

Stop, look, and listen before you take the flash-only start-up path

By Andrew Glinka, Vice President of Competitive Intelligence, Dell Technologies | Mar. 2022



Numerous flash-only startups have been designing storage architectures intended to bend the storage price/performance curve for nearly a decade. Their design approaches vary, but the objectives are always similar. A number of these architectures haven't survived the test of time.

The messaging behind these products is often clever and persuasive. It's easy to become captivated by the architecture nuances. A good way to stay grounded is to ask some simple questions, for example: Is this the best way to approach storage economics, or is it just a different way? Will this architecture withstand the test of time? What are the risks? Where are the limitations and caveats?

Contain costs and enable data-driven decisions

As you implement strategies to contain storage costs and expand infrastructure to enable data-driven decisions, consider the fact that unstructured data workloads are diverse, and not all data is equal.

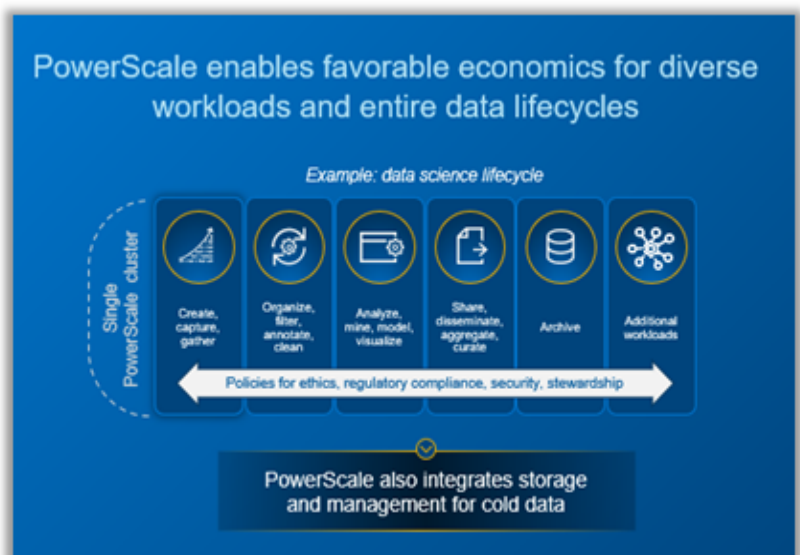
Flash-only startups claim that their architectures do away with storage tiering, but the reality is that they usually stage and de-stage data on different classes of media. Unfortunately, their arrays offer no management controls to optimize how data staging is leveraged by different applications.

Further, because the flash-only systems are not equipped to accommodate the changing value of data, they deliver favorable economics only for certain workloads, so you end up needing to purchase separate solutions for cold data, as well as software to manage data movement between storage platforms. This adds cost and complexity to the solution.

Reasons to choose PowerScale over flash-only startups

- Favorable economics for a wider set of workloads
- Integrated storage and management for cold data
- The world's greatest scaling flexibility*
- Software-defined technology that affords the user experience of an appliance
- Compute and storage diversity without service outages
- Multi-9s durability with full control over protection economics
- Continuous operations without node rebuilds
- Full control over workload priorities across all cluster resources
- World-class support and high-value economics across the full solution stack

* Based on Dell analysis, August 2021.

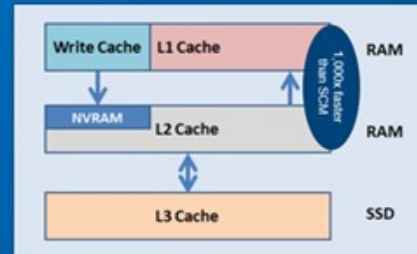


Maximize service delivery, while minimizing operational risk

Enhancing service delivery is an objective for all types of workloads, but what risks must you take in order to push the envelope?

Flash-only startups position their architecture innovations as an opportunity to advance service delivery, but often these innovations are based on fringe or proprietary technology that carries supply chain risks, with limited ability to leverage alternative technology options and supply sources.

PowerScale delivers the stability, value, and performance advantages of world-leading hardware, delivered as a service



PowerScale OneFS uses broad-based acceleration layers inherent in industry-standard architectures

Scale on demand, with ultimate flexibility

Lean, just-in-time investment is essential to handling the data deluge, and scaling flexibility is key to making this approach successful.

Flash-only startups focus their messages on linear scaling, while the reality is that they sometimes restrict how you can scale, and they limit your scaling choices.

PowerScale enables linear scaling, but it also brings remarkable scaling flexibility. In fact, PowerScale is the world's most flexible scale-out NAS solution. *

With PowerScale you can...	VS.	With Flash-only startups plan to...
Start small and grow incrementally		Deploy significant up-front capacity
Expand affordably, just in time		Expand in large chunks
Scale your cluster up to 252 nodes		Cap expansion only up to 100 nodes, or less
Select from diverse hardware and media options		Architect around restricted hardware and lack of media diversity
Seamlessly assimilate media advances		Operate solely with homogeneous media
Non-disruptively retire or re-purpose existing assets		Perform migrations, schedule downtime, purge legacy assets
Self-manage lifecycle operations with little effort		Lean heavily on vendor services for lifecycle operations

* Based on Dell analysis, August 2021.

