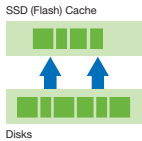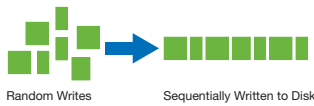## Cache Accelerated Sequential Layout (CASL) Architecture

CASL™ is the foundation for Nimble Storage's high performance and capacity efficiency, integrated data protection, and simplified lifecycle management. This document briefly describes the different technology and features behind CASL and their benefits.

Dynamic Caching
- Accelerate access to application data by caching a copy of active "hot" data and metadata in flash for reads
- Get high throughput and low latency on read transactions from storage

Write-Optimized Data Layout
- Aggregate or coalesce all data writes and sequentially write it with checksum and RAID parity information to a pool of disks; transparently consolidate free space for future writes
- Deliver both fast sub-millisecond random writes and high disk utilization

Application-Tuned Block Size
- Match the logical block size of applications in the exported Nimble Storage volumes
- Speed up application performance for Exchange, SQL Server, VMware ESXi, and more
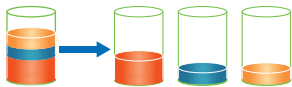

Universal Compression
- Compress all data inline before storing using an efficient variable-block compression algorithm
- Store 30 to 75 percent more data in the same storage capacity with no performance impact or added latency

Efficient, Instant Snapshots
- Take point-in-time copies, which does not require data to be copied on future changes (redirect-on-write); quickly restore previously taken snapshots as needed
- Consolidate primary data and backups onto one storage system; take frequent instant backups that require minimal space and are easy to restore
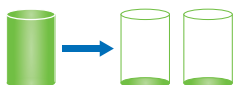

Thin Provisioning
- Present more storage to the host than what is dedicated to the exported volume; dynamically allocate capacity as data is written
- Use storage more efficiently and get higher utilization of disks

Efficient Replication
- Maintain a copy of data on a secondary system by only replicating compressed changed data on a set schedule
- Reduce bandwidth costs for WAN replication and deploy a disaster recovery solution that is affordable and easy to manage

Zero-Copy Clones
- Quickly create full functioning copies or clones of volumes using Nimble Storage snapshots.
- Get instant clones with same performance and functionality as the source volume—great for virtualization, VDI, and test/development workloads
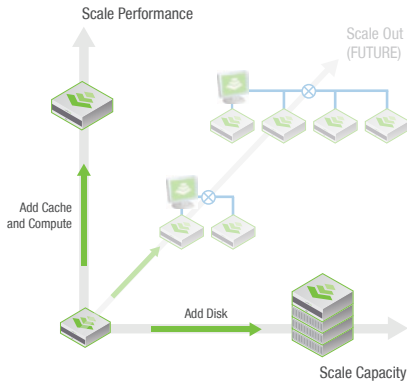
Application-Integrated Backups and Profiles

- Take instant application/VM-consistent backups using VSS framework and VMware integration, and use application templates with pre-tuned storage parameters
- Simplify application data protection with frequent, easy-to-restore, application-consistent backups, and operate applications at optimal performance without any tuning

Custom Application Profiles

- Leverage pre-defined application templates with pre-tuned storage parameters such as block size, caching, and compression
- Operate applications at optimal performance and data protection without any tuning or manual settings

Scale-Up Performance

- Non-disruptively scale compute by upgrading the controllers for higher throughput and IOPS, and scale cache by upgrading SSDs to accommodate larger amounts of active data
- Non-disruptively get higher throughput and IOPS and handle more active data

Scale Capacity

- Non-disruptively grow storage capacity by adding additional disk shelves
- Grow capacity as needed without the up-front investment

InfoSight and Proactive Wellness

- Leverage data sciences to gain operational efficiencies
- Receive alerts based on the monitoring and analysis of system parameters; create support cases if needed
- Proactively plan storage growth and optimize performance based on intuitively presented storage health insights

Non-Disruptive Upgrades

- Upgrade array software and firmware without any disruption to operations

NimbleConnect Online Community

- Connect with and learn from Nimble users, partners ,and product experts worldwide

Certified Storage

- Get storage that has been tested, verified, and certified with multiple applications and hypervisors
- Deploy vetted configurations reducing the risk and time to production

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nimblestorage

2740 Zanker Road, San Jose, CA 95134

Phone: 877-364-6253; 408-432-9600

Email: info@nimblestorage.com

www.nimblestorage.com