 2020

INGRAM MICRO®

DELLEMC

Dell EMC Unity & SC Series Update

- Product Positioning

- Dell EMC SC Series

- Dell EMC Unity Series

DELLTechnologies

PARTNER PROGRAM

Dell EMC Entry/Midrange storage around the globe

- **92% of the Fortune Global 100 Companies** use Dell EMC Entry and Midrange Storage

- Top **10 Largest Energy Companies** in the World use Dell EMC Entry and Midrange Storage

- Top **10 Largest Banks in the World** use Dell EMC Entry and Midrange Storage
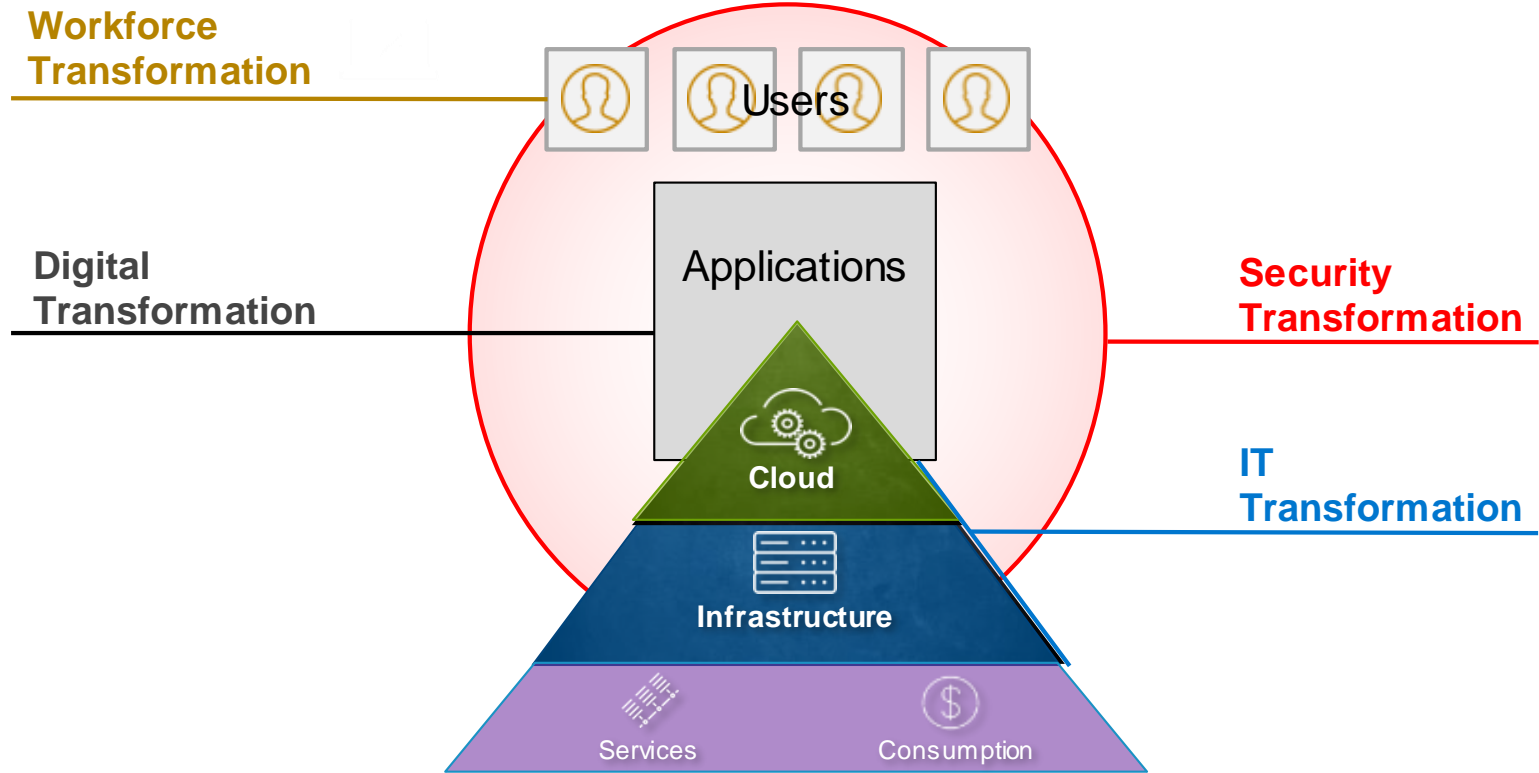
PowerVault ME4 Series

SC Series

Unity XT Series

D∕ELL Technologies

Transforming The Business

Workforce Transformation

Digital Transformation

Users

Applications

Cloud

Infrastructure

Services

Consumption

Security Transformation

IT Transformation

D∕LL Technologies
PARTNER PROGRAM

How do you begin?

3 Phase IT Transformation Process

MODERNIZE

- Future-Proof Infrastructure
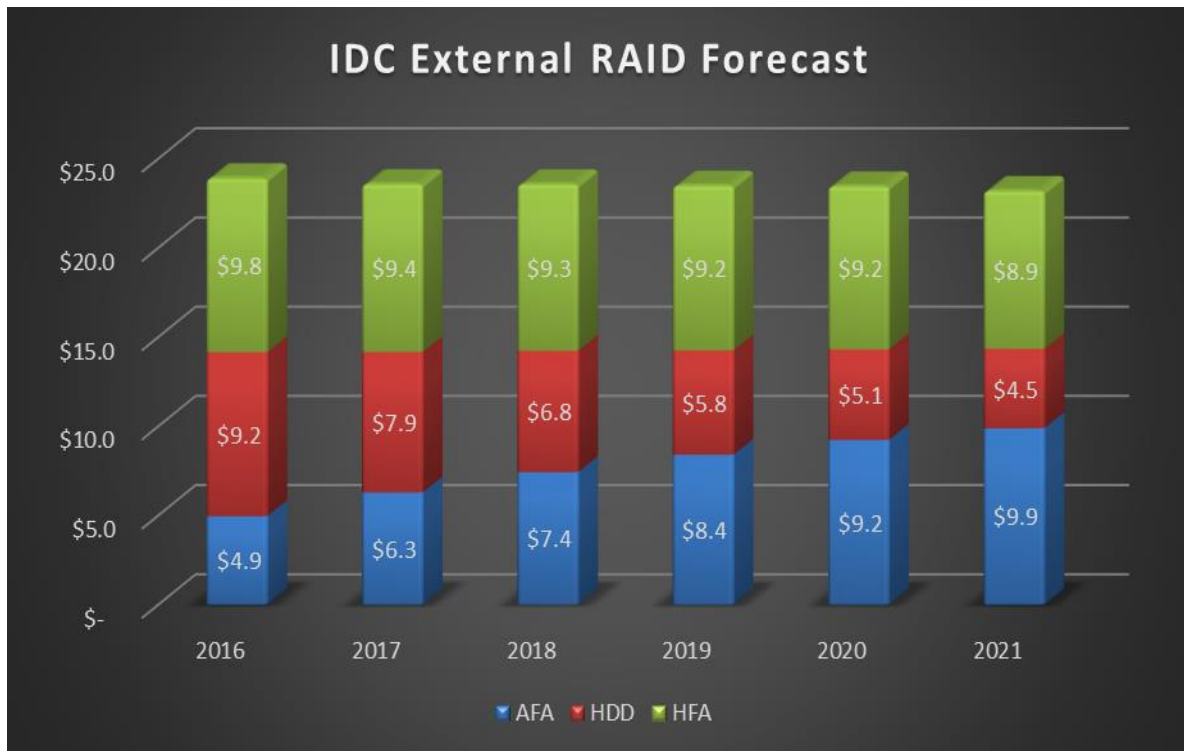- Best of Breed or CI/HCI
- Protected Everywhere
- Future-Proof Program

AUTOMATE

- Enable a path to cloud
- Deploy Private Cloud
- Leverage Public Cloud
- Become a cloud provider

TRANSFORM

- With Senior Exec Support
- Transform
  - People
  - Process
- Business & IT Alignment

DELLTechnologies
PARTNER PROGRAM

Customers want all-flash…and more flash

IDC External RAID Forecast

Revenue CAGR 2016 to 2021

HFA **Flat (roughly)**

HDD **(-13%)**

AFA **+15%**

43% of total market by 2020

© Copyright 2020 Dell Inc.

D∕LL Technologies

INDUSTRY'S #1
Midrange & Entry Portfolio

UNITY

SC SERIES

POWERVAULT
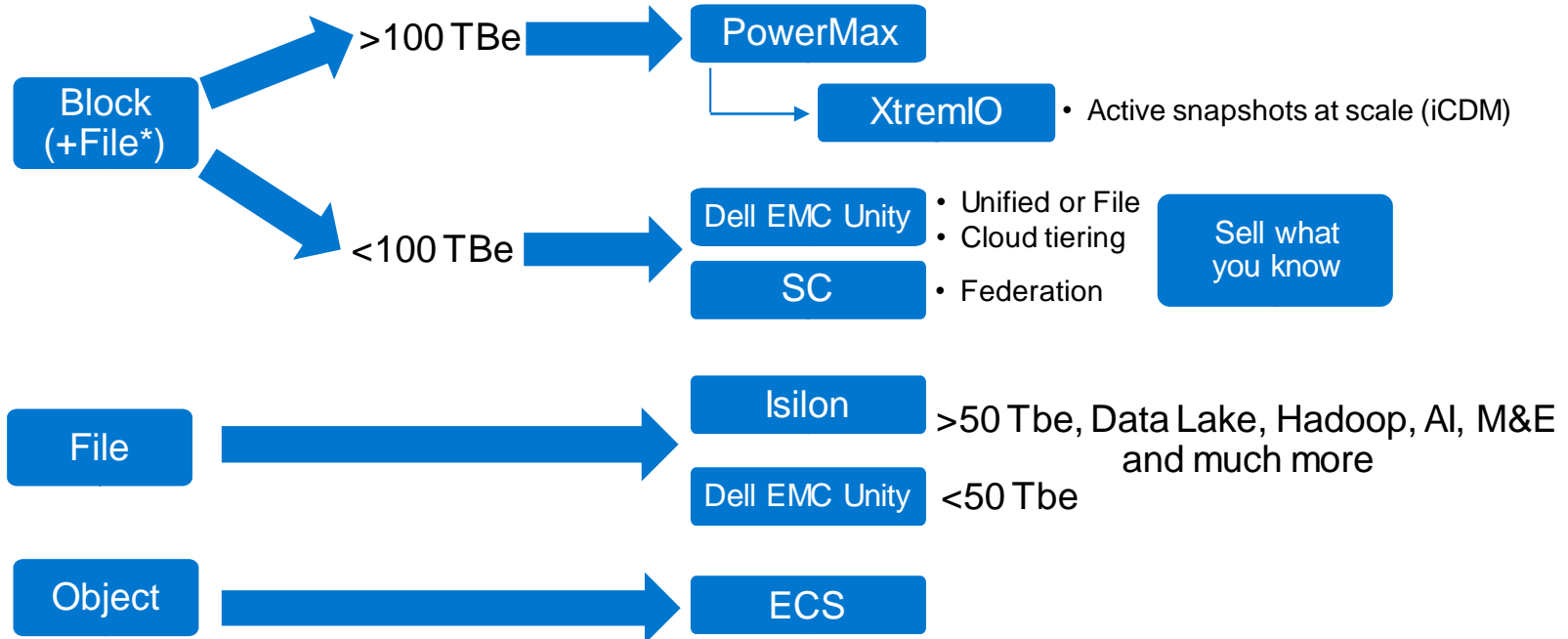
DELLTechnologies
PARTNER PROGRAM

