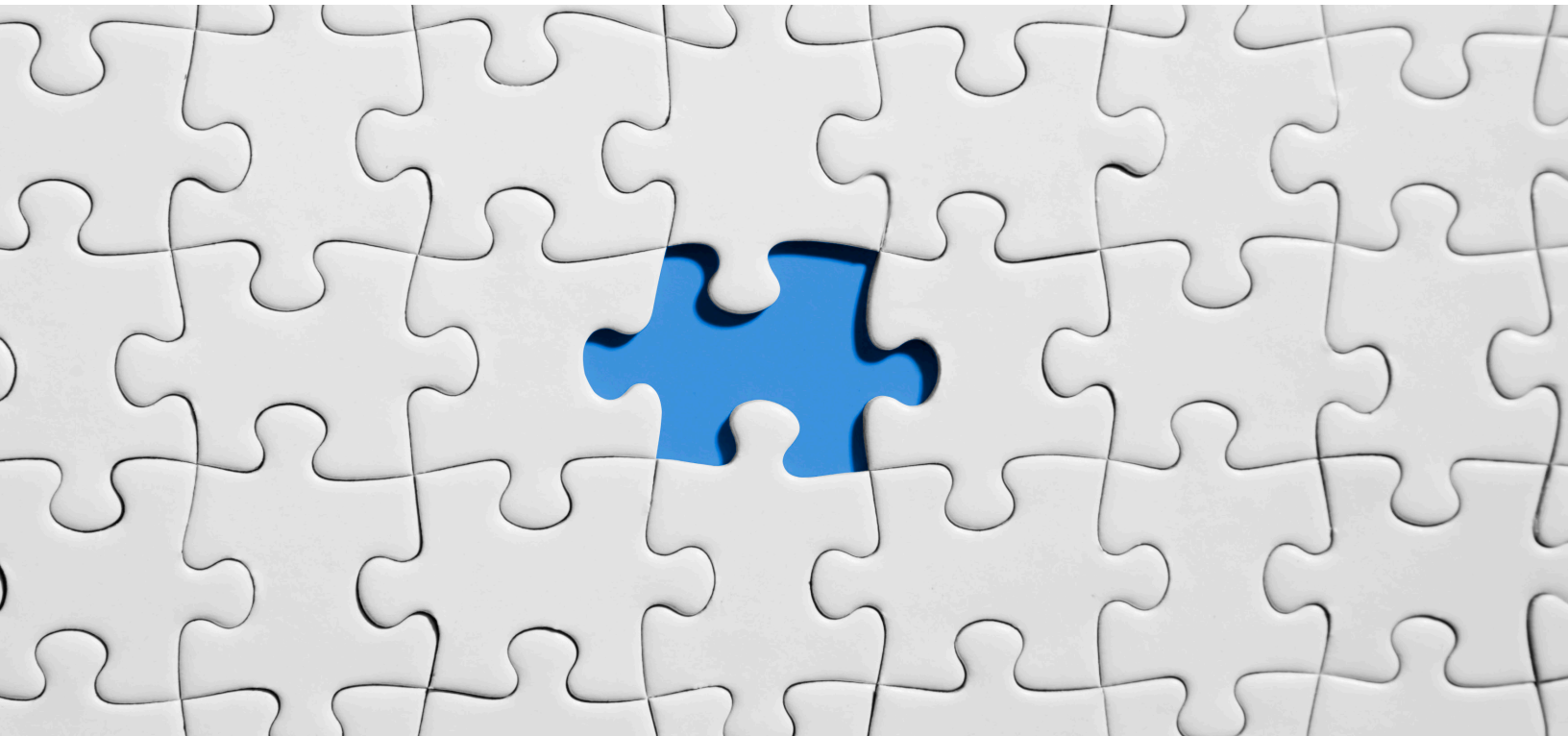


# FACTION WITH ISILON



## Sai Ganesh

Associate Sales Engineer Analyst  
Presales Solution Services  
Sai.ganesh@dell.com

## Dhriva Kumar Urajala

Associate Sales Engineer Analyst  
Presales Solution Services  
Dhriva.kumar@dell.com

## Hari Narayanan S

Associate Sales Engineer Analyst  
Presales Solution Services  
Hari.narayanan@dell.com



The Dell Technologies Proven Professional Certification program validates a wide range of skills and competencies across multiple technologies and products.

