When Choosing the Right Flash System, Prioritize Your Application Needs
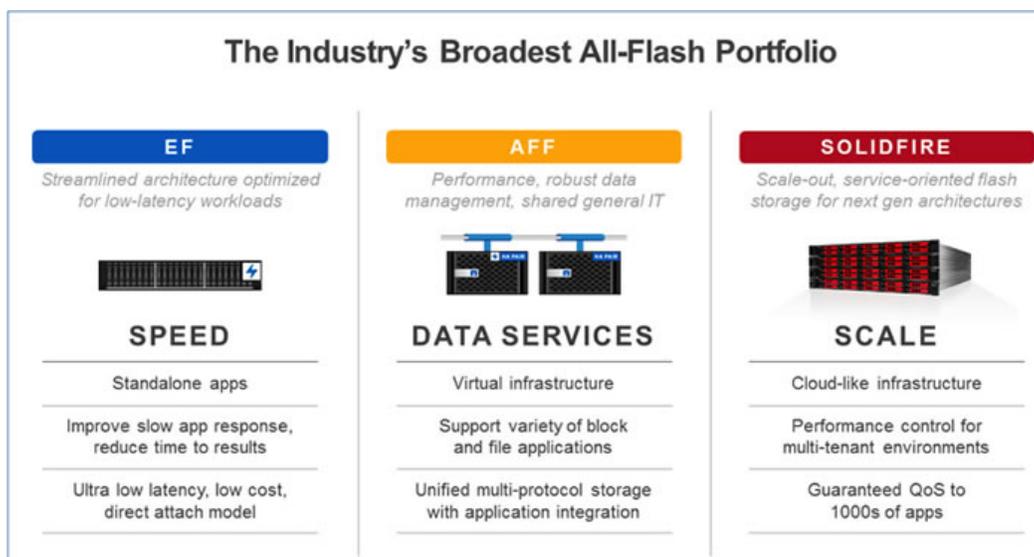
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The market for all-flash storage is changing rapidly. With the initial price differential versus disk, flash arrays were primarily deployed to solve performance problems for the most demanding applications. However, as prices drop and capacities rise, IT teams are discovering that flash offers significant value for a much wider variety of workloads and use cases.

NetApp offers a portfolio of all-flash products to cover this growing list of workloads. As such, choosing the best flash solution for a particular need requires some consideration. Many believe that the best way to approach a diverse flash portfolio is to understand it in terms of the priorities that each workload requires of the storage system, and the desired business outcomes.

Let's look at flash from your workload perspective:

The Industry's Broadest All-Flash Portfolio

EF	AFF	SOLIDFIRE
Streamlined architecture optimized for low-latency workloads	Performance, robust data management, shared general IT	Scale-out, service-oriented flash storage for next gen architectures
SPEED	**DATA SERVICES**	**SCALE**
Standalone apps	Virtual infrastructure	Cloud-like infrastructure
Improve slow app response, reduce time to results	Support variety of block and file applications	Performance control for multi-tenant environments
Ultra low latency, low cost, direct attach model	Unified multi-protocol storage with application integration	Guaranteed QoS to 1000s of apps

Source: NetApp, 2016

Your Application Priority is: Performance

When the utmost in application data performance is desired, architects often look at industry performance benchmarks to help determine which storage system to use. The Storage Performance Council's SPC-1 benchmark simulates workloads from high-speed data applications such as OLTP and mission-critical database operations.

SPC-1 is often the first place looked to when determining one vendor's performance against others. As demonstrated in SPC-1, the NetApp EF560 all-flash array was a top performer, processing 319,980 I/O operations per second (IOPS) under maximum load. In other words, a single EF560 processed over 1 billion operations per hour during the SPC-1 tests!

Your Application Priority is: Data Management

Experienced storage architects know that the underlying storage, powering their applications, can also help fix broken applications and make them run right when everything around them seems to go wrong. If enterprise application uptime and fault recovery is a primary concern, NetApp's All-flash FAS (AFF) system is rich in management features that address these issues and help insure continuous operation.

One example of this is database corruption. When corruption occurs, rather than being catastrophic, it is more likely to be a problem that prevents access to a certain table within the database. With the NetApp AFF, DBAs can quickly pinpoint the problem by rolling back to earlier NetApp Snapshot® copies until they find a clean (uncorrupted) database copy. Once the clean copy is identified, a virtual clone is created using NetApp FlexClone®, where redo logs are applied to quickly bring the recovered DB up to date. This process can shave hours or even days from the typical time to recover from database application corruption.

Your Application Priority is: Handling Unpredictable Growth

Many enterprise applications do not require blazing speed, or tight application management, but have unpredictable growth, making it difficult for storage architects to accurately size them. An example of this type of application includes "big data" analytics warehouses. For enterprise applications with erratic growth, the NetApp SolidFire all-flash array provides a convenient solution. Once a SolidFire all-flash storage system is initially configured, its node-based cluster can be grown in a very granular fashion, adding server nodes with varying profiles of performance and capacity to keep incremental costs small and predictable. SolidFire was designed with next-generation applications in mind. Management overhead is minimal, and everything can be automated using well-documented APIs.

SolidFire resource pooling provides nondisruptive expansion across data center layers. Adding server nodes to the pool effectively expands CPU and memory along with storage capacity, and these resources can be scaled in or out to meet changing business demands.

Summary

NetApp's flash storage solutions address the priorities a storage architect commonly encounters while constructing enterprise storage architectures. As discussed through the examples in this article, NetApp technologies allow IT organizations to satisfy diverse application requirements, while addressing enterprise business needs.

Larry Freeman, a frequent speaker and author, helps NetApp educate IT professionals in the latest trends, techniques, and best practices in data storage technology. Larry authored the book "Evolution of the Storage Brain" and is a regular blogger on the NetApp Community site.