Modernize infrastructure with software-defined solutions

Software-defined solutions are foundational to modern infrastructure, but there is a downside to software and hardware independence when management, lifecycle operations, and support are not consistent across your infrastructure.

Flash-only startups focus on the economic benefits of using multi-vendor hardware, but they don't speak to the increased operational risks, higher support costs, and elongated response times inherent with solutions composed of multi-vendor hardware.

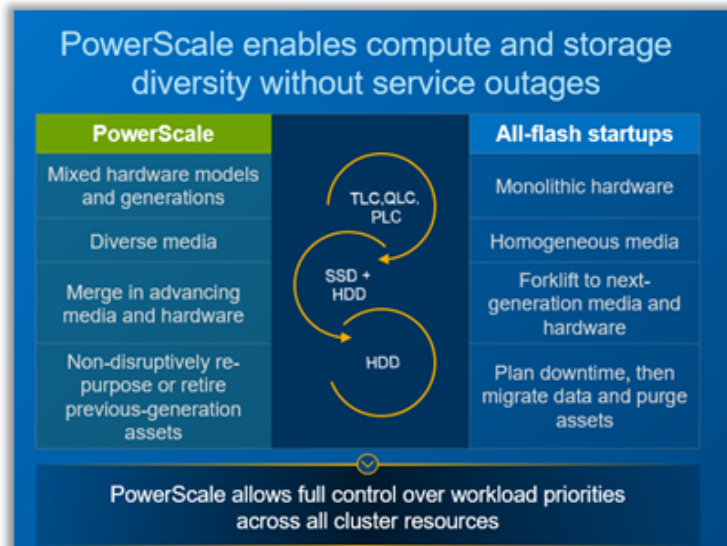
PowerScale OneFS is licensable software-defined technology that runs on off-the-shelf servers, but it is delivered with the convenience and supportability of an appliance. You get standardized world-class service, availability, and high-value supply-chain economics from the world's leading server supplier. You get coordinated hardware and software lifecycles. You get end-to-end support with satisfaction guarantees. You get value-add incentives like buy-backs, future-proof protections, and efficiency guarantees. At any time, you can repurpose your PowerScale hardware investments anywhere in your infrastructure, with existing maintenance and support contracts intact.

Stay modern in a fast-evolving digital world

Keeping infrastructure current and optimized in a fast-evolving digital world can be difficult and costly if solutions aren't well designed to easily and non-disruptively accommodate compute and storage diversity.

Flash-only startups message architecture approaches that tend to be conceived around monolithic media classes. These architectures are not built to

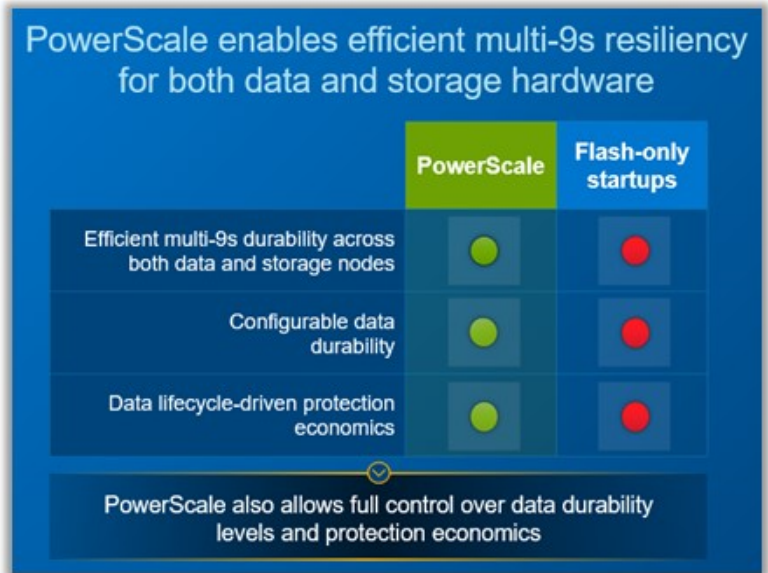
accommodate storage and compute diversity. They are not designed for merging in advancing media types or repurposing previous-generation media to other workloads. Further, the flash-only architectures typically do not support removing hardware or scaling down storage without performing migrations and experiencing service outages. What's more, they lack storage controls that enable you to prioritize workloads. The result is another silo in your infrastructure, and often disruptive lifecycle operations.



Rigorously protect data and enable non-stop access

Rigorous data protection and non-stop access should be non-negotiable.

Unfortunately, this is an area where flash-only architectures can force painful tradeoffs. For example, with some solutions, getting rigorous hardware resiliency requires mirroring data across nodes. Conversely, dialing up storage efficiency means you compromise hardware resiliency. Or taking snapshots means that with every point-in-time instance, you are snapping an entire file system's worth of data without granular control, which is enormously inefficient. In other cases, you have no control over protection levels and no options to manage protection economics around the value of the data.