From Associate, entry-level courses to Expert-level, experience-based exams, all professionals in or looking to begin a career in IT benefit from industry-leading training and certification paths from one of the world's most trusted technology partners.

Proven Professional certifications include:

- Cloud
- Converged/Hyperconverged Infrastructure
- Data Protection
- Data Science
- Networking
- Security
- Servers
- Storage
- Enterprise Architect

Courses are offered to meet different learning styles and schedules, including self-paced On Demand, remote-based Virtual Instructor-Led and in-person Classrooms.

Whether you are an experienced IT professional or just getting started, Dell Technologies Proven Professional certifications are designed to clearly signal proficiency to colleagues and employers.

[Learn more at www.dell.com/certification](http://www.dell.com/certification)

## Table of Contents

Abstract .....	4
Introduction .....	5
Solutions offered.....	6
Compute-Intensive Workloads with Microsoft Azure .....	7
Faction with Isilon .....	8
Benefits .....	9
Use Cases .....	9
References .....	11

Disclaimer: The views, processes or methodologies published in this article are those of the authors. They do not necessarily reflect Dell Technologies' views, processes or methodologies.

## **Abstract**

Unstructured data is growing at a staggering pace. Over 80% of data that organizations see and process daily is unstructured. Consequently, businesses must adapt to handle the increasing stores of unstructured data.

This creates a need for solutions that can quickly analyze and drive valuable information and insights. Cloud offerings are one of the attractive options for unstructured data. Public cloud innovation is driving rapid growth in the tools that are used to drive analysis. These tools differ from cloud to cloud, and often utilizing a mix of tools from different hyperscale providers that would offer the best business outcome. Leveraging these tools on a corporate data lake on-premises is ineffective due to latency challenges, creating a need for a centralized data lake solution that connects to all hyperscale clouds, to give you access to the best-in-breed tools to analyze large quantities of data.

Faction, a leading multi-cloud Platform-as-a-Service (PaaS) provider can help you transform your on-prem storage platform into a multi-cloud-ready data footprint that enables replication to and from your other storage devices.

Faction provides a cloud attached, external file storage solution, powered by Isilon (renamed PowerScale), Unity and PowerMax. These solutions can be used as replication targets, connected to the major hyperscale clouds, for ease of access, offsite data copies, and the ability to use cloud analysis tools to drive insights from unstructured data.

Faction allows you to leverage your Isilon footprint from multiple public clouds at once, facilitated over high-speed, low-latency connections. We will discuss how organizations can leverage Faction with Isilon to undergo efficient, effective IT Transformation.

## Introduction

Multi-Cloud is an ideal solution to many modern storage infrastructure problems. Yet this technology is underused due to its deployment complexities and overwhelming costs that cloud providers charge.

Faction's innovation can boost cloud storage use by reducing costs to manage or transfer data to the cloud. Faction holds the patent to the technology to transfer data at Layer 2 to cloud. How this can impact a cloud setup is explained later in this article.

Based in Denver, Colorado, Faction was founded in 2009. It is a multi-cloud PaaS provider and VMware partner that provides clients with multi-cloud-attached storage. In 2017, Faction was tapped by VMware to be a part of the VMware Cloud on AWS beta program and continues to build services and products around this offering. Faction is the only organization that VMware has authorized at this time to externally mount datastores on VMC

Businesses are progressively investing in public cloud as a part of their cloud strategy for specific workloads and use cases that will deliver agility and reduced TCO. However, public cloud can create its own challenges, such as:

- Vendor lock-in and high switching costs: high egress fees to export information from public cloud storage.
- Difficulty scaling storage effectively within the cloud: Storage capability is coupled to the quantity of compute nodes, driving up environment costs.
- High upfront capital and running costs: cost of data center operations costs and storage appliances are extraordinarily expensive and have a finite scale.
- Complexity of unfamiliar cloud technology stack: high prices to hire employees or training existing employees on unfamiliar public cloud technology and investing in new tools to drive IT and business outcomes.
- Data governance, security, and control: loss of control management in the public cloud, potentially leading to security and compliance risks, legal penalties and reputational damage.

