Nimble Storage and Veeam: Put your backup to work.

Klaus Kupfer
SE Manager DACH
Today’s Backup and Secondary Storage Challenges

Key Customer Challenges…

- Slow backups, very slow restores
- Trapped data on backup device—can’t be used without restore
- Specialized and siloed backup infrastructure
Secondary Storage is Ready for Change

“A lot of people want to do Dev/Test and something of value with their Backup data instead of having it just sit there in the event of a disaster.”

Liz Conner, Storage Research Manager, IDC
Secondary Storage is Ready for Change

“By 2020, 30% of organizations will leverage backup for more than just operational recovery, up from less than 10% at the beginning of 2016.”

Gartner Magic Quadrant for Data Center Backup and Recovery Software, June, 2016
## Secondary Storage Is Changing… But What Can I Do About It?

<table>
<thead>
<tr>
<th>Option</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move everything to All-Flash?</td>
<td>Still relatively expensive for non-primary storage</td>
</tr>
<tr>
<td>Move everything to the Cloud?</td>
<td>High latencies, costly to recover</td>
</tr>
<tr>
<td>Try a start-up’s new web appliance?</td>
<td>Perpetuates isolated siloes of data, adds new vendor Risk</td>
</tr>
<tr>
<td>Wait it out?</td>
<td>There are costs: Continuing Support expense of legacy equipment, Admin/Space/Energy costs of siloed resources, Inefficiencies, Missed opportunities</td>
</tr>
</tbody>
</table>
Introducing the Nimble Storage Secondary Flash Array

- New type of backup storage
- Built on Nimble pioneering Hybrid Flash technology
- Effectively combines Flash Performance with Capacity Optimization
- Brought to market with leading Data Availability software partners for a complete solution

Put Your Backup Data to Work

Performance that lets you get more value from your Backup—Dev/Test, QA, Reporting, Analytics…
Nimble Storage SF-Series Secondary Flash Array

Integrated with Leading Data Availability Software

- Flash-enabled Storage
- Dedupe & Capacity Optimized
- Multicloud Flash Fabric™
- InfoSight Predictive Analytics

Optimized for Data Protection and Secondary Storage workloads:

- Flash-based Performance for Instant Restores and Recovery
- Capacity Optimized through Always-on In-line Data Reduction
- Converged and Integrated for Radical Simplicity
Secondary Flash Solution with Veeam

Nimble Secondary Flash Solution

- Simplify data management through deep integration
- Validated design with Veeam
- Works with Nimble primary (extra functionality) or non-Nimble primary
Nimble Secondary Storage Value Proposition

- Always verified backups
- High performance allows dev/test, analytics on backup
- No hassle, automated archiving to cloud
- Global monitoring & analytics

Instant backups with Nimble primary

- Inline dedupe (and encryption) without sacrificing random IOPS
- Instant (no copy) VM recovery means excellent RTOs
- No hassle, automated archiving to cloud
- Global monitoring & analytics
Backup Repository - Settings

**Nimble Storage Volume** as a Backup Repository

A location used by Veeam Backup & Replication to store backup files

- A volume on a Nimble Storage array
  - Special backup performance policy (Backup Repository)

Backup Repository>Repository>Advanced> Storage Compatibility Settings

**Recommended setting: Enable**

- Align backup file data blocks
- Decompress backup data blocks before storing
  - Can still do source side compression to save on network bandwidth
- Use per-VM backup files
  - Recommended by Veeam for Deduplication Appliances
  - Enable multiple streams of backup
Backup/Backup Copy Job Storage Settings

**Recommended settings:**
Backup/Backup Copy Job > Storage > Advanced Settings > Storage

- **Storage tab In Veeam:**
  - DISABLE
  - Inline data deduplication
  - Compression level

- Set Storage optimization to:
  - Local target (16TB+ backup files)

- Save as default
  - 4MB write size
  - Lower overhead with each write
  - Nimble takes care of dedupe

Enable Nimble compression and dedupe to provide better data efficiency.
Nimble Integration – Primary Settings

Nimble Array as Primary
Backup/Backup Copy Job>
Storage>Advanced Settings > Integration

Recommended setting:

- Integration tab:
  - Enable backup from storage snapshots
    - Failover to standard backup
    - Failover to primary storage snapshot
Nimble Integration - Replication

Secondary Target

Use the backups produced by this job to satisfy backup requirements by archiving backups to tape, or efficiently creating remote backups and replicas over WAN.

Name

Add...

Edit...

Nimble Snapshot Replicated Copy

Nimble Snapshot Replicated Copy

Number of snapshot copies to retain: 14

Use as the data source

Eliminates impact on the primary storage by enabling backup job to read source VM data from the secondary storage.

OK  Cancel
Instant VM Recovery—How it works

Back to work in minutes!

