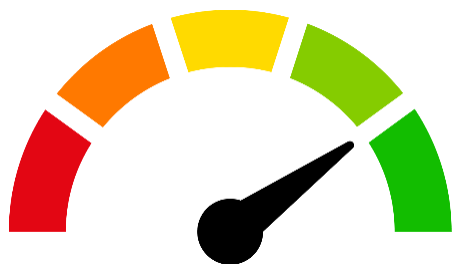# Dell EMC PowerScale measures highest on flexibility

By David Noy, Vice President of Product Management, Dell EMC Unstructured Data Storage and Data Protection Divisions | Sept. 2022

We are full steam into the data era. Companies are aggressively investing in technology to help them extract value from the massive amounts of data being generated across their business. A great majority of the data is being stored in the form of files, objects, and streams, which means that scale-out systems are the storage backbone of this exciting era.

When it comes to storage attributes that support the demands of the data age, one attribute deserves special attention: flexibility. Why? Because flexible storage lets you build the infrastructure you need, exactly when, where, and how you need it. And flexible storage lets you manage, consume, and secure data exactly the way you want. With data burgeoning in all directions, having the flexibility to address storage requirements on your own terms is the best strategy.

Ironically, you won't find a lot of scale-out storage vendors messaging flexibility. That's because it's not easy to build flexibility into scale-out storage systems. But it's a central theme for the Dell EMC PowerScale platform, the world's most flexible scale-out NAS solution.[1]

What makes PowerScale uniquely flexible? Let's start with deployment. PowerScale gives you variety in node types and selective software services that enable you to right-size and incrementally scale infrastructure and data services to match diverse workload requirements, without overpaying. For example, with PowerScale you can start with an initial deployment as small as 3 nodes and 12 drives, and incrementally expand up to 252 nodes, up to 93PB, and up to 945GB/s throughput. Take away that range of flexibility and you get startling limitations, for example, an entry cluster from a flash-only player that starts at a petabyte; a mixed-use SAN/NAS cluster with more administrators than nodes; or a software-only solution that combines limited capacity scale with an all-inclusive software stack that lacks data reduction.

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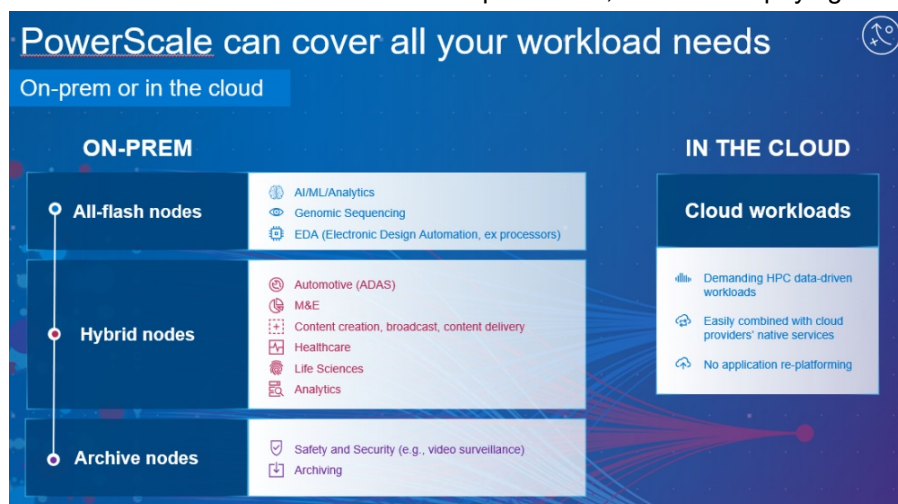
[1] Based on internal analysis, Aug. 2021.

10 ways PowerScale keeps you flexible

1. On- and off-premises consumption choices to support diverse financial objectives

2. Consistent features and capabilities in any deployment location—in the datacenter, at the edge, or in the cloud

3. Storage node and media selections to right-size infrastructure without overpaying

4. Automation with selectable, granular controls to manage on your own terms

5. Comprehensive and robust software to handle dynamic growth and change

6. Ability to curate data over mixed nodes and media types and seamlessly fold in media advances

7. Multi-protocol interoperability for universal application access

8. RDMA connectivity to optimize I/O bandwidth for your most performance-intensive workloads

9. Security that protects you against a range of vulnerabilities from both internal and external threats

10. Software ecosystem with single-pane-of-glass, RBAC-controlled portal, and consistent support

Management and control should be on your terms. When you think of management flexibility, the most obvious starting place is the data services catalog: Is it complete and robust enough to handle diverse requirements in a dynamic environment? But there's more to consider; for example, does the catalog include comprehensive automation? Can you prescriptively apply data services as needed? Can you turn data services on and off as needed? Are data services interoperable without limitations? And finally, can data services be upgraded and enhanced easily and non-disruptively?