Dell Technologies addresses the above challenges by offering:

- High-speed, low latency connection to the cloud
- Durable, persistent cloud-attached storage with high availability and enterprise-grade security and protection
- Flexible control your data with multi-cloud agility and scale capacity on demand
- Pay-as-you-go data storage as a service
- Avoidance of cloud lock-in
- Native replication to on-prem without costly egress charges

Dell EMC Cloud Storage Services enables users to connect their Dell EMC Storage consumed as a service, directly to a public cloud such as AWS, Google Cloud and Microsoft Azure to deliver durable, consistent cloud-attached storage that is scalable and has high availability. This is achieved through native replication from on-premises block and file storage – Dell EMC Unity XT, PowerMax and/or Isilon to Faction (a managed service provider location). Once replicated, clients can connect their environments running VMC on AWS, AWS, Microsoft Azure and/or Google Cloud Platform directly to Dell EMC Storage through patented Layer 2 network connectivity delivering high-speed and low latency. By enabling one

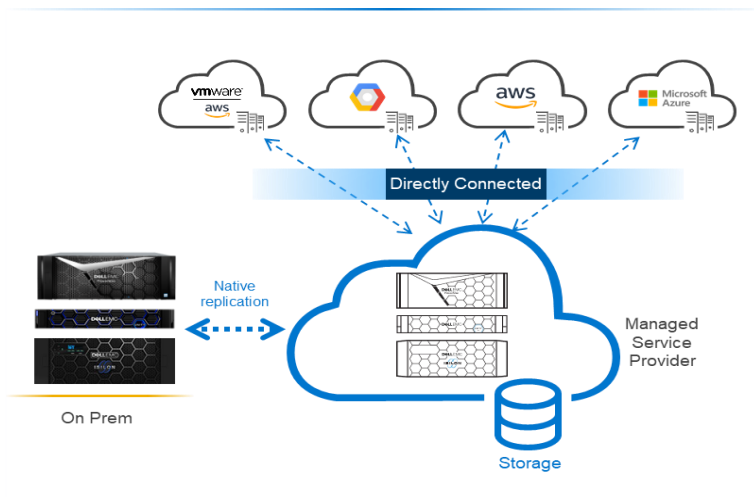
copy of data to be accessible natively to multiple cloud providers, this solution offers a flexible design to optimize costs and keep organizations in control of their data.

With Dell EMC Cloud Storage Services, organizations gain an on-demand, cloud consumption model for both compute workloads and storage, while delivering the high performance, availability, and scalability of Dell EMC storage. And customers receive end-to-end managed services – from initial design, replication, testing, and failover.

## Solutions offered

1. Multi-Cloud Storage
2. Cloud Data Protection
3. DR-as-a-Service

**Multi-Cloud Storage** – Public cloud vendors are constantly innovating and developing new services and capabilities to enable multi-cloud access. However, there is often significant time related to moving data between clouds. Cloud Storage Services offers multi-cloud access to one volume enabling you to leverage compute from multiple clouds at the same time and/or switch between them based on application desires without ever having to maneuver the data. This enables you to easily innovate in the cloud and scale environments to maximize business outcomes. Public clouds can create vendor lock-in and high switching costs. By keeping data on external storage independent of the cloud, Cloud Storage Services allows you to take control of your data. Users are free to only use compute in the cloud when you need it and not worry about migration risk, high egress charges or time required to maneuver data. Faction also reduces risk with centralized, durable storage and is fast with no additional infrastructure to set up or manage.

