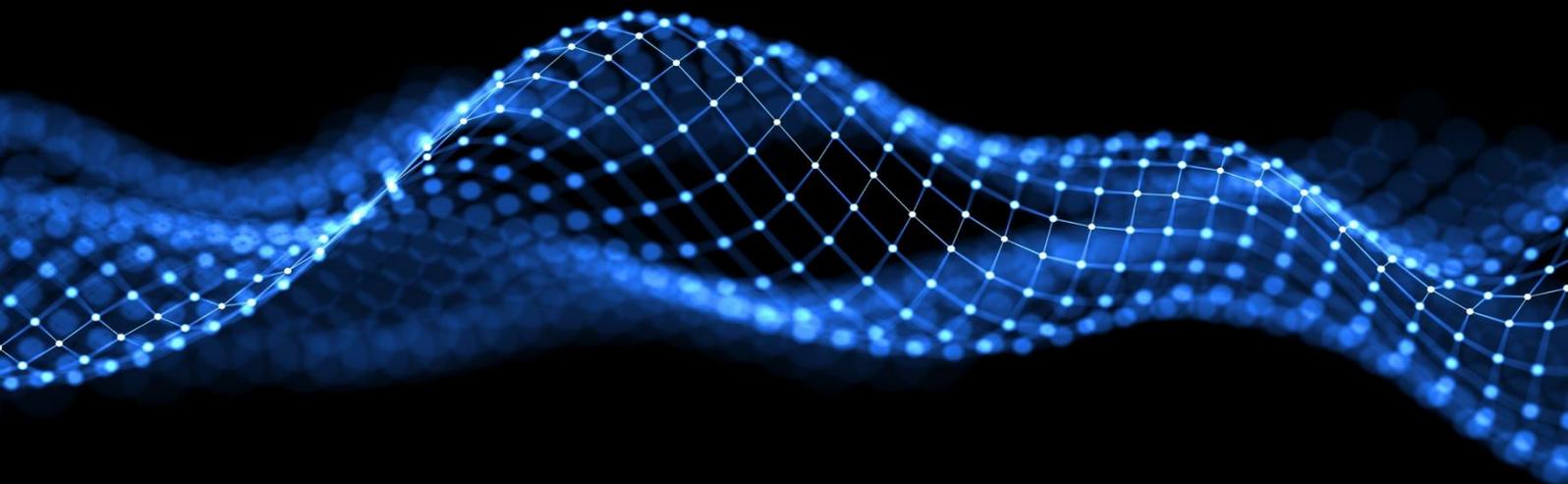


Pure Storage FlashArray//C



PRODUCT BRIEF

The Architect's View



FlashArray//C is the next member of the FlashArray family. Built using TLC/QLC NAND flash, //C systems will enable customers to justify the migration of less I/O intensive applications from hybrid and spinning media to all-flash platforms. FlashArray//C looks and feels like a standard FlashArray platform, offering compatibility with existing management tools and processes, while delivering a lower TCO.

Background

The last ten years has seen a rapid adoption of flash technology in the data centre. Initial products used expensive flash media, targeted at the most demanding applications. Over time, all-flash systems enabled the placement of many more workloads onto flash technology. However, the cost/benefit equation still decrees that certain applications can't justify being moved to a platform that has a high \$/GB cost. Instead these workloads sit on hybrid or HDD-based storage systems.

As flash technology has developed, TLC and QLC media changed the cost profile, increasing capacities and reducing the \$/GB equation. At the same time, however, TLC/QLC flash requires more management and offers lower endurance than the first generations of flash, so isn't a simple replacement for NAND flash serving active workloads. Instead, TLC/QLC media offers the ability to target a new set of applications, specifically those on slower HDD-based systems where the cost justification for using flash hasn't yet been reached and the level of performance isn't as demanding.

What is FlashArray//C?

FlashArray//C is a new platform in the Pure Storage FlashArray family that complements the existing FlashArray//X systems. The "//C" stands for capacity, as this new system is designed for workloads where the cost profile is more sensitive. FlashArray//C uses TLC media (with QLC media targeted for 2020) to deliver a high performance, lower cost alternative to FlashArray//X that

directly addresses the applications currently sitting on hybrid and HDD systems.

Pure Storage is quoting lower performance than that of FlashArray//X, with typical latencies of around 2-4 milliseconds (compared to around 350µs with //X). However, the //C platform offers the same reliability (six g's) and functionality as its faster counterpart. The difference between the two platforms is effectively the media being used.

The initial release of FlashArray//C will be one model (//C60) in three capacities – 366TB raw, 878TB raw and 1.39PB raw. Pure Storage is quoting effective capacities of 1.3PB, 3.2PB and 5.2PB respectively for these three options.

Customer Business Value

There are few companies that can justify a wholesale migration to all-flash shared storage. Larger enterprises typically have legacy and non-mission critical applications that don't fit the all-flash I/O and cost profiles (such as test/development systems). However, implementing shared storage in the enterprise is about more than simple \$/GB. Total Cost of Ownership (TCO) is impacted by environmental and operational costs too.

The transition to all-flash simplified the TCO for customers and FlashArray//C offers the opportunity to simplify storage environments even further.

FlashArray//C provides the same management tools and reporting used by FlashArray//X. Customers can move

data between the two platforms with no application outage, making it possible to place applications onto the most appropriate level of storage justified by performance and cost.

Pure Storage is quoting a range of use cases for FlashArray//C. These include test/development environments, implementing cheap(er) disaster recovery platforms and using FlashArray//C as an archive consolidation for snapshots of data from more expensive //X systems.

Market Positioning

Pure Storage will target the new FlashArray//C platform at customers with large amounts of data on traditional HDD and hybrid systems. The starting capacities for //C60 means this is not a mid-market play and likely aimed at larger enterprise customers. That's no surprise, as those customers will have the infrastructure base //C ideally replaces.

Introducing FlashArray//C makes Pure Storage more attractive to existing and potentially new customers that want to minimise the number of vendors on the preferred supplier list.

Reference Information

Further details on FlashArray can be found in the following Architecting IT blog posts:

- [Pure Storage FlashArray//C – First Impressions](#) (Published 20 September 2019)
- [FlashArray//X Gets Optane Acceleration with DirectMemory](#) (Published 23 September 2019)
- [Pure Storage announces NVMe-oF support for FlashArray](#) (Published 12 March 2019)
- [Pure Storage – Seeding the NVMe Market](#) (Published 5 September 2018)

Further details on Pure Storage and FlashArray can be found with the following Storage Unpacked podcasts:

- [#118 – Pure Accelerate 2019 with Patrick Smith](#) (Published 18 September 2019)
- [Soundbytes #009: FlashArray Update with Ivan Iannaccone at Pure Accelerate](#) (Published 15 June 2017)

More content on Pure Storage is available at the [Architecting IT Pure Storage Microsite](#).

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Caveats

The entry point capacity for //C may be a challenge for many enterprises to justify. It's also possible that some will look at FlashArray//C as a solution to move existing applications from FlashArray//X rather than expand their existing //X footprint. There is bound to be some "rightsizing" of applications in larger customers and this could have an impact on //X sales. The extent of this remains to be seen.

Pure Storage has not released any pricing information, so at this stage, the price differential between //X and //C platforms isn't known. Customers are going to expect a competitive position in order to justify moving applications from existing legacy systems.

Another important design aspect to note in the delivery of FlashArray//C is the lack of tiering within a single chassis. Pure Storage has specifically stated that tiering is a bad idea. So, we shouldn't expect to see a "hybrid all-flash" system any time soon.