PowerScale comes with a uniquely comprehensive catalog of data management services, paired with prescriptive controls, non-disruptive operations, full interoperability, and encompassing automation. Take data reduction, for instance. PowerScale has full-featured data reduction that includes both global reach and prescriptive control—and it works without caveats for all supported protocols. Across the spectrum of competitors, you find a wide variety of limitations, ranging from no controls with the flash-only startups to a laundry list of caveats with mixed-use SAN/NAS offerings to zero support whatsoever with some software-only interests.

Security shouldn't have loopholes. PowerScale OneFS security capabilities include integrated anti-virus, RBAC (role-based access controls), encryption (with integrated and external key management), multi-tenancy, secure data deletion, and optional integrated ransomware protection with air gap capabilities from Ransomware Defender software. Ransomware Defender can be deployed anywhere in the on-premises infrastructure, as well as hosted within Multi-Cloud Data Services to enable customers to recover data to the cloud.

With Ransomware Defender for PowerScale, IT teams can stay ahead of cyber-attacks, thanks to integrated capabilities for real-time detection of access patterns that are indicative of an attack. IT teams can set up automatic responses to cyber events and perform root cause analysis of suspicious data access patterns. Further, air gap technology integrated with Ransomware Defender enables a full-featured cyber vault that serves as the defense of the last resort by creating network isolation of business-critical data.

Ransomware Defender follows the NIST best practices framework for improving critical infrastructure cybersecurity

Framework	How Ransomware Defender follows best practices:
Identify	Threat identified by username and IP address
Protect	Stops the threat with user lockout in real time
Detect	User behavior based, tripwire and well-known extension detection
Respond	Alerting email, syslog and automated snapshot creation
Recover	File level tracking and snapshot data recovery

Survey the competitor landscape and you find gaping security vulnerabilities. For example, flash-only startups may have no multi-tenancy and limited RBAC. They may have no controls over encryption or offer no choices in key management. Both startups and established competitors may have easy loopholes for ransomware attackers. Some competitors position immutable snapshots as the principal bulwark against ransomware attacks, but they ignore monitoring, detection, and mitigation responses to threats, plus they offer no air gap capabilities to prevent intrusion into underlying system software and networks. What good are snapshots if your firmware and networks are corrupted?

Data management should be comprehensive and robust. Functional roadblocks and inconveniences in data management subtract value from your data. Where will the competitors' solutions impede or penalize you? With flash-only startups, software gaps result in functional roadblocks. In these instances, you either go without or go shopping for third-party software. But then you have interoperability risks, plus ownership and support complexities. With multi-use SAN/NAS solutions, there may be an extensive software catalog, but are the tools simple and efficient, or will you find yourself using run books to accomplish what you need? What's more, the all-inclusive stacks from software-only interests may be cheap, but missing functionality like data reduction or content-aware indexing can end up costing you a lot in the long run. Finally, competitors may have APIs, but startups lack completeness and maturity to enable rich software ecosystem support, and more established players leave you with a hodge-podge of third parties that complicate operations and support.

PowerScale enables you to manage data with ease and excellence. You get comprehensive software, plus tools that do the job efficiently and effectively. In addition, PowerScale functionality is enriched by an extraordinary single-pane-of-glass, RBAC-enabled software ecosystem that complements OneFS with fully integrated capabilities for DR, security, auditing, search, analytics, reporting, backup, cyber vault functionality, and more.

Extraordinary software capabilities available with PowerScale OneFS:

- Real-time performance analytics with one-button root-cause analysis with Performance Auditor

- Comprehensive data insights, including content-aware index and search with Search and Recover

- Data protection that can be tailored and automatically curated with data lifecycle with SmartPools

- Data lifecycle automation that optimizes storage economics across datacenter and cloud deployments with CloudPools

- One-button DR failover/failback and automated DR readiness testing with Eyeglass DR

- Full-service copy and replication, with latitude to re-purpose copies for alternate uses with SnapshotIQ

Access should be universal. All scale-out NAS providers strive for universal application access. It is a real achievement to enable simultaneous multi-protocol interoperability (e.g., file/object application access to the same data). Few vendors can deliver this. You also find vendors who have protocol support gaps (e.g. no direct support for S3 or HDFS), as well as vendors who have protocol version gaps (e.g., no SMB3 or NFSv4). Then there are clashes with data services, for example, a mixed-use SAN/NAS solution that restricts protocol features with scale-out namespace.