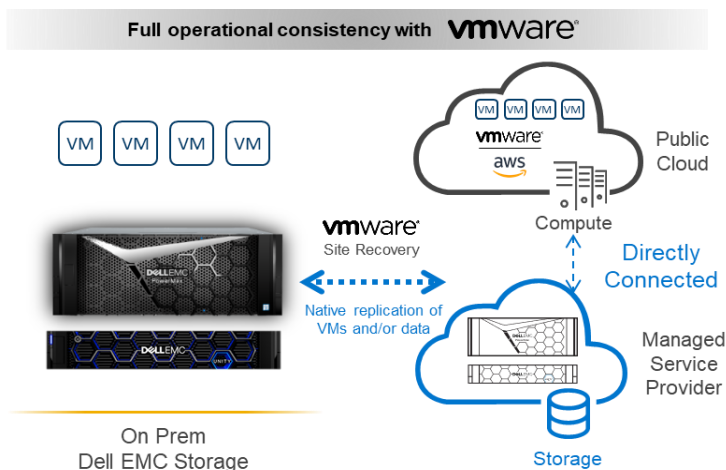


**Cloud Data Protection** – Replicate from your on-premises storage appliance powered by Dell EMC directly to a Faction cloud location near hyperscale cloud providers. Once replicated, you can connect your data to multi-cloud using Faction's connectivity solutions.

**DR-as-a-Service** - With Dell EMC Cloud Storage Services, organizations running VMware environments can deploy an automated DRaaS solution in VMware Cloud on AWS for seamless, enterprise-grade Disaster Recovery in the cloud. This solution makes it easier and more affordable to achieve lower RPOs and RTOs and provides complete operational consistency from on-premises to the cloud. Leveraging the cloud for DR relieves the burden of managing a separate DR environment.

Faction provides three kinds of disaster recovery services: Self-Service, Assisted-Recovery and Fully Managed DR. Self-Service is enabled by using VMware Cloud on AWS Site Recovery Service. Faction’s Cloud Control Volumes provide extra capacity as a “hands-off” model where companies with expertise in such operations can build their own DR plans and execute with VMware-powered tools. Faction’s Assisted-Recovery model enables clients to build their recovery plans and Faction lets them have the needed access to perform tests and recoveries independently. Yet these users still have access to Faction’s services team for assured recovery in case of trouble. Faction supports both the VMware Cloud on AWS SRS service and the wide array of Hybrid DRaaS-powered recovery choices in this model. Faction’s Managed Services team will fully manage disaster recovery implementation. Faction does a full assessment of the source environment, designs a tier-based recovery plan, and manages both testing and recovery with clients.

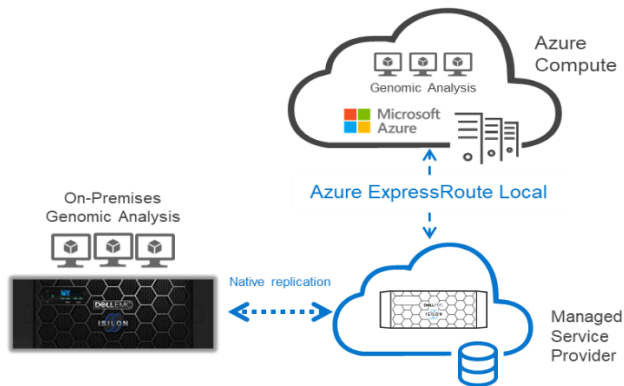
Hybrid DR-as-a-Service is only available for Unity and PowerMax with VMC on AWS. However, Manual DR without VMware can be done with any platform (Unity, PowerMax, Isilon) or supported cloud.



## Compute-Intensive Workloads with Microsoft Azure

Cloud Storage Services with Microsoft Azure provides a higher bandwidth (up to 100Gbps) and low latency (as low as 1.2ms) connection to the cloud using ExpressRoute Local. This solution allows for the right combination of storage and compute in the cloud for data-intensive, high I/O throughput workloads that require high compute performance on a periodic and/or unpredictable basis. With no outbound data traffic costs, this solution enables workloads that require a lot of temporary writes to storage to cost-effectively take advantage of Azure’s application services. This is ideal for verticals such as Life Sciences and Media and Entertainment, giving users the best of both worlds – reliable, cost-effective Dell EMC Storage performance at scale and the scalable compute performance of Microsoft Azure.

### Life Science Genome Analysis Use Case Example Tested on Isilon with Azure



Cloud storage services is supported with PowerMax, Unity Family and Isilon scale-out NAS platforms.