New Opportunities

❶ Consultative Selling, then:

WORKLOAD	CAPACITY	LEAD WITH…

Block (+File*)

- >100 TBe → **PowerMax**
  - **XtremIO** • Active snapshots at scale (iCDM)
- <100 TBe →
  - **Dell EMC Unity**
    - • Unified or File
    - • Cloud tiering
  - **SC**
    - • Federation

Sell what you know

File
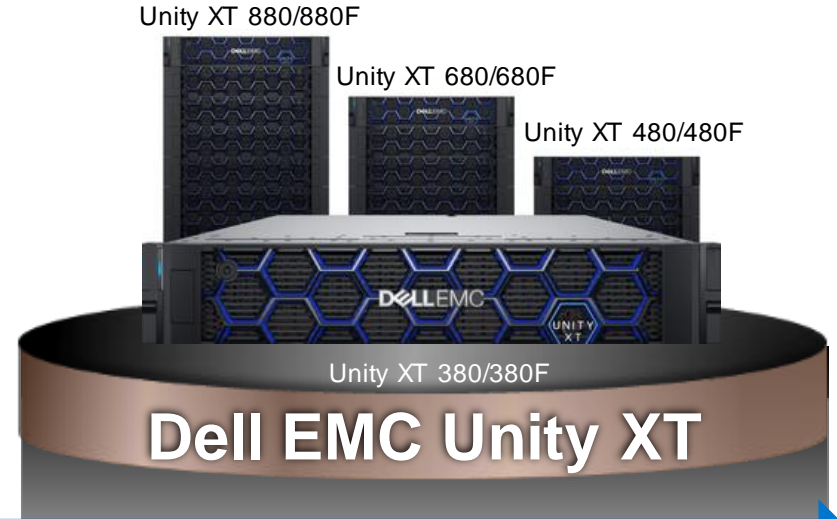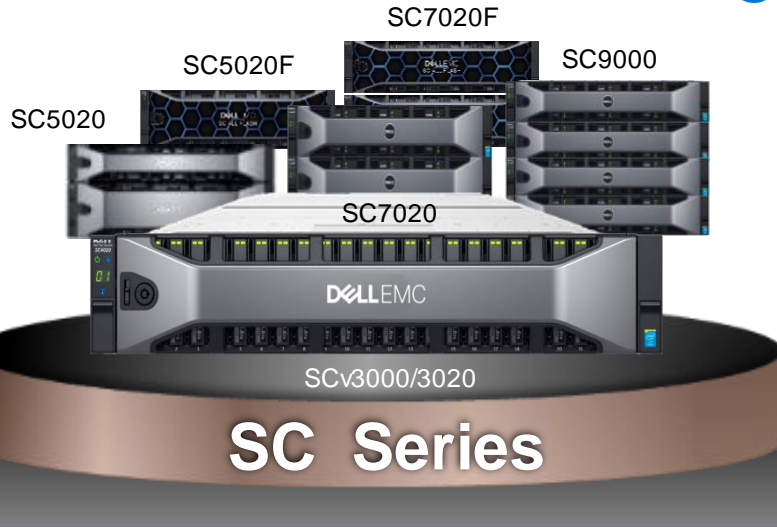- **Isilon** >50 Tbe, Data Lake, Hadoop, AI, M&E and much more
- **Dell EMC Unity** <50 Tbe

Object
- **ECS**

Block + File only available on PowerMax and Unity – Unity is true unified, PowerMax is Block + <50TBe of File

DELLTechnologies
PARTNER PROGRAM

New Opportunities in Small Commercial Accts

WORKLOAD	ASP	LEAD WITH…

Block

>$15 K → **SC**

<$15 K → **PowerVault**

File /Unified → All → **Dell EMC Unity**

D⦵LL Technologies
PARTNER PROGRAM
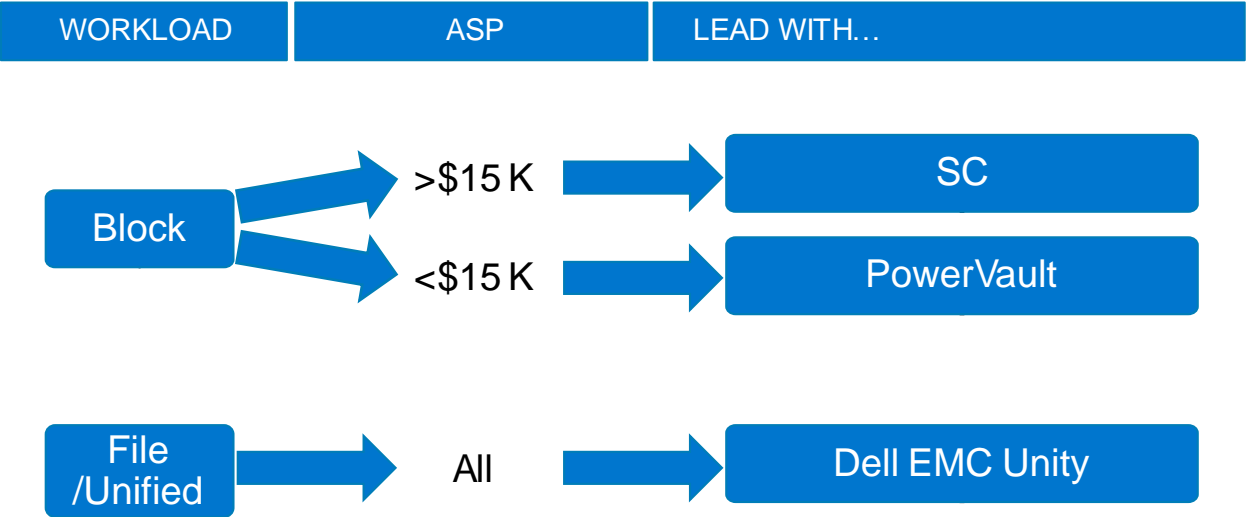
The Dell EMC Midrange Family

© Copyright 2019 Dell Inc.

Our customer commitment

"Because our combination is very complementary…

We are fully committed to, supporting and investing in both Dell EMC Unity and Dell EMC SC."

Michael Dell

DELL Technologies
PARTNER PROGRAM

Dell EMC Unity XT & SC Series benefits

Simple	Install & Service; Integrated Hybrid Cloud
Inline Data Reduction	Balanced performance and storage efficiency
Unified	Transactional and traditional file workloads with block
Flexible	Converged, software defined or cloud enabled. DIP upgrades.

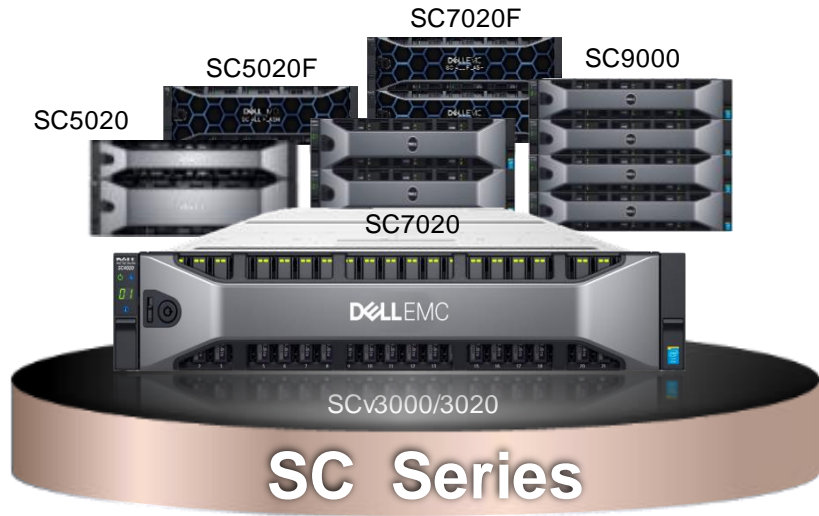|	
Federated	Scale-up block with the ability to federate arrays
Compression & Deduplication	Post-process compression/dedupe for flash & hybrid max cost savings
SAS Front-end	Option to connect using SAS inter-connect
Metro DR	Transparent Metro DR for block with Live Volume Auto Failover

Dell EMC Unity XT Series

SC Series

Dell EMC SC Series

Dell EMC SC Series value

MOST ECONOMICAL STORAGE SOLUTION

MIXED MAINSTREAM WORKLOADS

SCALABLE GENERAL PURPOSE STORAGE

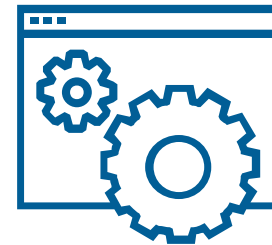# SC Series Market Momentum*

1.0+ Exabytes of Flash

Total SC Series flash capacity*

52,900+

Systems*

Federation

Easy data mobility, built-in DR solution

* Since FY Q217

DELL Technologies
PARTNER PROGRAM

SC Series Family

SC All-Flash

| | **1PB**[1] 222 drives | **2PB** 222 drives | **3PB** 500 drives | **3PB** 1024 drives | **2PB**[2] 222 drives | **3PB**[2] 500 drives |
	SCv**3000/3020**	SC**5020**	SC**7020**	SC**9000**	SC**5020F**	SC**7020F**
Memory/Proc.	32GB 6c/1.7GHz	128GB 8c/2.4GHz	256GB 2x 8c/2.5GHz	512GB 2x 8c/3.2GHz	128GB 8c/2.4GHz	256GB 2x 8c/2.5GHz
Media	Hybrid (0-100% Flash)				All-Flash	
Protocols	FC, iSCSI, SAS		FC, iSCSI	FC, iSCSI, FCoE	FC, iSCSI	
Data reduction	Compression	Compression + Deduplication				
Multi-array	Federation (Live Migrate), Snapshot Mobility, Volume Advisor, Replication					
Business continuity	Sync Replication, Auto-Failover (Live Volume), Metro DR, RecoverPoint for VM, D@RE[3]					
Management	HTML5 Unisphere[4], CloudIQ[4], Dell Storage Manager, Openstack, QoS, VVols					
Architecture	Dynamic RAID Tiering, Always Thin, Virtualized Page Pool, Distributed Sparing[4]					

1 - SCv3xxx max capacity may be increased to 2PB using 4MB page sizes.

2 – With 2MB page size. For maximum flash performance, 512K page sizes are recommended. See Release Notes and Sizer for details.

