Storage Analytics and Latency Matters

Some pretty amazing storage performance numbers are being bandied about these days. Generally speaking, these heretofore unheard of claims of millions of IOPS and latencies measured in microseconds include references to NVMe and perhaps storage class memories. What ultimately matters to a business is the performance of its applications, not just storage arrays. When an application is performing poorly, identifying the root cause can be a difficult and time-consuming challenge. This is particularly true in virtualized infrastructures. But meaningful help is now available to address this challenge through advances in storage analytics.

Storage Analytics Delivers Quantifiable Value

In a previous blog article about the benefits of Predictive Analytics in Enterprise Storage, I mentioned HPE's InfoSight predictive analytics and the VMVision cross-stack analytics tool they released in mid-2015. HPE claims its Nimble Storage array customers are seeing the following benefits from InfoSight:

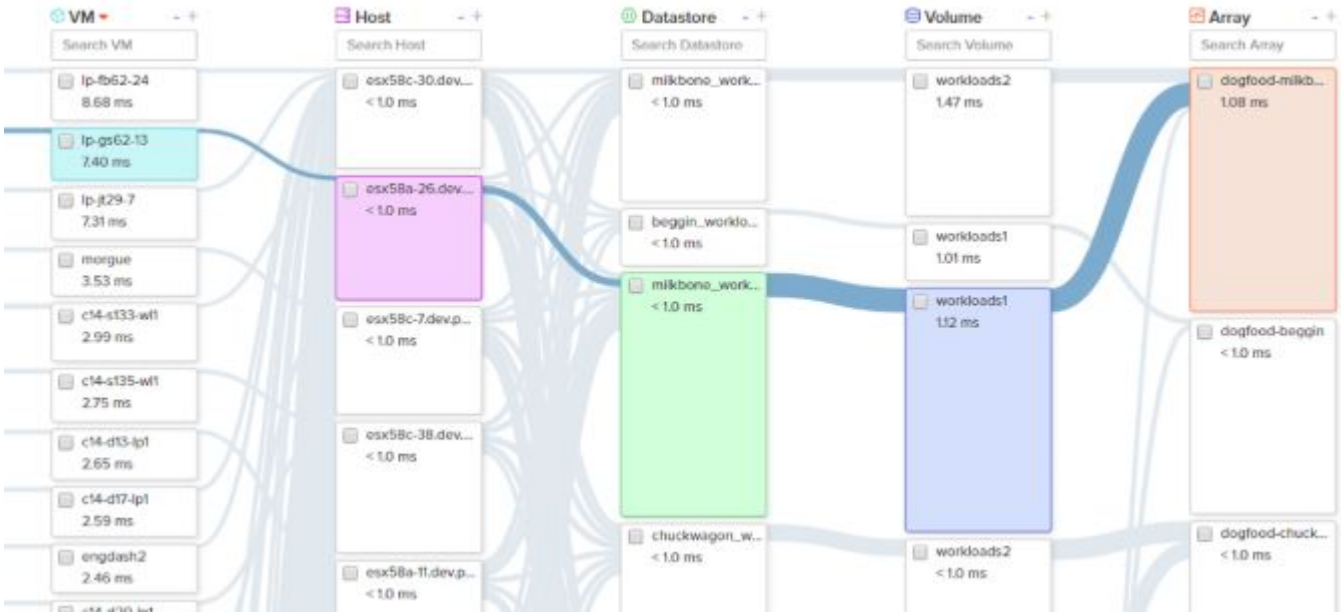
- 99.9999% of measured availability across its installed base
- 86% of problems are predicted and automatically resolved before customers even realize there is an issue
- 85% less time spent managing and resolving storage-related problems
- 79% savings in operational expense (OpEx)
- 54% of issues pinpointed are not storage, identified through InfoSight VMVision cross-stack analytics
- 42 minutes: the average level three engineer time

required to resolve an issue
- 100% of issues go directly to level three support engineers, no time wasted working through level one and level two engineers

Pure Storage also offers predictive analytics, called Pure1 Meta. On September 20, 2018, Pure Storage released an extension of the Pure1 Meta platform called VM Analytics. Even in this first release, VM Analytics is clearly going to simplify and accelerate the process of resolving performance problems for Pure Storage FlashArray customers.

Application Latency is a Systemic Issue

The online demonstration of VM Analytics quickly impressed me with the fact that application latency is a systemic issue, not just a storage performance issue. The partial screen shot from the Pure1 VM Analytics tool included below shows a virtual machine delivering an average latency of 7.4 milliseconds. This view into performance provided by VM Analytics enables IT staff to quickly zero in on the VM itself as the place to focus in resolving the performance issue.



This view also shows that the datastore is responsible for

less than 1 millisecond of that 7.4 milliseconds of latency. My point is that application latency depends on factors beyond the storage system. It must be addressed as a systemic issue.

Storage Analytics Simplify the Data Center Balancing Act

The key performance resources in a data center include CPU cycles, DRAM, storage systems and the network. Unless a system is dramatically over-provisioned, one of these resources will always constrain the performance of applications. Storage has historically been the limiting factor in application performance but the flash-enabled transformation of the data center has changed that dynamic.

Tools like VMVision and VM Analytics create value by giving data center administrators new levels of visibility into infrastructure performance. Therefore, technology purchasers should carefully evaluate these storage analytics tools as part of the purchase process. IT staff should use these tools to balance the key performance resources in the data center and deliver the best possible application performance to the business.