**PowerMax** is one of the world's fastest storage arrays. It combines powerful architecture, simple operation, and trusted innovation. It is designed with a multi-controller, active/active scale-out architecture and industry-standard, end-to-end NVMe. PowerMax consolidates your block, file, mainframe, and modern, real-time analytics apps on a single array and also offers high availability and D@RE.

**Unity XT** is targeted for customers requiring a flash-optimized, unified storage solution that emphasizes performance, storage lifecycle simplicity, and affordability. With simultaneous support for block, file and VMware Virtual Volumes storage, the system is available in all-flash and hybrid-flash configurations across four models, as well as a software-defined solution, and features a host of bundled, enterprise-class data services that make these environments highly available, secure and easy to manage. Designed around an NVMe-ready dual-controller, active/active architecture, the Unity XT family features 12Gb SAS and scales to support almost 10PB of raw capacity.

**Isilon** is a scale-out, network-attached storage (NAS) platform that supports massive scalability and performance for unstructured (file-based) workloads. Available in all-flash, hybrid flash and archive nodes that can be mixed and matched as needed within a single cluster within a global namespace. Designed to be simple to manage and highly efficient with up to 80% storage utilization, it provides the operational flexibility to support a wide variety of file workloads including NFS, SMB, HTTP, FTP, and HDFS. Isilon also offers a wealth of features, including configurable levels of resiliency, automated storage tiering, robust security options and in-line data reduction (compression and deduplication).

### Faction with Isilon

Faction transforms your Isilon investment into a multi-cloud-ready data footprint. Faction enables users to leverage Isilon attached to public clouds and gain the ability to replicate to and from your other Isilon devices. Faction also allows you to leverage your Isilon footprint from multiple public clouds at once, facilitated over high-speed, low-latency connections.

Isilon's internal data tiering system – called SmartPools – tiers the data between different types of nodes based on whether the data is hot, cold or frozen. This tiering is extended to the cloud tier as well with CloudPools, a policy-based software that does automated tiering which enables customers to seamlessly amalgamate with the cloud to act like an extra tier for current Isilon storage. This provides valuable on-



premises resources of Isilon to be used for more active data while frozen data can be relieved of the burdens of maintaining and administrating at minimum cost.

Faction's Layer 2 Direct Connect technology offers the unique ability to plug in all your resources directly to Faction cloud without changing a thing; they either exist on-premises or are co-located with other cloud providers. You can connect your network and carrier as is without changing any network configuration.

Isilon's SmartPools and CloudPools combined with Faction saves you a lot of manual work while reducing your costs significantly. Resource utilization is a key principle behind this process. Storage is tailored for the type of data and the entire process of tiering and moving data between these tiers happens seamlessly and without human intervention.

This solution requires a minimum purchase of 144 TB of data for Flash storage, a minimum of 180 TB for Prime storage, and a 600 TB minimum for Deep (archive or data warehouse) storage.

Other cloud file solutions fail to offer the scale, performance, features, and hybrid cloud capabilities of Isilon with Cloud Storage Services. Dell EMC Isilon offers customers high performance and super-efficient storage they need for their unstructured data, while also gaining the patented connectivity and services needed to attach to hyperscale cloud environments.

## Benefits

- **Public cloud services for Compute** – Connect Isilon over low latency, high throughput connections to public cloud. Then leverage on-demand compute and analysis services to speed up delivery of data-driven insights.
- **High performance dedicated connectivity** – Gain managed, direct connections via a patented Layer 2 solution, reducing cost and management overhead.
- **Accelerate time to innovation** – Rapid deployment and capacity on-demand to easily set up test/dev or analytics environments in the cloud.
- **Cost-effective DR in Cloud** – Replicate a copy of your Isilon data off-premises, to cloud-connected Isilon. Then unlock your data capital by running cloud-based analytics on your DR cluster. Also eliminate the need for a secondary site to set up and manage.
- **Multi-cloud availability** – Connect a single Isilon device to multiple clouds, allowing you to pick the best-of-breed services from your hyperscale cloud of choice to analyze your data.
- **24x7 managed and professional services delivered by experts** – Dell EMC with Faction offer a portfolio of services available to lower risk and increase uptime.