3 – External key manager

FUTURE-PROOF LOYALTY PROGRAM

DELLTechnologies PARTNER PROGRAM

SC Series
All-Flash Arrays

D&LL Technologies
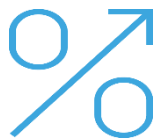
SC All-Flash Arrays: Powerful

SC5020F & SC7020F

Best Performance

400,000+ IOPS per array, 4+ million aggregate IOPS per multi-array federation

Best Efficiency

3X-10X data reduction with both compression and deduplication

Enterprise Features

Federated multi-protocol storage that can scale-up and out

Lowest Price

<$1/GB effective for All-Flash with all software included

SC All-Flash Model Selection

Base arrays

- (30) 2.5" internal drive bays, 3U
- Dual, active/active controllers
- Multi-protocol I/O

SC5020F
222 drive max (2.1PB raw)
2 processors per array
8,000 snaps, 19,000 MB/sec

SC7020F
606 drive max (4PB raw)
4 processors per array
16,000 snaps, 29,000 MB/sec

Expansion

- (24) 2.5" drive bays, 2U
- 12GB SAS

SC420F
Supports either base array

No License Costs!
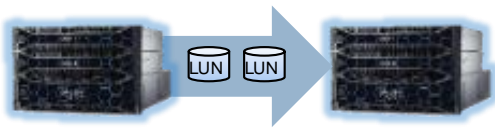**Included SW covers FULL expansion capacity**

Max raw capacities assume 7.3 firmware and 2MB page size. 4MB and 512K page size options also available. For maximum flash performance, 512K page sizes are recommended. Discuss performance and expansion capacity needs with your Dell EMC representative or Authorized Partner.

DELLTechnologies

Dynamic: SC Federation = Adaptive Agility

SC All-Flash

Online Data Migration
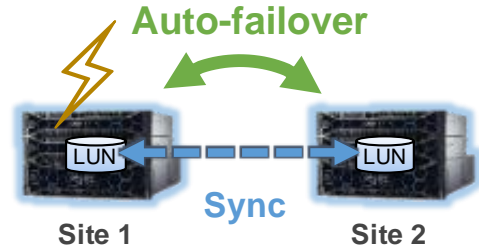
ZERO workload downtime, snapshots fully preserved

Live Migrate

Online Load Balancing

Volume Advisor

Online Disaster Recovery

Auto-failover

LUN ⟷ LUN

Sync

Site 1   Site 2

Live Volume

D&LL Technologies

Powerful: <u>More</u> Power Together

Federate up to 10 heterogeneous SC arrays

Single Array	**UP TO** **1.2M** IOPS	**UP TO** **4PB**	**MULTIPROTOCOL** Fibre Channel, iSCSI, VVOLS
Federation **(aggregate)**	**UP TO** **12 MILLION** IOPS	**UP TO** **40PB**	

Performance based on internal tests by Dell EMC in October, 2017. 100% sequential reads with 8K sector transfer size. Actual performance will vary based on configurations and usage and manufacturing variability.

DELLTechnologies

Efficient: All-in-1 format, All-inclusive Value

Data Progression

RAID tiering

Multiprotocol
FC, iSCSI

Cross-platform Replication

Secure Encryption

Departmental Chargeback

Best-in-Class Dedupe and Compression

VVOLs, Qos

DELL EMC
SC ALL FLASH

Business Continuity / Disaster Recovery

Replication over FC or IP

Multi-protocol

Federated scale, mobility, availability

VLAN Tagging

CloudIQ

Cloud-based AI/ML

EVERY advanced SCOS feature is included + no capacity licenses!

EASY to purchase, maintain – no matter how your business evolves

DELLTechnologies

SC Series
Hybrid Arrays

D&LL Technologies

You choose how much flash you need

0-100% Flash
Architecture

Target any price/performance mix

## *Change* the mix as your business needs evolve

- ✓ **Add SSD performance**

- ✓ **Add "cheap and deep" HDD storage as cold data volumes grow**

Always lowest $/GB*

* Source: Dell internal analysis, March 2017, street price compared to major-vendor midrange products. Net effective capacity after applying data reduction. Customer's price and reduction ratio may vary.

DELLTechnologies

Give each workload the resources it needs
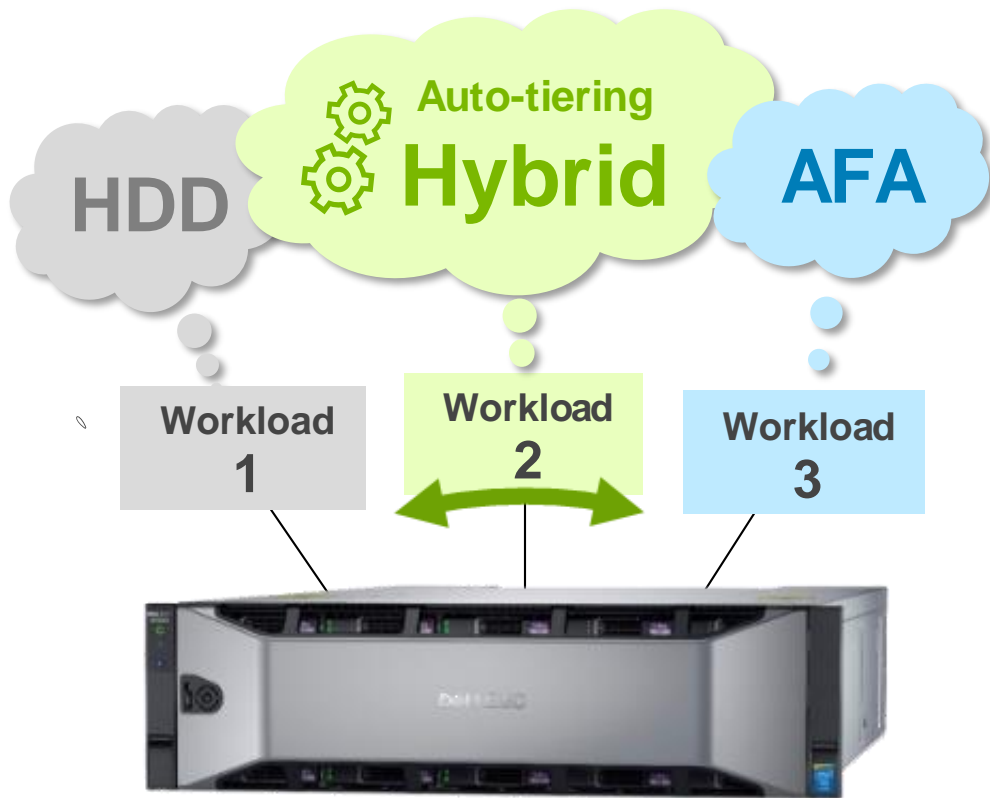
Like having three arrays in one box

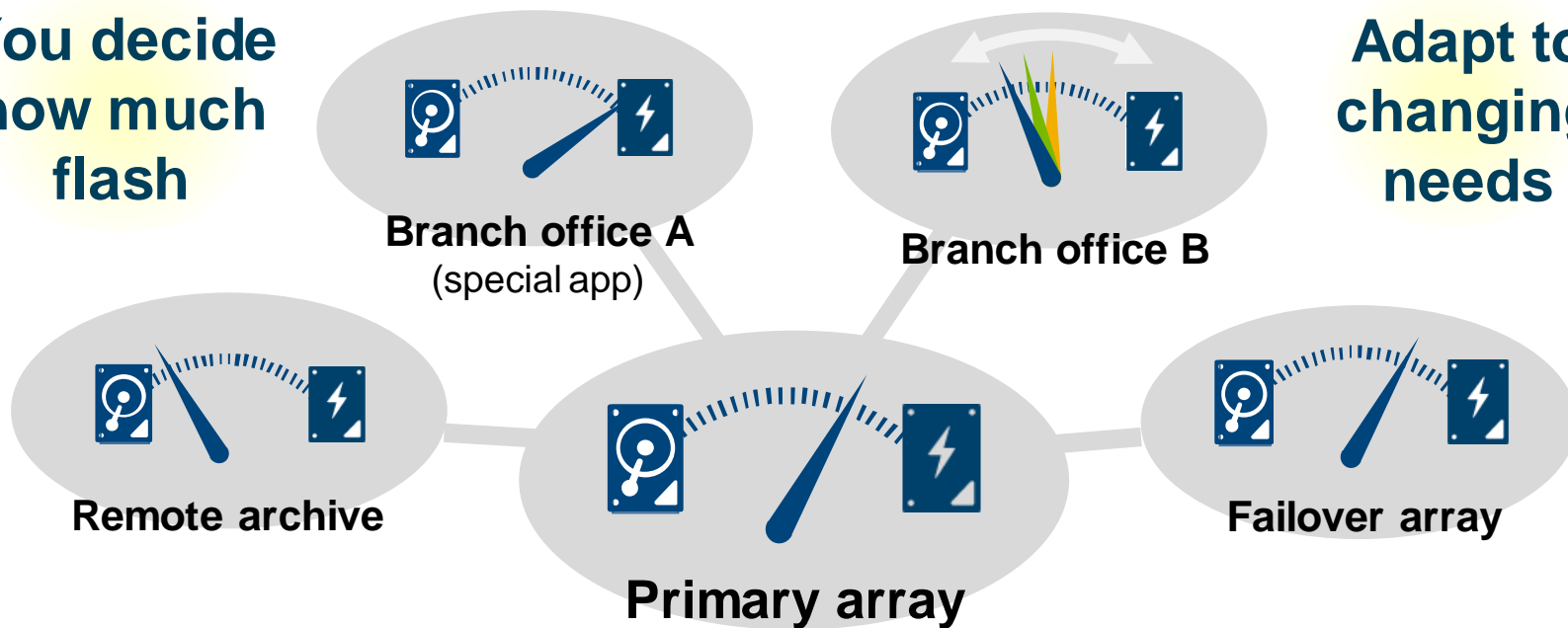**Pin volumes to any tier, or let Data Progression distribute automatically**

Size flash tier as needed – but $/GB remains lowest at any mix*

* Source: Based on Dell internal analysis, March 2017, compared to major-vendor midrange products. Net effective capacity after applying data reduction. Customer's price and reduction ratio may vary.

DELLTechnologies

Invest where and when you need to

You decide how much flash

Branch office A
(special app)

Branch office B

Adapt to changing needs

Remote archive

Primary array

Failover array

Unified management and federated data mobility

D&LL Technologies

SCv3000 Series arrays and expansion

Base Arrays

- **Dual active controllers**
- **Internal drive slots**
- **Multi-protocol I/O**
- **+ Any SCv3xx enclosure**

SCv3000
(16) 3.5" drive bays, 3U

SCv3020
(30) 2.5" drive bays, 3U

Expansion Enclosures

- **12Gb SAS**
- **Mix/match to 222 drive max per array**

SCv300
(12) 3.5" drive bays, 2U

SCv320
(24) 2.5" drive bays, 2U

SCv360
(60) 3.5" drive bays, 4U

D∕∕LL Technologies

SC5020

8-core Intel Processors

4X more Memory[1]

12Gb SAS, Modular I/O

Up to 45% More IOPS[1]

2x Max Raw Capacity (2.16PB)[1]

Simplified SW licensing

New 3U Form Factor (30 internal drive bays)

ProDeploy Services Option (lower cost install)

Data-in-Place upgrades from popular SC4020 available![2]

✓ **0-100% Flash architecture**
✓ **Intelligent Dedupe, Compression**
✓ **Data Progression, RAID tiering**
✓ **Built-in Federation, Data Mobility**
✓ **Business Continuity, QoS, Encryption**

GUARANTEE **4:1**

1 – Compared to previous-generation SC4020. Capacity assumes 7.3 firmware and 2MB page sizes. See SCOS 7.3 section for latest performance numbers

2 – Requires SCOS 7.3 firmware. See SCOS 7.3 section for details.

