Feature Brief

Dell Storage SC Series Storage Center

Virtualized for greater control of your data center storage environment

What is QoS?

- Allocate and reserve resources
- Enhance performance of mission critical workloads
- Prioritize by IOPS, MB/s or latency
- Works on standard volumes or VVols

Why VVols?

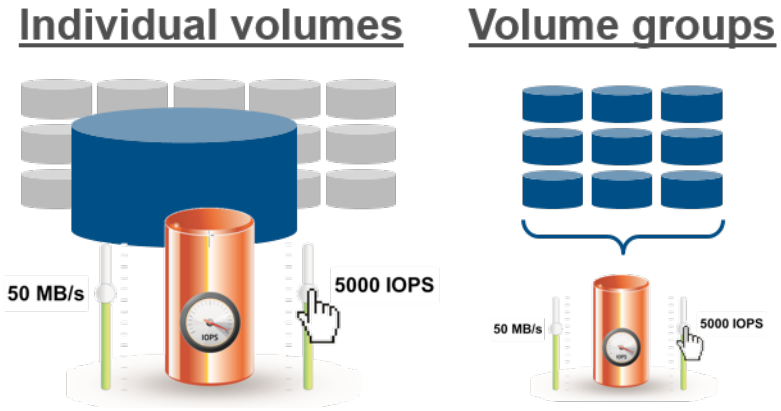
- Provision, monitor, manage storage at the VM level
- Control IOPS, bandwidth QoS at the VM level
- SC platform efficiency and data reduction features now optimized individually per VM (sub-VVol level)

Today's world of demanding business productivity means IT professionals are faced with a daunting challenge — ensure business operations continue at peak efficiency on limited budgets. Deploying storage effectively is crucial to meeting business goals as it is a cost-driver in the data center.

Match storage resources to your business priorities

Quality of Service (QoS) controls allow Storage Center administrators to allocate array resources to match their unique business priorities. QoS helps ensure the performance of mission-critical apps in contentious multi-workload environments. IOPS, bandwidth and latency thresholds can now be established independently for each volume, and tuned with extreme granularity to prevent non-critical "noisy neighbor" apps from consuming vital resources in a multi-tenant environment. This capability is a prerequisite for service providers creating multi-tenancy cloud solutions. It is also beneficial for large enterprises that need to support multiple departmental workloads using shared data center resources in which a single tenant can monopolize bandwidth, I/O or controller resources — essentially starving other applications.

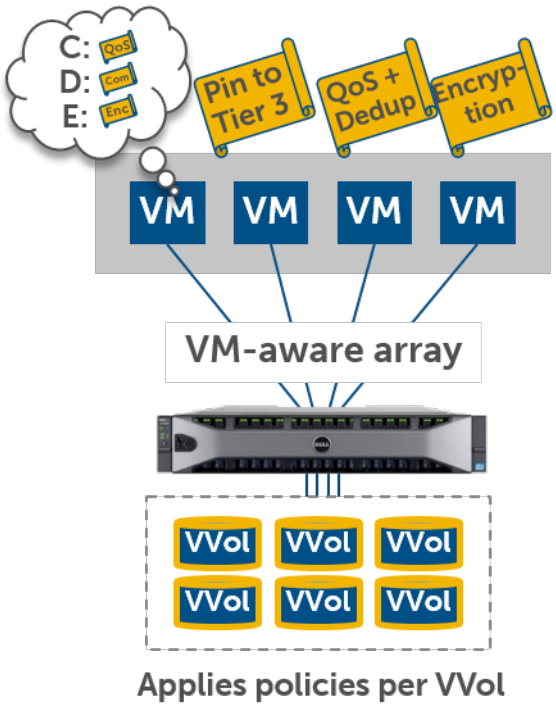
QoS can be assigned to a volume or group of volumes by setting upper limits on IOPS along with throughput, and also be used for server load equalization. Effectively, the same relative priority is now applied to all volumes in the system, and each will have unfettered access to system resources until congestion occurs. Once congestion pushes the system latency past the latency goal, the load equalizer begins to ensure fairness.



Volume QoS profiles allow the administrator to set priority, alerts and limits on volumes. Administrators can also set group profiles that are different from volume profiles in that their sole purpose is setting aggregate limits on a group of volumes concurrently. QoS reporting provides tracking of QoS settings over time allowing for better flexibility and control.

Improve workload efficiency and performance

SC Series arrays running SCOS 7 also support VMware® vSphere® Virtual Volumes (VVol) to allow provisioning, monitoring and management of storage at a virtual machine level. This offers VMware administrators a range of features, defined by Storage Center administrators, to control the performance and storage capabilities of the respective virtual machines. Greater control means more efficiency to the virtual machines based on specific workload policies. There are no trade-offs or compromises between virtual machines. SC services, including the volume QoS described above, may now be assigned at a virtual machine or VVol level, allowing even more granular performance tuning, trouble-shooting and reporting.



Delivery of virtual machine and cloud storage through VVol changes how storage is managed. Traditional shared storage management has matured over the years. Consolidating virtual machines onto a minimal number of datastores will continue to be a successful paradigm for years to come. However, with many array based integrations such as tiering, data deduplication, compression, RAID, snapshots, replication and other data protection strategies occurring at the volume or datastore layer, the consolidated approach is not without identifiable challenges. VVol addresses these challenges by allowing these integrations to be defined at the virtual machine or even application level. Management, deployment and adherence becomes autonomous through VMware vSphere integrated software-defined storage policies.

Virtualized SC Series architecture protects hosts from disruption

Like other signature SC Series advantages, Live Migrate and Live Volume are extensions of Dell's modern, fully-virtualized Storage Center architecture. In SC Series arrays, data volumes are completely separate from physical drive location or RAID levels — a key factor already enabling advanced tiering, flash-optimization and data reduction capabilities. SC volumes routinely span diverse media types at multiple RAID levels per tier, and are constantly re-optimized for peak performance and cost-savings.

Live Migrate

The new Live Migrate feature is now included with every SC Series array. This feature leverages this virtualization layer allowing you to move data freely from one SC array to another, transparently across local, campus, metro or geo distances, without interrupting workloads or reconfiguring hosts.

Live Volume

Also leveraging the storage hypervisor, the optional Live Volume feature provides even greater levels of data protection and business continuity. Unlike Live Migrate, which facilitates a one-time movement, Live Volume creates synchronous or asynchronous live copies of data on separate arrays, transparently maintaining and swapping the primary host source, either on-demand or in response to an unexpected outage. From the hosts' perspective, a Live Volume appears like any other internal or SAN-attached drive. Yet behind the scenes, data is continually replicated between two locations. Reads and writes can occur on both paths, which means either underlying volume may be moved or taken offline with no impact to users.

In addition to the features like QoS and VVols mentioned earlier, SC Series operating system includes other great features like snapshots, storage profiles, compression, deduplication, encryption and per-volume tiering in cases where a user may want to "pin" a volume to a particular tier. As with QoS, VVol support simplifies management of multi-tenancy and cloud environments, enabling precise, policy-based allocation of storage resources to individual virtual machines.

Learn More at Dell.com/SCSeries.

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