Application-Aware Storage

Over the past several decades, the evolution of servers has led not only to faster servers, but also to higher utilization rates of those resources with the advent of partitioning and virtualization. These servers are now able to run their applications without OS contention, with just the right allocation of resources. Yet the evolution of storage has been stagnant, merely relegated to providing a LUN in one way, shape, or form. That LUN was an amalgamation of a RAID group with some simple sparing capability. Until now, there has been no storage system with the ability to partition resources – much like you can your server – to allow differentiated performance for your applications. A LUN is no longer just a LUN.

Application-Aware Storage

Storage systems have been providing the same LUN for decades. And storage administrators have become accustomed to the fact that their storage systems' tuning capabilities are limited to cache and interfaces. These limitations have caused the industry to see storage utilization rates around 40% because of the inherent load imbalance of application I/O requirements. Administrators are uncomfortable with potentially overtaxing their storage arrays because they don't know when their most important applications will hit their peak requirements and how these storage systems will respond.

Server virtualization exacerbates these problems, as servers are now running multiple applications with partitioned resources and are pumping more I/O to the storage systems. A virtualized server environment causes much more strain on a storage system than the same number of non-virtualized servers.

For storage systems to keep pace with their server counterparts, they must be able to differentiate services based upon application workload as defined by best practices and administrative settings.

Pillar Data Systems has created the first application-aware storage platform: the Axiom. Administrators can now tune their storage for increased performance for specific applications while experiencing far greater utilization rates – all with the assurance that the Axiom will not be over-provisioned.

Intelligence drives down costs

The Pillar Axiom application-aware storage systems enable you to drive down both acquisition and operating costs by:

- **Buying less storage.** Today's storage issues have become a battle of spindle vs. capacity. If you buy too few spindles of high capacity storage, your performance will suffer and your utilization rates will be low. Yet if you buy to many spindles of low capacity drives, your costs increase dramatically. What if you could get differentiated services from multiple LUNs striped across high-capacity spindles? You get the best of both worlds: high performance and high utilization. And you buy less storage.
- **Provisioning storage like you provision your servers.** By provisioning LUNs by application – much like you provision your virtualized servers – management and maintenance become simpler tasks. No more array read/write cache rebalancing due to changes in application workload. Ease of management becomes more and more important as capacity requirements grow.
- **Dynamically reassigning resources temporarily or permanently.** Storage silos are a thing of the past. Arrays shouldn't be disposable devices bought for a project and then scrapped at the end of the project or left serving data that is no longer accessed. Once a project is completed, reassign its priority and start your new project on the same array. Or, if a database becomes more important at the end of each month, don't provision your storage systems for a peak that only comes every four weeks; simply setup a policy to increase the priority of that application temporarily, and then reset it.

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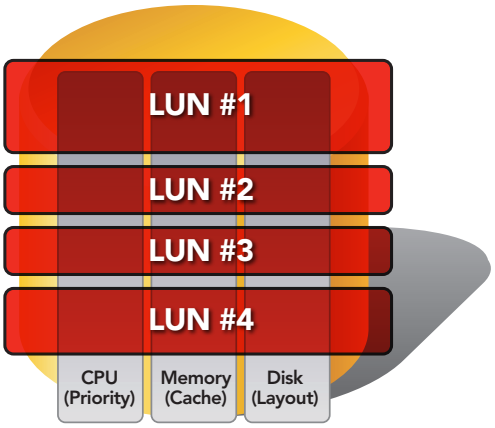
Resource Assignment

Management is simplified by allowing the administrator to assign array resources per LUN or File System much the same as a virtualized server resource. The array offers three resources: CPU (Priority), Memory (Cache) and Disk (Layout). If a pre-set best practices configuration doesn't meet the needs of the administrator, then they can create their own profile by modifying these settings and saving the profile for later use. These resources may be over-provisioned if the administrator wishes to implement CPU or disk-based oversubscription (Thin Provisioning).



Pillar Data Systems Axiom

Axiom 300

The Axiom 300 is an attractively priced entry level to mid-range storage solution providing excellent value for the SME business, remote office, and small to medium applications. Packaged and priced as a turnkey storage solution, the AX300 is easy to buy, easy to manage and easy to service. Its unique ability to tailor performance per application; its ease of use; and its ability to scale and support NAS, FC SAN or iSCSI SAN with a common user interface make it the most powerful entry to mid-tier storage offering available.

Axiom 500

The Axiom 500 is Pillar's flagship enterprise application-aware storage platform. As the first and only true application-aware storage system it provides the highest written utilization rates in storage industry, the simplest storage provisioning, and the only storage system that ties storage services to applications. The Axiom 500 is an ideal storage platform for virtual infrastructure projects, IT data center consolidation projects, and bringing applications online with the highest levels of performance without tradeoffs for capacity utilization, the Axiom 500 is priced very competitively whether looking at $/GB, $/IOP or any other metric.

Axiom 500MC

The Axiom 500MC is Pillar's Tier 1 array, with redundancy beyond that of the original Axiom 500. Data on the Axiom 500MC is both mirrored and replicated to provide the highest level of protection for mission critical applications. Comprised of modular components and complimentary software, the Axiom 500MC is maintained, optimized and serviced by Pillar Professional Services to meet the high availability needs of any production environment.

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