Cloud Expo Showcases Disruptive Technologies – part 3

RFG POV: Flash storage is reshaping the data storage landscape. Leveraging this technology to improve business agility and performance or lower costs is among the biggest game changers business leaders face today. Another challenge is keeping up with the volume of new solution providers entering the space along with determining which established players offer the best mix of technology, partnerships and support to meet corporate business requirements.

RFG divides the Disruptive Cloud Solution Providers (DCSPs) into four broad categories: Infrastructure, Applications, Services and Storage. (See Figure 1.) This is the third in the three-part series on cloud providers and addresses solid state drives (SSDs) and flash storage.

Figure 1. Disruptive Cloud Solution Providers

High Performance Data Storage

Coraid offers a scale-out SAN solution providing enterprises of all sizes with flexible, scale-out, high performance storage as well as a family of NAS servers that combines an "innovative and feature-rich file system with scale-out, massively parallel Ethernet SAN

technology ideally suited for public and private cloud environments." In addition, Coraid EtherCloud is "the industry's first software-defined storage platform for architects of the modern data center. EtherCloud enhances business agility by radically simplifying delivery of scale-out infrastructure. Combined with Coraid EtherDrive scale-out (NAS) storage, EtherCloud allows enterprise and cloud customers to deploy and manage petabytes of block and file storage with relative ease." Coraid storage solutions combine traditional hard disk drive (HDD) technology, to help keep storage costs, and solid state drive (SSD) technologies for high performance applications along with a variety of management features such as vCenter integration, programmable storage management and control via REST API, policy-based application deployment to dynamically allocate and manage storage according to application requirements, and self-service provisioning for application owners in a multi-tenanted environment.

Intel has made it clear that it wants to be a dominate player in the SSD and Flash storage space. Announcements this year declare the immediate availability of new drives to meet a variety of capacity, performance and application requirements. Introduced this month, the Intel SSD DC S3500 Series "breaks through barriers - like the need for high throughput/low latency storage with a low total cost of ownership - to deliver the storage solution that meets the needs of the cloud, and its demand for storage, which has exploded in recent years," said Rob Crooke, Intel corporate vice president and general manager for the Non-Volatile Memory Solutions Group. "Intel's data center family of SSDs helps make cloud computing faster and more reliable, enabling more transactions and richer experiences." The S3500 is optimized for read-heavy applications, whereas the S3700 Series, introduced earlier this year, is built for more write-intensive workloads such as OLTP or analytics. Both solutions are priced competitively for performance-centric applications where low latency is key – as opposed to ultra-low latency, high-performance applications where in-memory processing is required. The SSDs are offered in capacity ranges from 80 to 800 GBs and are available through Intel partners and resellers including a five-year warranty which suggests Intel has done its homework in hardening the SSD controllers and management software to extend the useful life of their drives.

Skyera is a "disruptive provider of enterprise solid state storage systems designed to enable a large class of applications with extraordinarily high performance, exceptionally lower power consumption and cost effectiveness relative to existing enterprise storage systems. Founded by the executives who previously developed the world's most-advanced flash memory controller, Skyera is backed by key technology and financial partnerships (Dell Ventures) designed to position it at the forefront of the hyper-growth in the solid state storage sector." Like many of its competitors, Skyera, uses enterprise-class, solid-state storage using commercial MLC (multi-level cell) NAND Flash memory. While MLC is not as durable at SLC (single-level cell) or as fast, it is much more cost effective. Skyera's custom designed controller employs advanced flash management algorithms to reduce program/erase cycles and has implemented a "unique" approach to RAID, in conjunction with controller-based compression that "results in 10x fewer writes per Flash module" extending the useful life of the SSD drives.

Smart Storage Systems fabricates its own SSDs and Flash selling directly to vendors such as IBM and SGI, CSPs and government agencies with high capacity, low latency application needs – and occasionally to large enterprise customers. Earlier this year, Smart announced the availability of 2 TB SSDs, and they have a 4 TB SSD in the works. Interfaces include both SATA and SAS in a variety of form factors from 1.8 to 2.5 inches and various capacities. Smart offers two CloudSpeed SSD products, the 500 and the 1000 models, "designed specifically to address the growing need for SSDs that are optimized for mixed workload applications in enterprise server and cloud computing environments. Leveraging SMART's proprietary Guardian Technology™ Platform, tier-one OEM-enterprise firmware, proven power fail technology and 19nm MLC NAND flash, the CloudSpeed SSD product family offers all the features expected from an enterprise-class drive at the right value." Smart touts the longevity and endurance of its drives which provide additional TCO benefits beyond just speed, resilience and capacity.

Conclusion

With the market for cloud-related products and services anticipated to exceed $200 billion per year by 2020, the opportunities for CSPs and technology companies are enormous. At the same time, the consumerization of IT is pushing technology solution providers, CSPs and application developers to improve services, user interfaces, APIs, security and self-service applications to the point where non-technical, line-of-business users can easily manage and provision their own solutions while accelerating time to value.

RFG POV: Flash solutions are evolving quickly and the variety of solutions is growing daily. These changes are disrupting the current data center environment and require new IT skills and revisions to target architectures. **IT executives need to experiment with various flash and SSD offerings to determine which alternatives and suppliers best satisfy current and planned initiatives and business requirements before leaping into commitments and designs that can consume scare resources.**

Additional relevant research is available. Interested readers should contact Client Services to arrange further discussion or interview with Mr. Gary MacFadden, Principal Research Analyst.

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