PowerScale delivers true protocol flexibility, enabling wide-ranging application support. With complete support for NFS, SMB/CIFS, FTP, HTTP, HDFS, REST API, and S3, PowerScale enables any standard unstructured protocol to access any data. PowerScale also provides full protocol version coverage and consistent protocol support across the entire catalog of OneFS software services.
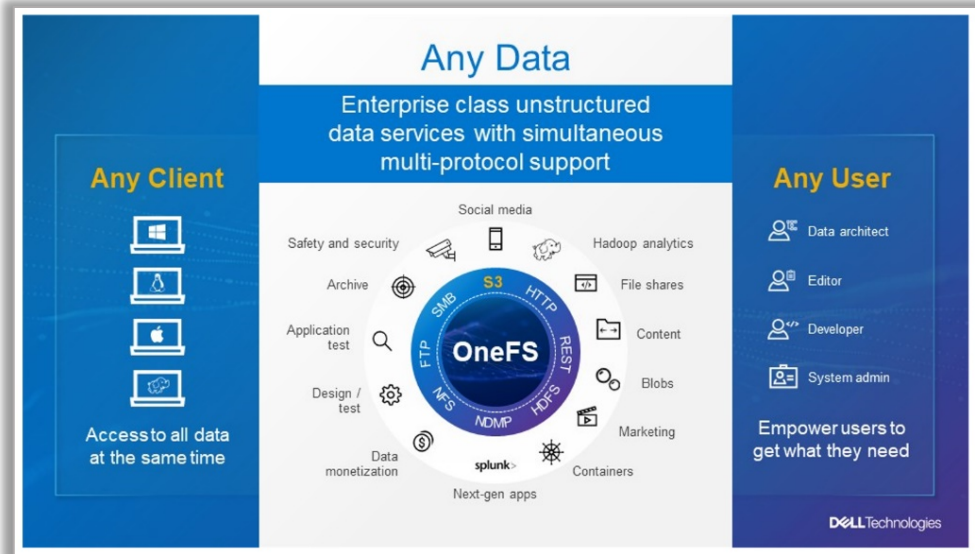
Cloud consumption shouldn't involve tradeoffs. A number of vendors are promoting their file services for cloud-native workloads that are performance-intensive, for example, analytics, engineering design automation, machine learning, and media processing. However, their solutions' throughput and scale-out capacity are inadequate for advanced use cases. With on-premises managed services, you find all the customary limitations present with the competitors' platforms, plus surprise penalties such as rate premiums for capacity overages.

When extending PowerScale OneFS into the cloud—either for multi-cloud deployments with Multi-Cloud Data Services for PowerScale or for native cloud integration with PowerScale for Google Cloud OneFS—you can expect performance and capacity scale, as well as enterprise-class software functionality, that is consistent with traditional cluster deployments, so you get a fully interoperable and consistent experience across hybrid and multi-cloud infrastructure. With Dell Technologies' APEX Data Storage Services, you get predictability, and you won't break your budget with premiums for capacity overages.
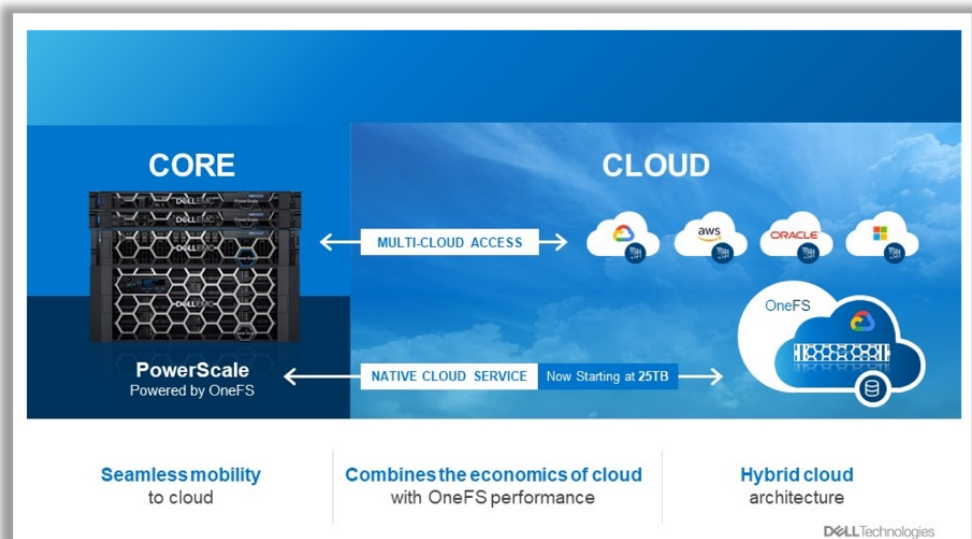
Equip yourself to excel in the data era. Avoid the gaps, limitations, and loopholes from flash-only startups, mixed-use SAN/NAS interests, and software-only solutions that can challenge—or even impede—your ability to tap the full potential of your data. Instead, turn to PowerScale—the world's most flexible scale-out NAS—for greatest agility, choice, and management excellence. Lean on PowerScale to build the infrastructure you need, exactly when, where, and how you need it. Leverage PowerScale to manage, consume, and secure your data. Choose PowerScale for the flexibility to address the toughest challenges of the data era on your own terms.

About the author: David Noy brings 25 years of experience in the storage and data management industry. He spent nearly a decade leading engineering and product management teams for numerous companies, including Dell Technologies, NetApp, Veritas, and Cohesity. Today, David leads product management at two industry-leading divisions at Dell Technologies—Unstructured Data Storage and Data Protection—where he is helping to embolden innovation around data management and hybrid cloud and driving advancement of holistic solutions to help heighten business success for customers worldwide.