SCI StorInt™ Dispatch
EMC Announces Atmos

Today, EMC announced their Atmos (codenamed Maui) cloud optimized storage, a new integrated hi-capacity, multi-site storage system based on commodity servers and SATA JBoD disk.

Atmos defined

EMC has been discussing Maui and Hulk in the press and analyst shows for the past year and is now ready for field deployment. Atmos has been designed from the ground up to support multi-PB storage deployed over 100s of sites.

The product comes in three hardware versions and a software only configuration. The three hardware configurations include a rack of 120TB of storage with servers providing a 15:1 storage to server ratio, another rack with 240TB of storage supporting a 15:1 storage to server ratio, and finally, a rack which supports 360TB of storage supporting a 60:1 storage to server ratio. Customers who wish to configure their own server and JBoD hardware can deploy the software only version

The disk hardware looks like Clariion drive enclosures but differs in that the disks are SAS attached JBoDs. The servers are all commodity x86 and provide all the services required to support this multi-site storage. Multiple instances of the hardware racks can be installed across hundreds of sites to form an Atmos storage cloud.

Atmos is an object oriented storage system that contains object metadata and is designed for single-writer, multi-reader data. The product supports NFS/CIFS, SOAP, and REST access to managed objects. How NFS/CIFS resolves a mount point to an object space was not discussed but presumably the combination of directory like metadata with an object location service would provide this mapping to the front-end interfaces. Also, Atmos provides a global name space across all storage nodes, and supports automated policy management to replicate data across nodes, supporting synchronous or asynchronous replication. Atmos does not support RAID data protection.

Atmos is designed in multiple layers with a client services, core services, and management services layers in addition to data storage service.

- Client services provides host access interfaces for NFS/CIFS, SOAP, REST and Linux FS and then talks with core services to locate the data.
- Core services provide multiple instances of metadata location, metadata, and resource management services. The metadata location service maps object-ids to data storage services for client services. Once the object's data storage service has been located client services need no longer interact with metadata location services and can interact directly with the data storage service.
- Management services provide multiple instances of system manager, security manager, and policy manager services.
- Data storage service provides the multiple site repositories for objects.

One key to Atmos' flexibility and scalability is its object policy management. Atmos, policy management is automated and able to assign differing copy-protection schemes and other attributes to objects being stored and accessed. Such protection schemes could include multiple copies, spanning multiple local and remote sites. Also, policy management can be used to detect and manage "hot" objects and automatically replicate these objects across multiple storage nodes for better performance.

In addition, Atmos policies can apply to a customer, to an object, or to an object characteristic. As such, policies can be used to direct objects to different classes of storage (compressed, green-spin down, or normal SATA disk), set number of copies for an object, set location of object copies (e.g., NY, London, San Francisco, etc.), and type of object copies (synch or asynch).

As for the markets that EMC is addressing with Atmos they seem to be in the Media and Entertainment, Web 2.0, and Telco space. Current beta customers have global operations and have been looking to solve this problem for some time. Most large global customers who need this today were probably copying file systems across multiple sites by hand or by scripting. However, creating multi-PB, multi-site, well managed storage farms is non-trivial and a tough problem to solve. With Atmos, all this can be automated by just deploying multiple Atmos nodes and providing data protection policies for these file objects.

Atmos is not a cluster file system nor is it a parallel file system but rather provides inherent support for billions of objects (files), with multi-PBs of storage, over hundreds of sites.

Announcement significance

EMC believes their cloud-optimized storage represents an additive storage market above and beyond anything they have in the block, archive or file space arenas. When asked if Atmos would compete with Celerra NAS products, EMC responded that by its very nature Atmos would never be as fast as Celerra, and was never intended to compete with tier 1, high performance NAS systems. However, if one needed lots of data deployed over many sites then Atmos would be the answer.

Silverton Consulting, Inc. is a Storage, Strategy & Systems consulting services company, based in the USA offering products and services to the data storage community.