Currently available in the following regions: **Reston (VA), Portland (OR), Santa Clara (CA), London (UK), Frankfurt.**

## Use Cases

### 1. Regeneron Pharmaceuticals

Regeneron Pharmaceuticals is a leading biotechnology company that invents life-transforming medicines for people with serious diseases. Founded and led for 30 years by physician-scientists, their unique ability to repeatedly and consistently translate science into medicine has led to seven

FDA-approved treatments and numerous product candidates in development, all homegrown in Regeneron's laboratories.

Faction provides organizations with the option to hook into multiple cloud vendors. Since Regeneron leverages AWS for its compute needs, we bundled 180 PB's of Isilon prime storage for AWS for 1 year to win back the analytics use case. The on-prem Gen6 Isilon that Regeneron chose was a mix of H500 and A200 nodes, but we offered levels of price performance in Faction with a simplified approach to optimize storage costs: Flash for all-flash performance with provisioned IOPs, Prime for flash accelerated, throughput-optimized storage, and Deep for throughput-optimized storage based on hard disk drives with petabyte scale.

Currently, Regeneron runs its analytics jobs on AWS, replicating the data between two sites and copying the data back on-prem afterward. They use a script to compress the data, create a TAR (Tape ARchive) file, and then push it to AWS via objects. The output is then TAR'ed and sent back, making it a very time-consuming process.

With Isilon and Faction, Regeneron can use SyncIQ software to move the data. Isilon SyncIQ enables flexibility of management and automated data replication not only between cluster but now the cloud as well. Paired with Superna's automated data failover and failback, Regeneron can reduce the time, complexity and risks involved with transferring operations between their primary and secondary sites. SyncIQ ensures Regeneron can move the data from on-prem to Faction and natively use AWS tools via NFS to do annual indexing. There is no longer a need to TAR data and send it back and forth. SyncIQ completes in near-real-time as opposed to waiting for days/weeks for output and helps Regeneron meet its business objectives.

## **2. Xenexmat**

Xenexmat uses drones to conduct aerial surveillance to capture top view of houses, then processes that footage to run an analysis algorithm to determine the exact measurements of the roof. Here the data is video feed and is unstructured. Isilon's multi-tier architecture can be best used to store information of such kind of data and it can also facilitate the performance, i.e. the fast IOPS required to perform video processing. Since the video feed is typically dormant for an extended time after the analysis is done and the values are extracted and are saved elsewhere, using high performance nodes is useless and only leads to poor use of resources. Though Isilon provides multi-tiers and offers a low cost high capacity tier for such a frozen data, it wouldn't make sense to maintain it on-prem. Though CloudPools can seamlessly tier that data into cloud tier, migrating all these video files time after time would be costly. Not only migrating but the operational costs of handling such a complicated process of changing multiple vLAN's, changing current IP addresses and network configuration will result in a huge toll. Faction plays a significant role in this scenario by enabling Isilon to use its local IP addresses on cloud which for the most part looks like the cloud is logically mapped to the Isilon storage. Since there is no change in network configuration, once can easily transfer the frozen video data into cloud.

To find out more about Dell EMC Cloud-Enabled Infrastructure, please visit:

<https://www.dellemc.com/solutions/cloud/cloud-enabled-infrastructure.html>

Please contact [cloudstorageservices@dell.com](mailto:cloudstorageservices@dell.com) for any additional questions

## References

- <https://www.factioninc.com/dell/>
- <https://inside.dell.com/docs/DOC-362317> (Dell EMC Cloud Storage Services - Enablement Page)
- [https://www.dell.com/resources/en-us/auth/asset/sales-documents/products/dell-technologies-cloud/selling\\_guide\\_cloudstorageservices\\_isilon.pdf](https://www.dell.com/resources/en-us/auth/asset/sales-documents/products/dell-technologies-cloud/selling_guide_cloudstorageservices_isilon.pdf) (Selling Guide)
- <https://inside.dell.com/docs/DOC-397645> (Regeneron Used Case)

Dell Technologies believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS IS." DELL TECHNOLOGIES MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Use, copying and distribution of any Dell Technologies software described in this publication requires an applicable software license.

Copyright © 2020 Dell Inc. or its subsidiaries. All Rights Reserved. Dell Technologies, Dell, EMC, Dell EMC and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.