DELLTechnologies

Flagship SC Performance and Capacity

SC7020

SC9000

3U expandable all-in-one format

- (30) 2.5" drives, dual hot-swap controllers
- Integrated I/O (29,000 MB/s max throughput)
- 606 drives, 4PB raw max expansion

Highest-performing SC Series offering

- 2U discrete controller (deploy in pairs)
- Integrated I/O (33,000 MB/s max throughput)
- 1,024 drives, 6PB raw max expansion

ENTERPRISE FEATURES | GUARANTEED EFFICIENCY

0-100% Flash architecture, Intelligent Dedupe/Compression, Data Progression, RAID tiering, Federation, Built-in Business Continuity, QoS, Encryption, more…

GUARANTEE 4:1

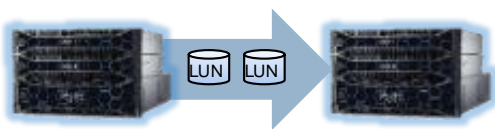See SCOS 7.3 section for latest performance numbers

DELLTechnologies

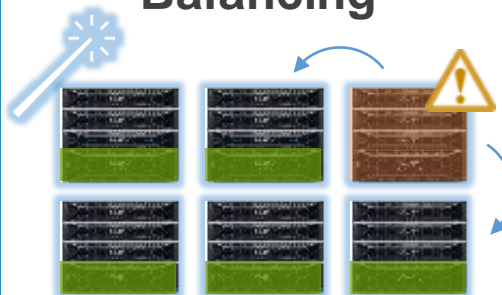# Dynamic: Federation = Adaptive Agility

SC Hybrid

Online Data Migration

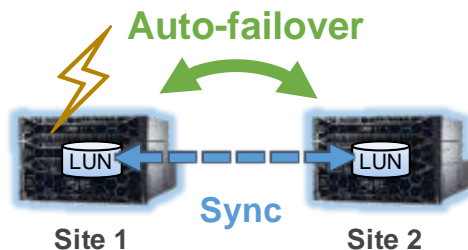**ZERO workload downtime, snapshots fully preserved**

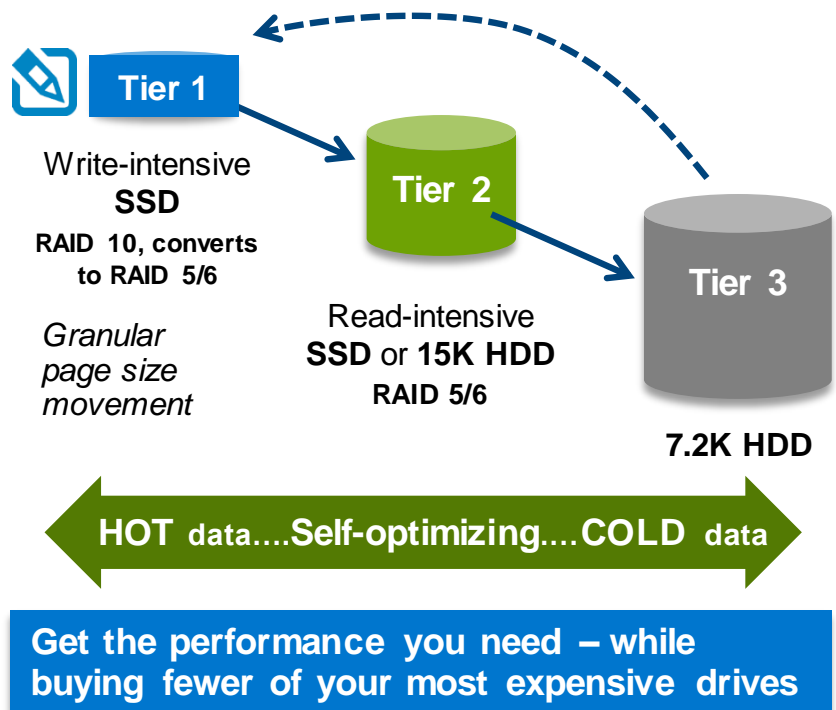LUN LUN

Live Migrate

Online Load Balancing

Volume Advisor

Online Disaster Recovery

Auto-failover

LUN ← → LUN

Site 1   Sync   Site 2

Live Volume

D✕LL Technologies

Granular auto-tiering (data progression)

Tier 1

Write-intensive
SSD

**RAID 10, converts
to RAID 5/6**

*Granular
page size
movement*

Tier 2

Read-intensive
SSD or **15K HDD**

RAID 5/6

Tier 3

7.2K HDD

HOT data....**Self-optimizing**....**COLD** data

**Get the performance you need – while
buying fewer of your most expensive drives**

Achieve simultaneous performance and cost goals

- Directs ALL incoming writes to Tier 1 drives at fastest RAID levels
- Moves inactive data to lower-cost drives, space-efficient RAID levels
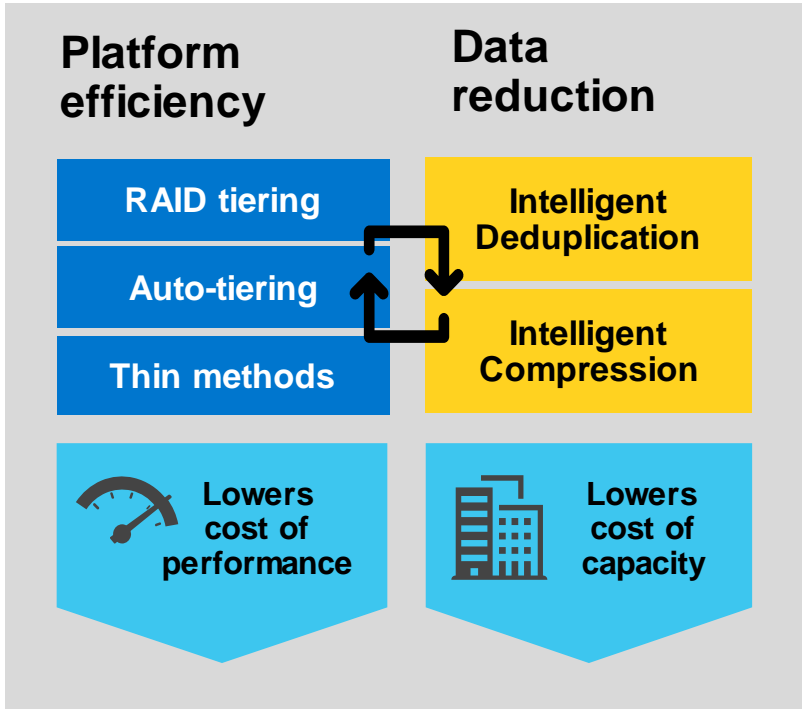
Enables cost-effective all-flash and hybrid solutions

- Separates reads from writes

Seamless integration with Storage Center OS

- Snapshots, Replication

DELLTechnologies
PARTNER PROGRAM

Intelligent compression and deduplication

Platform efficiency	Data reduction
RAID tiering	**Intelligent Deduplication**
Auto-tiering	
Thin methods	**Intelligent Compression**
Lowers cost of performance	Lowers cost of capacity

- ✓ Automated efficiency methods work together to maximize your savings

- ✓ Post-process operation compresses and dedupes inactive data

- ✓ Delivers the lowest $/GB with hybrid and data efficiencies

DELLTechnologies
PARTNER PROGRAM

SC Series storage efficiency features

Thin Provisioning

Automatically recover free space. On average, customers reduce storage by 2.3x

RAID Tiering

Write data at RAID 10, then automatically convert to RAID 5/6 *on the same drives*. Performance of RAID 10 @ cost of RAID 5/6

Thin Clones

Create clones from replays with no additional copies. Perfect for cloning Virtual servers or virtual desktops

Deduplication

Data reduction on an average of 4:1 and up to 10:1 for VMWare environments

Thin Writes

Pattern recognition reduces writes on thick provisioned volumes and VMs

Thin RAID

Dynamic RAID provisioning, no need to pre-allocate. Use the performance of ALL the drives in your array for any RAID level, anytime

Compression

An average of ~60% in MS environments of data reduction on data that is compressed