Shut down ransomware

Solutions from flash-only startups rely on tamper-proof snapshots as the principal mechanism for addressing

Immutable snapshots, as an only recourse to ransomware, can leave you in real trouble when an attack goes undetected for longer than your snapshot retention period. You also need detection and fast restore for optimal protection.

ransomware attacks, but this limited approach to cyber-security can result in lengthy downtime and guaranteed data loss. Also, without software that detects an attack in real time and then automatically takes actions to stop the attackers and isolate infected data,

the attackers can penetrate the storage environment unnoticed and impose wide-spread infection. What's more, these vendors' snapshot-centric approaches do not align with how enterprise customers need to manage cyber security. Rather than a simplistic point solution, customers need a solution that integrates with security information event management (SEIM) systems and network security to enable an end-to-end monitoring capability that includes storage awareness. Finally, these vendors also fail to meet National Institute of Standards and Technology (NIST) guidelines that require a tamper-proof offline data vault.

8 ways PowerScale excels in neutralizing ransomware threats

1. Detects, mitigates, and recovers from a ransomware attack in minutes
2. Automates file system auditing configuration with real-time machine learning mode
3. Supports SMB, NFS, HDFS, S3 protocols
4. Implements zero-trust, multi-vector detection that marries network and storage security to trigger tamper-proof snapshots before an attack starts, resulting in zero-data-loss recovery
5. Recovers precisely at the file level, as opposed to wholesale volume-level recovery
6. In accordance with NIST guidelines, integrates a physically isolated air-gapped cyber vault that automates and manages an offline copy of data as a last line of defense against system, metadata, and network attacks
7. Performs automated security testing to validate that all cyber protection and recovery mechanisms are operating properly
8. Integrates with SEIM systems and network security systems to extend protection to application servers

Simplify as-a-service consumption

One of the main reasons to switch to an as-a-service consumption model is not just to streamline operations, but also to simplify acquisition and alleviate ongoing lifecycle burdens.

Flash-only startups lean into messaging around service-oriented consumption models, but they usually don't offer a full-coverage self-service console—or they require disaggregated hardware sourcing that's capex-only—so you end up with much of the same acquisition and lifecycle burdens of traditional capex-style models.

With Dell APEX Data Storage Services, data consumption services are 100% self-service

	Dell APEX Data Storage Services	Flash-only startups
Full solution coverage	●	●
Service ordering (including new services, expansions, upgrades, and trials)	●	●
Billing and payments	●	●
SLA reporting	●	●

Dell APEX Data Storage Services come with a full-service console

Ensure positive experiences and successful outcomes

The bottom line of any technology choice comes down to the user experiences and outcome successes enabled by the solution. This is where vendor engagement around service, lifecycle support, adjacent solutions, and strategic planning are crucial.

Flash-only startups approach service and support from a narrow scope that encompasses just one piece of software in the stack, or just one platform in the stack, while the overall solution that the customer is operating is engineered and produced by several separate companies, each with different profitability models, supply chain relationships, business development strategies, and value leverage. These disjointed vendor dynamics can increase operational complexity, elongate response times, and drive up TCO.

With PowerScale you can expect...	VS.	With Flash-only startups You can expect...
Single-vendor support on the full solution stack		Solution support from multiple vendors
Fast, predictable response times		Separate support contracts and service cycles
Orchestrated hardware and software lifecycle cadences		Uncoordinated lifecycle cadences
Coordinated value-add incentives such as buy-backs and future-proof protections		Fragmented or limited value-add incentives

PowerScale is also complemented by a deep bench of experts skilled in almost every conceivable workload and industry vertical

More reasons to go with PowerScale than you can count

In summary, before going down the flash-only startup path, consider the economic implications of workload diversity and data lifecycle, advancing media options, operational flexibility, management control, lifecycle stability, and consumption choices.

PowerScale excels over solutions from flash-only startups in many ways, including better TCO for more workloads; support for greater hardware diversity; more flexible scaling; more management control; greater lifecycle stability; and more consumption choices. But this is just a partial list of reasons to go with PowerScale. There are many more, for example:

Real-time ransomware protection
including AI/ML-driven responses and robust recovery mechanisms

API-integrated, single-pane-of-glass software ecosystem
with RBAC controls

Expansive ISV certifications
to ensure seamless operation with your diverse business, development and analytics applications

Comprehensive compliance certifications
to fulfill regulations across the full scope of industry verticals

Consumption flexibility across the full solution stack
and adjacent supplemental solutions to enable more control over business outcomes

Intelligent data management
to elevate the value of your data and ensure operational excellence

Largest solution portfolio
Backed by an expansive network of innovation and sales partners, a significant multi-national services arm, and a deep bench of highly specialized application and engineering experts for consulting and support



About the author: Andrew Glinka is Vice President, Competitive Intelligence at Dell Technologies. Andrew is an 11-year Dell Technologies veteran and brings over 23 years of experience in technology sales, management, and operations. Prior to assuming his current role, Andrew served as Global Director of Sales Strategy for the Data Protection Solutions Division. He has also managed the Global Software Sales team as well as other sales teams in the Data Protection Solutions Division. Prior to joining Dell through the EMC acquisition, Andrew owned and operated an IT Managed Services business in Virginia for over 8 years before successfully selling the company.