InfiniBox SSA™: Delivering Confidence for Consistent Ultra-low Latency Performance

Ken Steinhardt

Biography

Ken Steinhardt is Field Chief Technology Officer at Infinidat (https://www.infinidat.com). He has held many different roles in the IT industry over the last 47 years, having started as a mainframe applications programmer and systems analyst, part-time when he was still in high school.

After receiving his BS degree in Computer Science from WPI, Ken was at Digital Equipment Corporation for 16 years, EMC Corporation for 20 years, and joined Infinidat from Pure Storage. His longest-tenured role was as EMC's Vice President of Enterprise Storage & CTO for Global Product Sales.

Ken blogs at https://www.infinidat.com/en/blog

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Abstract

For as long as there has been competition among IT vendors, IT vendors have bragged about the performance of their products. Too often vendors toss around the word performance as if it were some simple, one-dimensional thing. There are three different ways to look at performance when it comes to data storage: (1) Throughput – how much total data can be transferred in a given amount of time; (2) I/Os Per Second (IOPS) – how many individual pieces of data can be transferred in a given amount of time; and (3) Latency – how long does it take to start transferring data. But as the author of this article explains, the problems surrounding latency is creating a battleground for companies.

Introduction

What IT customers have been telling us is that these days they believe that most high-end enterprise storage products from the major vendors can all easily meet their requirements for both throughput and IOPS for most applications, most of the time. But when it comes to latency, there still remains a huge battleground for providing differentiation and greater value based upon faster response times. Today, performance is all about latency, and that's where customers have asked us to help them go beyond the current market options to deliver something new.

Addressing market demand

To address this market demand, Infinidat is produce to introduce InfiniBox SSA (Solid-State Array). We are calling it a Solid-State Array (SSA) rather than the

legacy term All-Flash Array (AFA) because our Neural Cache software still delivers all I/O to and from servers through DRAM cache – a solid-state technology that is an order of magnitude faster than flash. Although the back-end persistent storage of InfiniBox SSA is all based upon flash, the InfiniBox SSA is thus much more than just flash, but the key components are all "solid-state."

Infinidat uses only open technologies and is agnostic when it comes to hardware components, and as always we will continue to source whatever devices have the best combination of capacity, performance, reliability, market availability, and cost.

InfiniBox SSA is our first system that uses 100% Solid-State technology for persistent storage, which, when coupled with our patented Neural Cache deep learning software, takes the groundbreaking performance of the InfiniBox array to the next level.

InfiniBox SSA is a complementary system to InfiniBox, not a replacement. It is designed for applications that require ultra-low latency — not just for an average of total latency but for each and every I/O. For example, InfiniBox will still be the best fit for the vast majority of most normal user applications, delivering an average of low-latency performance at exceptionally low cost at multi-petabyte capacity.

Whilst, InfiniBox SSA is a solution for extraordinary applications that require consistent, predictable ultra low-latency performance at a market-competitive price.

However, InfiniBox SSA is still an InfiniBox delivering the same uncompromising and proven reliability, availability, advanced features, ease of use, and customer experience.

Since we expect that most organizations that consider InfiniBox SSA will have even more applications and data storage requirements that are best suited for InfiniBox, a blended mix of both InfiniBox plus InfiniBox SSA will be very cost-attractive, with industry-leading low TCO.
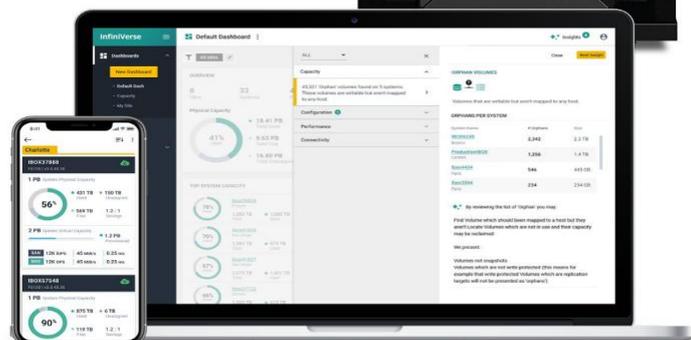
With apologies, I feel compelled to plead "guilty" and brag a bit about the performance, but by stating a simple fact rather than just quoting big "hero numbers."

To date, in all real-world customer application "bake-offs," InfiniBox SSA has won every single contest, and so far remains undefeated against all the major alternative enterprise storage All-Flash-Arrays (AFAs). Yes, InfiniBox SSA is beating even the ones that brag about "end-to-end NVMe" and "Storage Class Memory", because it turns out that in the real world software (like our patented Neural Cache) really is more important than hardware when it comes to performance. By "won," I mean that it has exceeded customer requirements for throughput and IOPS, at lower latency, when running real customer applications.

The most pleasant surprise for the early users is that InfiniBox SSA not only keeps winning the performance battles, but it is doing it at surprisingly competitive pricing, even when considering "effective" capacity, and the extensive lengths to which some legacy AFA competitors have gone in deploying multiple data reduction technologies (which slow down their performance).

In possibly stark contrast to most new product announcements in this industry, although our public announcement is our first deployment of InfiniBox SSA production systems was in early December 2020.

We wanted some of our existing customers to be the first to know about it, truly put it to the test, and to give us feedback. Based upon that feedback, we are now ready to share the InfiniBox SSA with everyone, including those of you that are running alternative enterprise storage systems. It's a proven, reliable, and lightning-fast system that shares the popular attributes of the InfiniBox from day-one because it is an InfiniBox.

Reference
More information about Infinidat SSA can be found at https://www.infinidat.com/en/products-technology/infinibox-ssa