D@ARE

Data-at-rest Encryption

DELLTechnologies
PARTNER PROGRAM

SCOS 7.4

The next stage of SC Series innovation

D&LL Technologies

Building on the Success of SCOS 7.3

Continous SCOS innovation

More…

- ✓ **Performance**
- ✓ **Integrations**
- ✓ **Features**

2X IOPS

7.2

7.3

7.4

Sep '18

Sep '19

D∕ELL Technologies
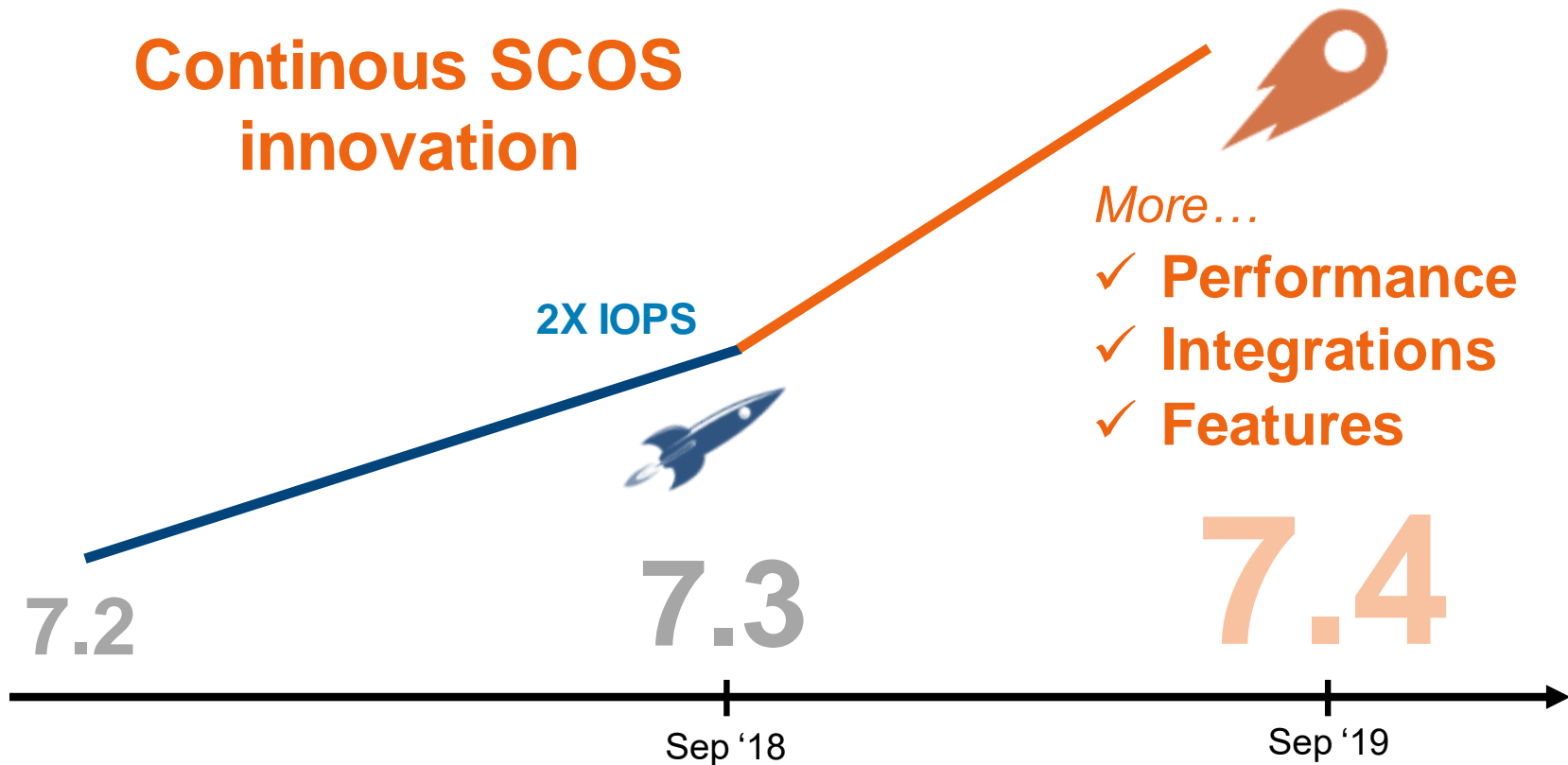
Dell EMC SCOS 7.4: SC7020 SQL performance

Application-specific improvement vs. SCOS 7.3

Total IOPS	Reads	Writes	Read Latency	Write Latency	Transactions per second
+ 49%	**+58%**	**+21%**	**70% Lower**	**70% Lower**	**+43%**

| 310,545 462,461 | 230,786 365,811 | 79,759 96,650 | 3.21 1.89 | 6.92 4.10 | 67,103 96,122 |
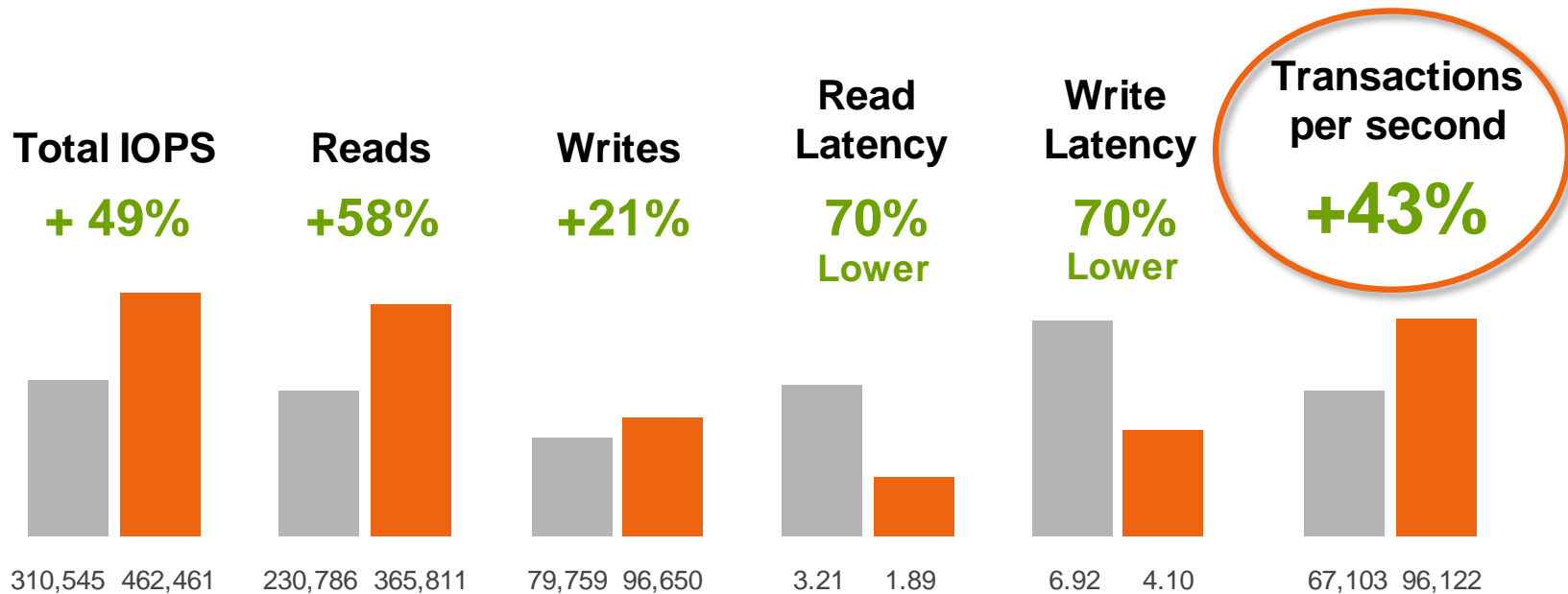
■ 7.3 results
■ 7.4 results

Based on internal tests preformed by Dell EMC in July 2019 on a SC7020 array running TPC-C like workloads (75% reads, 8K sector transfer size) with 7.4 vs 7.3 firmware. Actual performance will vary based on configuration, usage and manufacturing variability

DELL Technologies
PARTNER PROGRAM

© Copyright 2019 Dell Inc.

Dell EMC SCOS 7.4: SC7020 VDI performance

Application-specific improvement vs. SCOS 7.3

+31%

Chart: Maximum *Sustained* IOPS
- 7.3: 100.000
- 7.4: ~132.000

Y-axis: 0, 20.000, 40.000, 60.000, 80.000, 100.000, 120.000, 140.000
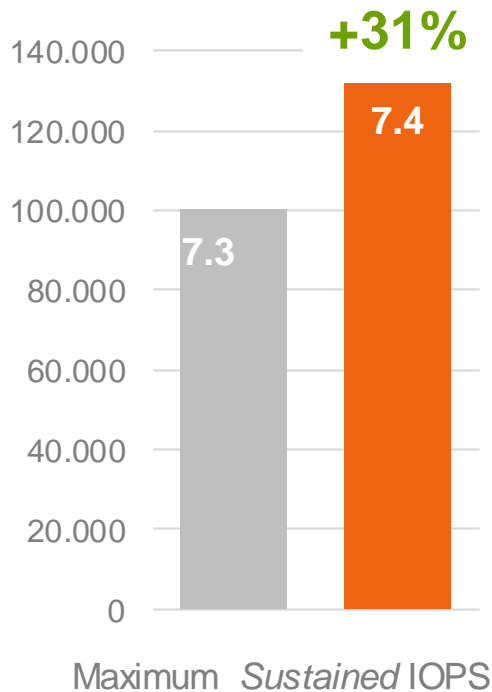
SCOS 7.4 enabled a 31% increase in supported VMs …using the same hardware

VDI workload test parameters

- **80% writes**

- **0.7 ms latency**

- **60 IOPS per VM – very heavy load!**

Based on internal tests performed by Dell EMC on an SC7020 with 7.4 vs. 7.3 firmware. Actual performance will vary based on configuration, usage and manufacturing variability.

DELLTechnologies
PARTNER PROGRAM

Dynamic Management Tools for SCOS
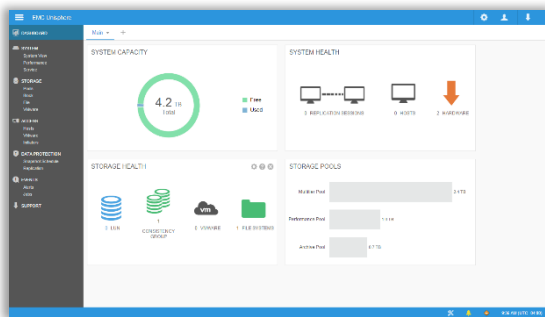
HTML-5 BASED UNISPHERE FOR SC

- ✓ Access From Anywhere
- ✓ Modern Look and Feel
- ✓ No Install Required

CloudIQ

- ✓ Cloud Based Analytics
- ✓ Built-in Machine Learning Technology Predicts Anomalies
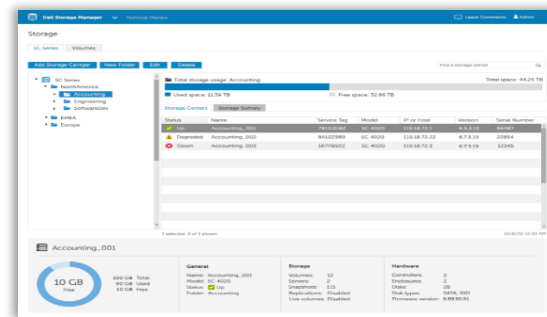
DELL STORAGE MANAGER

- ✓ Central Management And Monitoring
- ✓ Supports Up To 10 Arrays

DELLTechnologies

Dell EMC SC Series NDA Roadmap

2019 Q3
7.4
- New OS/App Support
  - Microsoft Server 2019
  - vSphere 6.7
- HTML 5 WebUI Initial Setup
- Customer Enhancements
  - Propagate QoS Settings
  - SSL Wildcard & Chaining
- Application Integrations
  - DSITV 5.0 MR
  - DSITV 5.1 w/VMware 6.7
  - VMware SRM 8.1
  - Replay Manager 8.0
  - VROPS 1.3
  - SCOM 4.1

2020 2H
7.5
- HTML 5 WebUI Phase 2
  - Replication
  - Live Volume
  - Live Migrate
- Static Local Key Manager
- Live Volume Auto-failover RHEL
- Application Integrations
  - vSphere 7.0
  - vCenter plug-in (HTML-5)
  - SRM 8.3
- Customer Enhancements
  - Reporting updates
  - Support bundle updates

