Flash for the Real World – Separate Hype from Reality

WebTech Q&A Session, August 7, 2013

1. **How cost effective is Hitachi Accelerated Flash storage compared to the niche competitors?**
   You can achieve the same level of performance and response times at similar cost per I/O. Of course, the Hitachi solution also offers the unique ability to upgrade to tiered storage or to unified storage, or to take advantage of the included external storage virtualization license within the base operating system. These added features put Hitachi's overall value ahead of all others.

2. **Do I need to buy anything additional to incorporate Hitachi Accelerated Flash storage within an existing Hitachi Unified Storage VM array?**
   The beauty of Hitachi Accelerated Flash storage for HUS VM is that it is offered as an upgrade for existing systems. You would need the appropriate capacity of flash storage modules and associated storage enclosure along with the assurance that HUS VM is running the most recent micro code. If you do not have enough rack space due to existing HDD trays, than an expansion cabinet can be added to house the Hitachi Accelerated Flash storage.

3. **Do I need Hitachi Dynamic Tiering to effectively run Hitachi Accelerated Flash?**
   No. We mention the use of Hitachi Dynamic Tiering as it can offer potential savings by optimizing the amount of flash required and by utilizing its automated data movement between flash and lower-cost hard-drive storage. Hitachi Dynamic Tiering is an option for creating a tiered storage system and is not required to operate Hitachi Accelerated Flash storage.

4. **In addition to Hitachi Dynamic Tiering, you mentioned software that accompanies Hitachi Accelerated Flash hardware. What is that software and how is it provided?**
   To accelerate Hitachi Accelerated Flash storage, Hitachi developed software that is offered at no additional cost for the HUS VM. The software is included with the base operating system when Hitachi Accelerated Flash storage is installed. The software increases the performance in flash environments.

5. **How does this relate to the Hitachi Adaptable Modular Storage 2500 SSD drives, if at all?**
   The Hitachi Unified Storage 150, replacement for the AMS 2500, recently achieved over 125,000 SPC-1 IOPS using solid-state drives in this industry-standard benchmark. The response time was well below 1 millisecond for most workloads, with a price-performance of $1.59/SPC-1 IOPS.

6. **On an equal capacity basis, 1.6TB FMD versus 4x 400GB drives, what is the performance advantage of FMD?**
   At a single-device level, a Hitachi flash module is capable of 100,000 random small-block reads, while a commodity solid-state drive is capable of 20,000. So that would equal 80,000 IOPS for the four 400GB SSD at an equivalent capacity. It would then require five of these solid-state drives to equal the performance of one Hitachi flash module.