Hypervisor

VM

Production Storage

vPower

Migrate online

Compressed/ deduplicated backup file

Backup Storage
Verified Protection and Leveraged Data
SureBackup (SureReplica) & On-Demand Sandbox™

Production

Disaster Recovery

Verification job
- VM
- OS
- App
- Report
Tertiary Copies With SFA—For DR

- **Using Veeam Backup Copy Jobs**
  - Schedule controlled by: Veeam
  - Data movement by: Veeam
  - Speed: Slower
  - Retention policies for tertiary copy: Can set different retention policies
  - Failover activity: Since Veeam controls the backup jobs, can run restores from tertiary copy without any additional activity
  - Heterogeneity: Can replicate to other 3rd party storage/archival systems or to the cloud

- **Replicate SFA to SFA**
  - Nimble
  - Nimble
  - Faster
  - Will be identical as secondary copy
  - Use Veeam to rescan volumes in downstream SFA to discover and mount repositories
  - Nimble-Nimble only
# Veeam v9.5 Integration with Nimble

<table>
<thead>
<tr>
<th>Backup from Storage Snapshots</th>
<th>Veeam Explorers™ for Storage Snapshots</th>
<th>On-Demand Sandbox™ for Storage Snapshots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimize impact on production VMs</td>
<td>RTPO™ &lt;15 Minutes</td>
<td>Verified recoverability</td>
</tr>
<tr>
<td>Simplify scheduling</td>
<td>Granular recovery</td>
<td>Test, dev, training and troubleshooting</td>
</tr>
<tr>
<td>Agentless, application-aware consistency</td>
<td>Instant visibility</td>
<td>Low-risk deployments</td>
</tr>
</tbody>
</table>
SF-Series Product Family—Specs

<table>
<thead>
<tr>
<th>Connectivity Options</th>
<th>iSCSI or FC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usable Capacity</td>
<td>Up to 200 TB</td>
</tr>
<tr>
<td>Deduplication</td>
<td>Inline, 8:1 expected</td>
</tr>
<tr>
<td>Effective Capacity</td>
<td>Up to 1.5 PB</td>
</tr>
<tr>
<td>Read/ Write IOPS</td>
<td>Up to 40K</td>
</tr>
</tbody>
</table>
SF Series Product Under the Hood

Under the Hood
Hybrid arrays running 4.x code
- Continuous inline Dedupe
- Memory tradeoff for higher dedupe capacities
- Write Throughput Capped
- Read/Write IOPS is lower vs. CS

Higher flash to disk ratio
- Enable dedupe indices to be on flash
- Better inline dedupe performance

New Performance Policy: “Backup”
- 4K block size
- Enabled by default on SF series
  - Overrides allowed

Other Supported Features
- Encryption at Rest
  - Same key for volumes within the same dedupe domain
- Volume Folders
- Scale out
  - Deploy multiple independent SFAs per site
Nimble SF-Series Secondary Flash Array—Specs

<table>
<thead>
<tr>
<th>Platform</th>
<th>SF100</th>
<th>SF300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectivity</td>
<td>iSCSI or FC</td>
<td></td>
</tr>
<tr>
<td>Max Write Throughput</td>
<td>400 MB/s</td>
<td>800 MB/s</td>
</tr>
<tr>
<td>Mandatory Flash Requirement</td>
<td>8%—to enable high dedupe ratio</td>
<td></td>
</tr>
<tr>
<td>Raw Capacity</td>
<td>21TB–126 TB</td>
<td>42 TB–252 TB</td>
</tr>
<tr>
<td>Usable Capacity</td>
<td>16 TB–100 TB</td>
<td>30 TB–200 TB</td>
</tr>
<tr>
<td>Effective Capacity (8:1)</td>
<td>800 TB</td>
<td>1.6 PB</td>
</tr>
<tr>
<td>Max Read/Write IOPS (upto)</td>
<td>20K</td>
<td>40K</td>
</tr>
<tr>
<td>Expansion shelves</td>
<td>Up to 2</td>
<td>Up to 2</td>
</tr>
</tbody>
</table>
Data Efficiency—A Function of Data and Time

SFA Efficiency

8:1 (usual retention)

to

20:1 (longer-term retention)

More full backups
and more blocks/copies
of identical data

= More Efficiency
Nimble Product Line Comparison

**Performance**
- **IOPS**
  - **AF-Series**
    - All-Flash Arrays
  - **CS-Series**
    - Adaptive Flash Arrays
  - **SF-Series**
    - Secondary Flash Arrays

**Capacity**
- **Effective GBs**

**Primary Storage**
- **Usage/Workloads**
  - **High performance** primary applications
  - **Other** primary applications

**Secondary Storage**
- Backup, DR, Test/Dev, other secondary applications
Secondary Flash Array – Next Steps

Learn
- Product datasheet, Solution brief, Best Practice Guide, Nimble and partner Blogs, Video

Demo
- Request a demo through your Reseller, Nimble Sales rep or at www.nimbleStorage.com

Contact
- Technical contact kkupfer@nimblestorage.com or your local SE.
The Power of Predictive
Thank you