Current SC Series AFA/Hybrid Platforms

Note: *SCOS firmware runs on all current platforms!*
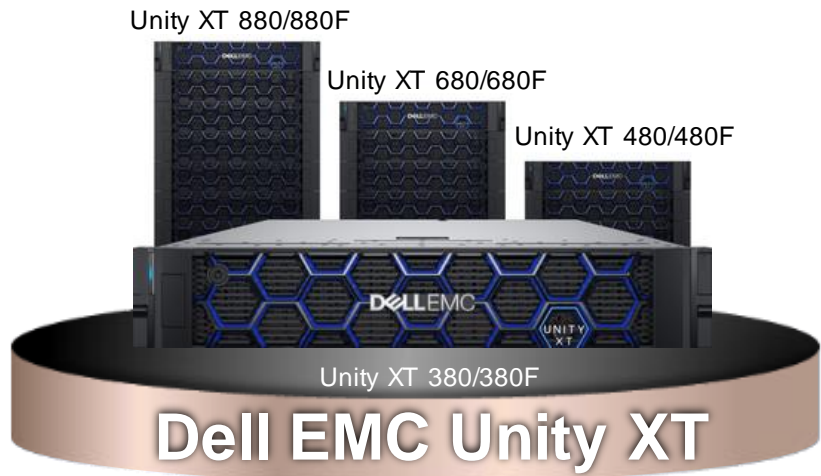
| SHIPPING | DEVELOPMENT | CONCEPT-PLAN | PRE-CONCEPT |

Dell EMC Unity XT Series

DELLTechnologies

PARTNER PROGRAM

Dell EMC Unity XT All-Flash Value

Unity XT 880/880F

Unity XT 680/680F

Unity XT 480/480F

DELL EMC

UNITY XT

Unity XT 380/380F

Dell EMC Unity XT

CONSISTENT RESPONSE TIME

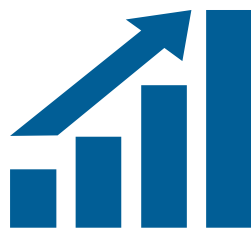SIMPLE TO SETUP, MANAGE AND USE

NEW USES & APPLICATION OPPORTUNITIES

Dell EMC Unity Family Market Momentum*

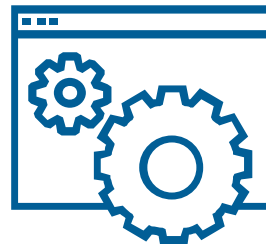**2.2+ Exabytes of Flash**

Total Unity flash capacity*

53,400+

Systems*

21,300+

Unity VSA licenses

Security

Rich security & compliance feature set

* Since FY Q217

DELL Technologies
PARTNER PROGRAM

NEW Dell EMC Unity XT Series

FUTURE-PROOF
LOYALTY PROGRAM

All-Flash Models: Hybrid Models:	Unity 380F Unity 380	Unity 480F Unity 480	Unity 680F Unity 680	Unity 880F Unity 880
CPU (per system)	12 Cores 2x Single-Socket 1.7GHz	32 Cores 2x Dual-Socket 1.8GHz	48 Cores 2x Dual-Socket 2.1GHz	64 Cores 2x Dual-Socket 2.1GHz
Memory (per system)	128GB	192GB	384GB	768GB
Max raw capacity	2.4PB	4.0PB	8.0PB	16.0PB
Max drives	500	750	1000	1500
All-inclusive software	Inline Data Reduction, Sync/Async Replication, Snapshots, Multicore Optimization, QoS, FLR, IP Multi-Tenancy, Web-based Management, SSD Caching, Auto-tiering, Thin Provisioning, CloudIQ, Cloud Tiering, Dell EMC RecoverPoint Basic & AppSync Basic Licenses			

DELLTechnologies
PARTNER PROGRAM

Dell EMC UnityVSA with native HA
Software-defined enterprise NAS and SAN storage

UnityVSA

HTML5
UNISPHERE

VSI | ESI
ESA | VAAI
REST API

NATIVE HA SOLUTION
Dual Node with Tie Breaker Node

N F S | C I F S | i S C S I

FILE   BLOCK   VVOL

REPLICATION   SNAPSHOTS

VMware ESXi

COMMUNITY EDITION

Move SDS into production

PROFESSIONAL EDITION

- 4TB CAPACITY LIMIT
- COMMUNITY SUPPORT
- FREE DOWNLOAD

- 10TB, 25TB, 50TB
- DELL EMC SUPPORT
- SUBSCRIPTION LICENSE

RAPID DEPLOYMENT USE CASES

TEST / DEV ENVIRONMENT

PRODUCTION ENVIRONMENT
- REMOTE BRANCH OFFICES
- LOW-COST STORAGE
- RETAIL | EDUCATION | HEALTHCARE | CLOUD
- NAS
- SCALEIO & VSAN SPPT

DELLTechnologies

Dell EMC Unity XT all-inclusive software

No hidden costs make Unity XT easier to own, deploy and use

Cloud-based Storage Analytics Comprehensive health scores for storage	**Thin Provisioning** Optimize your available capacity	**Unified Management** Manage file, block, VVOL objects	**Central Management** Manage multiple Unity systems	**Dynamic Pools** Experience faster rebuild times	**Snapshots & Clones** Flexibly replicate snaps and integrate with iCDM

File & Block Remote Replication Unified capabilities including Metrosync Manager	**Compression & Deduplication** Advanced inline data reduction features	**Software Defined Storage** File/block features that run on premise or in an AWS cloud	**Cloud Tiering & Archiving** File & block data movement to & from five S3 clouds

Anti-Virus Enabler Connect with popular anti-virus solutions	**Data At Rest Encryption** Protect business data across the array	**QoS (Host IO Limits)** Limit host IO and bandwidth to specified block resources	**File Level Retention** Protect files from modification or deletion	**Virtualization Integration** VMware Microsoft, OpenStack	**IP Multi-Tenancy** Assign isolated partitions to NAS Servers

| **FAST Cache (HFA)** Automated storage tiering performance optimization feature that provides immediate access to frequently accessed data	**FAST VP (HFA)** Fully Automated Storage Tiering for Virtual Pools uses intelligence dynamically matching storage requirements with changes in the frequency of data access.

Off-array: RecoverPoint Basic & AppSync Basic Licenses

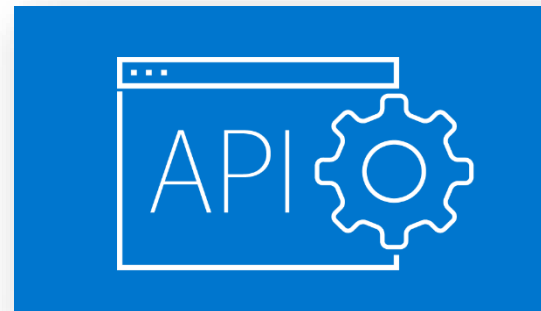**DELL**Technologies

Simple to Manage and Use
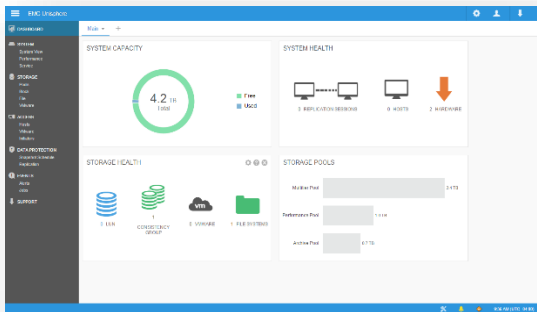
HTML-5 BASED UNISPHERE

- ✓ COMPATIBILE WITH MOST MODERN BROWSERS
- ✓ EASY NAVIGATION, SIMPLE WORKFLOWS
- ✓ MODERN LOOK AND FEEL
- ✓ UNIFIED MGMT. PARADIGM
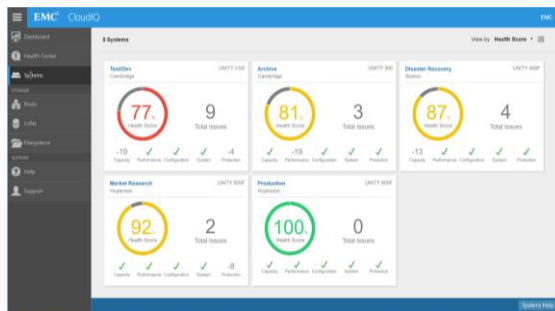
CloudIQ

- ✓ MONITORING, ALERTING AND REPORTING
- ✓ PRO-ACTIVE ANALYSIS AND SUPPORT
- ✓ SUPPORT PLANNING AND OPTIMIZATION

NEW UNIFIED CLI AND REST API

- ✓ EASIER APP INTEGRATION
- ✓ SIMPLE HTTP COMMANDS
- ✓ API ACCESS FROM CLI, BROWSER, APP AND SCRIPT

Unity XT Series: Security & Compliance

Applies to all Dell EMC Unity systems, except Dell EMC UnityVSA
Common Criteria (in planning)
Controller based Data at Rest Encryption (D@RE) with self-managed keys
KMIP compliant external key manager for D@RE
FIPS 140-2 validation (in planning)
IPv6 and dual stack (IP4) modes of operation
Native SHA2 certificate
Security Technical Implementation Guide /Security Requirements Guide (STIG/SRG)
TLS 1.2 support and TLS 1.0 disablement
File-Level Retention: Enterprise FLR-E and Compliance FLR-C with requirements for SEC rule 17a-4(f)

DELLTechnologies
PARTNER PROGRAM

DELL EMC UNITY XT SERIES

CloudIQ

FUTURE-PROOF
STORAGE LOYALTY PROGRAM

NVMe Ready

DELLEMC

UNITY XT

Dell EMC Unity XT 380/380F, 480/480F, 680/680F, 880/880F

Designed for
PERFORMANCE

Optimized for **EFFICIENCY**

Built for **MULTI-CLOUD**

No Compromise Midrange Storage

Performance
- Up to 2X more performance
- NVMe-ready

Efficiency
- Up to 5:1 data reduction
- 85% system efficiency

Multi-Cloud
- Dell Technologies Cloud Platform
- Cloud Data Services
- Cloud Connected Systems
- Cloud Data Insights

D&LL Technologies
PARTNER PROGRAM

DESIGNED FOR

Performance

BLAZING SPEED

MODERN ARCHITECTURE

RAPID DEPLOYMENT

Unity XT delivers accelerated access to data and unified services

NVMe design that balances affordability and performance

Dell EMC Unity 480/480F	Dell EMC Unity 680/680F	Dell EMC Unity 880/880F

- Investment protection and future ready

- Non-disruptive OE upgrade enabling 8 NVMe drives

- Hybrid and All-Flash systems supported

DELLTechnologies

Apps run faster on Unity XT

DATABASE PERFORMANCE

Up to **28%** more transactions per second[1]

Up to **29%** read/s & **42%** write/s improvement[1]

Up to **29%** more performance IOPS[1]

Up to **22%** lower average latency[2]

VDI USERS

Up to **52%** more virtual desktops[1]

Without a performance impact

No compromise storage
Databases
Virtualization
Virtual Desktops
Software-Defined
Cloud
Surveillance
HPC

1 From Dell EMC Unity 650F to Dell EMC Unity XT 880F
2 Dell EMC Unity 650F to Unity XT 880F; 70/30 R/W; Percent change in average latency and IOPS when average latency is 1.5ms

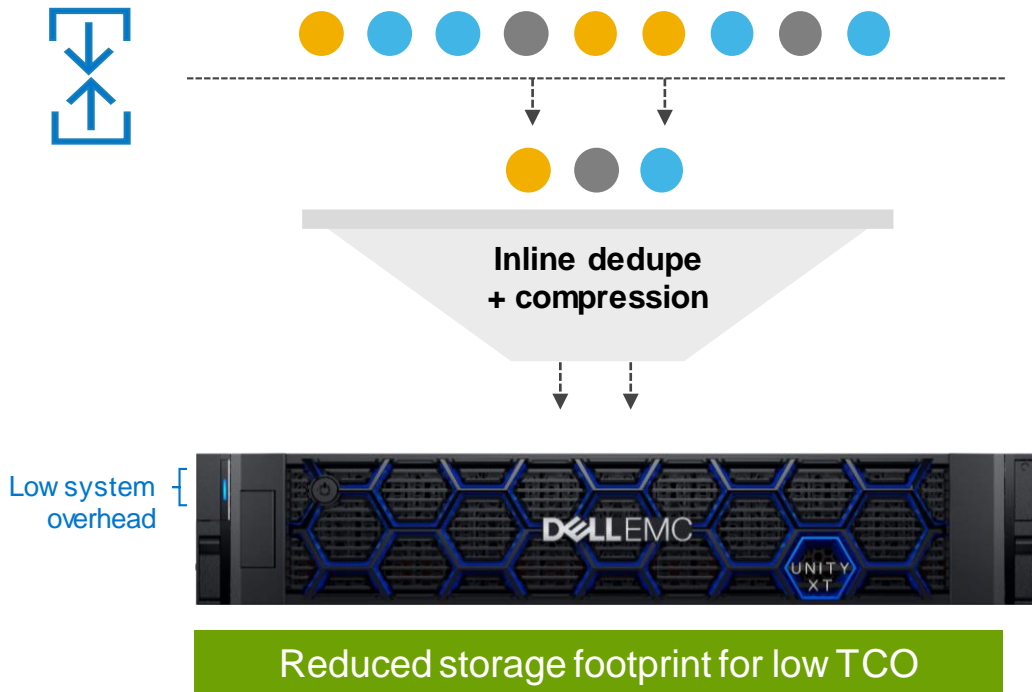**DELL**Technologies

OPTIMIZED FOR

Efficiency

| STORAGE EFFICIENCY | SIMPLIFIED MANAGEMENT | UNIFIED STORAGE |

Unity XT lowers
opex & capex with total efficiency

Better resource efficiency…

Inline dedupe + compression

Low system overhead

Reduced storage footprint for low TCO

Dell EMC 85% system efficiency is calculated based on hot spare allocation, OE, configuration size and RAID type
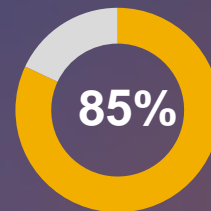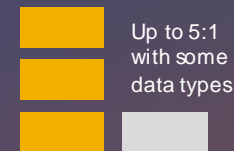
Optimized for Efficiency

5x
storage efficiency
Guaranteed via Future Proof

3:1
data reduction
Guaranteed via Future Proof

Up to 5:1 with some data types

85% Usable system capacity

BUILT FOR

Multi-Cloud

DELL TECHNOLOGIES CLOUD VALIDATED DESIGNS	DELL EMC CLOUD DATA SERVICES	DELL EMC CLOUD CONNECTED SYSTEMS	DELL EMC CLOUD DATA INSIGHTS
Simple, fast hybrid cloud deployment	Consume services in the cloud	Connect on-premise to the cloud	Proactive storage health

Flexibily connect your business world to a multi-cloud world

Dell Technologies Cloud operating model

Reduce multi-cloud chaos with a consistent hybrid cloud approach

Dell Technologies Cloud Validated Designs

TRANSFORM
to a cloud operating model

- Leverages VMware Cloud Foundation
- Delivers cloud capabilities to a broader set of workloads
- Validated with Unity XT & other Dell EMC storage

DELLTechnologies

Unity XT Series

Dell Technologies Cloud-enabled Infrastructure
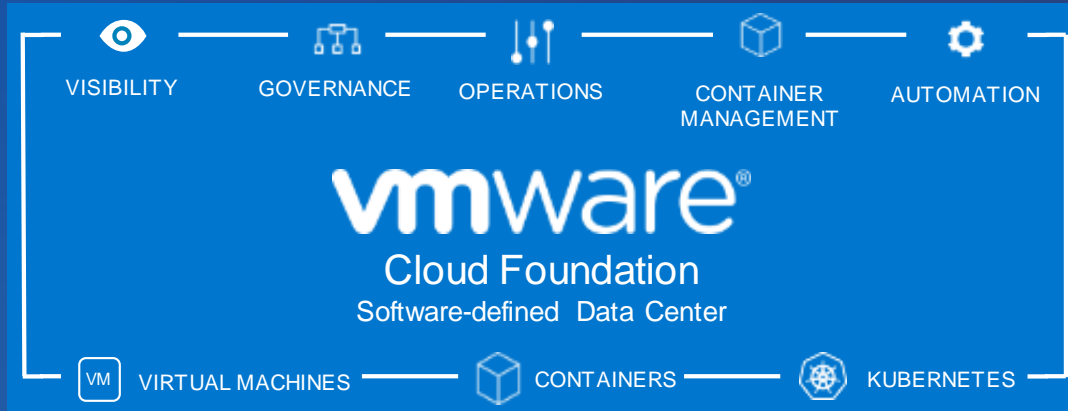
MODERNIZE
existing infrastructure

- Cloud Connected Systems
- Cloud Data Services
- Cloud Data Insights

DELLTechnologies

Dell Technologies Cloud

Validated designs

VISIBILITY GOVERNANCE OPERATIONS CONTAINER MANAGEMENT AUTOMATION

vmware®

Cloud Foundation
Software-defined Data Center
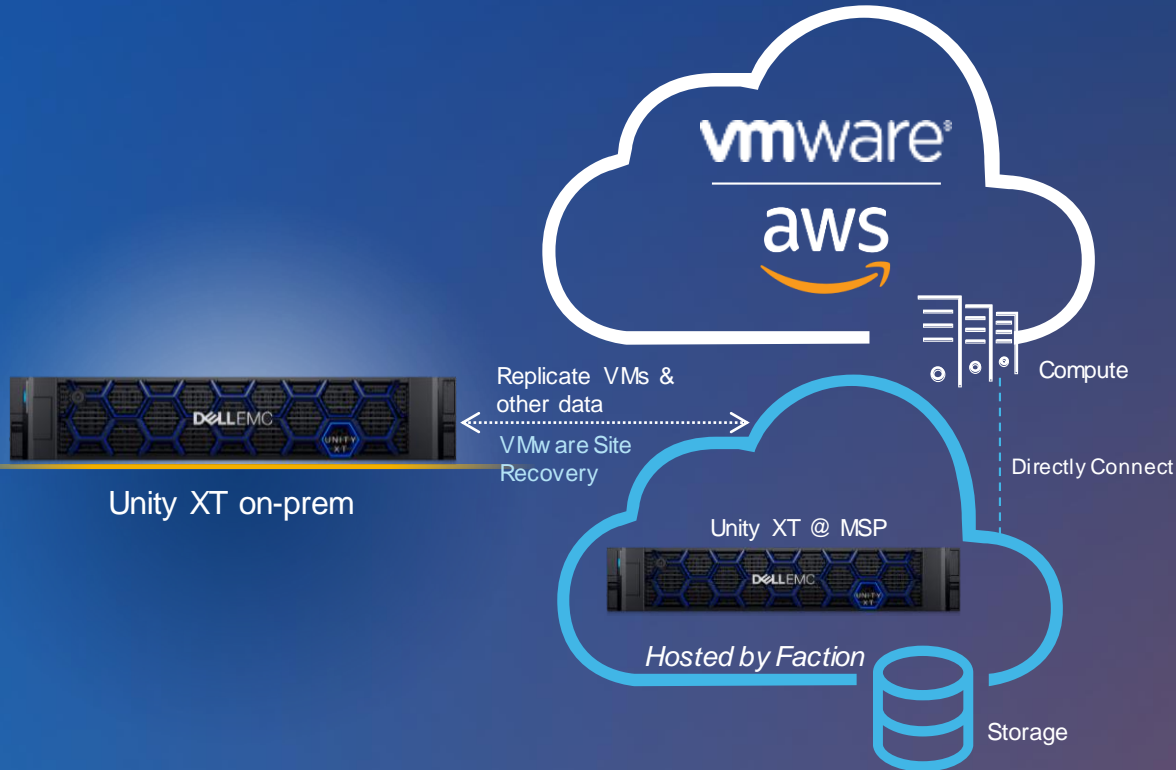
VIRTUAL MACHINES — CONTAINERS — KUBERNETES

Dell EMC Unity XT Midrange Storage

DELL TECHNOLOGIES CLOUD VALIDATED DESIGNS

- Validated with VMware Cloud Foundation

- Leverage your existing infrastructure investments

- Ideal for high value, storage intensive workloads

DELLTechnologies

Dell EMC Cloud Storage Services

VMC on AWS for automated Disaster Recovery-as-a-Service

vmware
aws

Compute

Replicate VMs & other data

VMware Site Recovery

Directly Connect

Unity XT on-prem
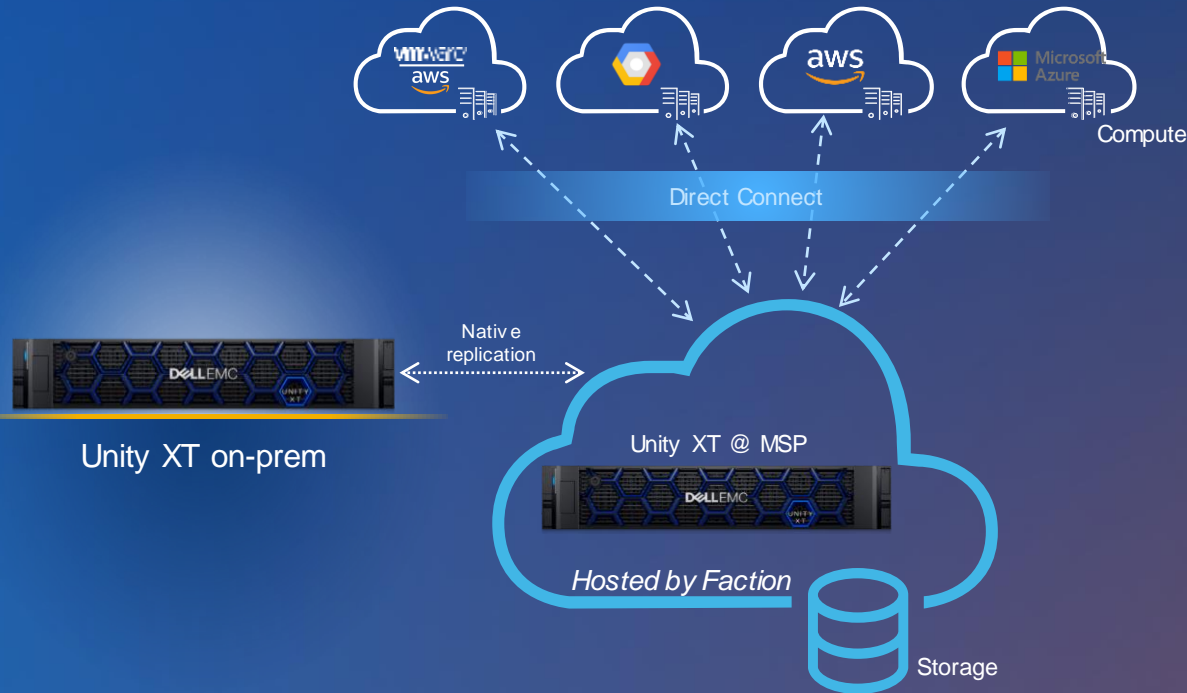
Unity XT @ MSP

Hosted by Faction

Storage

DELL EMC CLOUD DATA SERVICES

- Operational consistency with VMware environment
- Automated DR operations
- Rapid, enterprise-grade, pay-as-you-go DRaaS
- Only use compute in the cloud when failover occurs
- Lower RPOs and RTOs

DELLTechnologies

Dell EMC Cloud Storage Services

Unity Cloud Edition for SAN/NAS in the cloud

Unity XT on-prem

Replicate to Cloud

Unity Cloud Edition
Software-Defined **NAS**/SAN

UnityVSA
VMware

vmware® | **aws**

VMware Cloud™ on AWS

File is more than 50% of all data*   But only 2% is on cloud**

* Source: Gartner
** Source: IDC

DELL EMC CLOUD DATA SERVICES

- Implement software-defined SAN/NAS storage in the cloud
- Deploy with VMware Cloud on AWS with broad range of available AWS services
- On-demand infrastructure managed by VMware
- Migrate data between Unity XT systems and virtual instances
- Ideal for VDI Home Directory, Test/Dev and 3rd Replication site

DELLTechnologies

Cloud Tiering Appliance

Automated tiering with cloud economic benefits

Public Cloud

IBM Cloud
Object Storage

aws

Microsoft Azure

Private Cloud

DELLEMC
ECS

Free up primary storage capacity and lower TCO

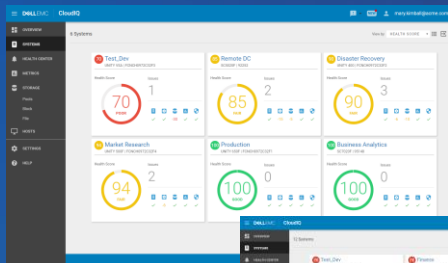Cloud Tiering Appliance
(VMware ESXi)

DELLEMC
UNITY XT

DELL EMC CLOUD CONNECTED SYSTEMS

- Policy-based
- No-cost RTU license
- Automated file tiering
- Automated snapshot archiving
- Immediate savings
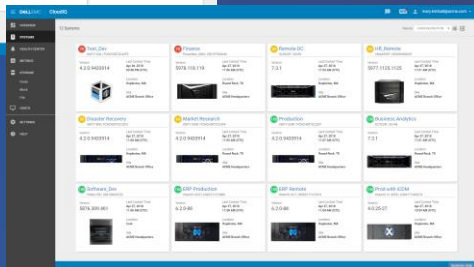- Deployment flexibility
- Secure and efficient

DELLTechnologies

CloudIQ

Infrastructure insights in the palm of your hand

Intuitive
dashboard views

Mobile App for
iPhone & Android

- Predictive Analytics

- Anomaly Detection

- Proactive Health

DELL EMC CLOUD DATA INSIGHTS

- Proactively identify & view risk

- Analyze & view wasted/under-utilized resources

- Establish a trusted advisor state

- Supports most major Dell EMC storage systems

DELLTechnologies

INTEGRATIONS WITH

DevOps / End-to-End Automation

Unity XT plugin functionality provides the necessary building blocks to simplify automation

Workload Support
VMs, Containers, Enterprise Apps

Download CSI Plugin

Automation
vRO, Ansible, Python, PowerShell

Download VRO Plugin

Infrastructure PaaS
OpenStack, vRA, ServiceNow

Manage complex infrastructure without elaborate scripting

Support CI/CD cycles by serving infrastructure as code

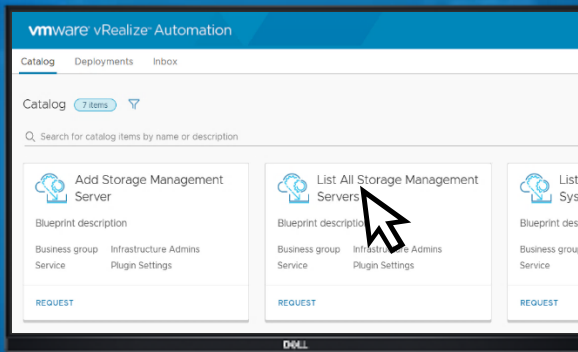Deliver a self service experience

https://www.periscope.tv/thenewstack/1ypJdBNXZbQKW?t=9m56s

vRealize Orchestrator (vRO) plugins

End to end workflows in **vRO** that include storage management tasks

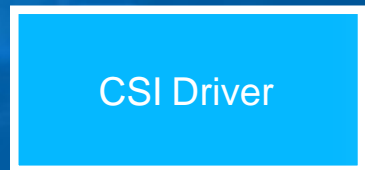Self service catalog items in **vRealize Automation**

D∕ELL Technologies

CSI plugins for containerized workloads

Database
POD
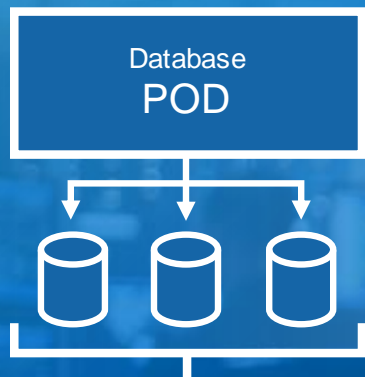
Persistent Volumes
(Logical volumes in Kubernetes)

CSI Driver

Storage Volumes

Deploy and Consolidate
Containerized Workloads

Deliver best of breed
performance and data services
to high value workloads

D≪LL Technologies

Dell EMC Unity Family NDA Roadmap

CY2019 1H
4.5
- Inline Advanced deduplication for Unity AFA (450F to 650F)
- UnityVSA HA (Dual Node)
  - w/ Witness
- File level retention (FLR-E & FLR-C)
- DR Read/Write Access to File Snapshots via SMB
- MetroSync Manager

CY2019 1H
5.0
- New Unity XT series w/Intel Skylake platform
- Inline Advanced deduplication for all new Unity XT AFA models
- Advanced file replication topologies
- Scale drive count (XT series)
- 12TB NL SAS
- 25Gb IP (XT series)

CY2020 2H
5.1
- *NVMe Support (XT series)*
- *Hybrid Enhancements*
  - *Dynamic Pools for HFA*
  - *Data reduction for HFA (XT Series)*
- *UnityVSA Cloud Scalability*
- *32Gb FC (XT series)*
- *Unity XT (480+) DIP conversions*
- *File Correlated Stats, (Top Talkers)*
- *Native Multiprotocol File Migration from VNX*
- *Host Groups*

Current Platform

Launch   XT Platform

Plug-ins Q4 CY2019
- CSI Driver 1.0
- vRO Plugin 1.0

DELL Technologies
PARTNER PROGRAM

Christoph Hesse
Senior Manager
📞 +49 89 4208 – 3150
✉ Christoph.Hesse@ingrammicro.com

Dell Technologies Pre-Sales Team

Michael Fischhold
System Engineer
📞 +49 89 4208 – 2797
✉ Michael.Fischhold@ingrammicro.com

Nikola Grujicic
System Engineer
📞 +49 89 4208 – 1035
✉ Nikola.Grujicic@ingrammicro.com

Philipp Lehnart
System Engineer
📞 +49 172 - 285 9691
✉ Philipp.Lehnart@ingrammicro.com

Dell Technologies Außendienst

Manfred Honsdorf
Key Account Manager
📞 +49 172 - 102 9012
✉ Manfred.Honsdorf@ingrammicro.com

Martin Schnelldorfer
Senior Key Account Manager
📞 + 49 152 – 288 88301
✉ Martin.Schnelldorfer@ingrammicro.com

Dell Technologies Sales Team

Thomas Mack
Supervisor Sales
📞 +49 89 4208 – 2537
✉ Thomas.Mack@ingrammicro.com

Özhan Bakar
Technical Sales Consultant
📞 +49 89 4208 – 2728
✉ Oezhan.Bakar@ingrammicro.com

Katrin Klose
Technical Sales Consultant
📞 +49 89 4208 – 3351
✉ Katrin.Klose@ingrammicro.com

Max Riedel
Senior Sales Consultant
📞 +49 89 4208 – 1684
✉ Max.Riedel@ingrammicro.com

Natasa Stojanovic
Sales Consultant
📞 +49 89 4208 – 3285
✉ Natasa.Stojanovic@ingrammicro.com

Hristiana Staenova
Sales Consultant
📞 +49 89 4208 – 3747
✉ Hristiana.Staenova@ingrammicro.com

Gabriele Yordanova
Sales Consultant
📞 +49 89 4208 – 3755
✉ Gabriele.Yordanova@ingrammicro.com

Martina Geßl
Senior Sales Consultant
📞 +49 89 4208 – 1470
✉ Martina.Gessl@ingrammicro.com

Atilla Kumbaraci
Sales Consultant
📞 +49 89 4208 – 3055
✉ Atilla.Kumbaraci@ingrammicro.com

Jutta Obermeier
Technical Sales Consultant
📞 +49 89 4208 – 1035
✉ Jutta.Obermeier@ingrammicro.com

Felix Schüler
Sales Consultant
📞 +49 89 4208 – 3171
✉ Felix.Schueler@ingrammicro.com

Michael Stalmach
Sales Consultant
📞 +49 89 4208 – 3234
✉ Michael.Stalmach@ingrammicro.com

Markus Ungnadner
Sales Consultant
📞 +49 89 4208 – 34611
✉ Markus.Ungnader@ingrammicro.com

DELLTechnologies
AUTHORIZED DISTRIBUTOR

Wir unterstützen Sie kompetent und persönlich!

INGRAM MICRO®

Dell Technologies Business Management Team

Martina Kern
Senior Business Development Manager
📞 +49 89 4208 – 1306
✉ Martina.Kern@ingrammicro.com

Thorsten Lieser
Business Development Manager
📞 +49 89 4208 – 2136
✉ Thorsten.Lieser@ingrammicro.com

Rouven Scharrenberg
Business Development Manager
📞 +49 89 4208 – 2071
✉ Rouven.Scharrenberg@ingrammicro.com

Ludwig Steffel
Product Manager Marketing
📞 +49 89 4208 – 1785
✉ Ludwig.Steffel@ingrammicro.com

Ramona Klix
Marketing Manager
📞 +49 89 4208 – 3386
✉ Ramona.Klix@ingrammicro.com

✉ **DellEMC@ingrammicro.com**
📞 **089 4208 – 2020**