

# Nimble Storage and Veeam: Put your backup to work.

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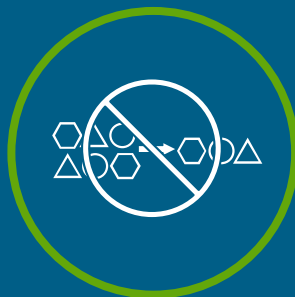


# Today's Backup and Secondary Storage Challenges

## 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

The Gartner logo is displayed in a bold, blue, sans-serif font. A registered trademark symbol (®) is located at the end of the word.

# Secondary Storage Is Changing... But What Can I Do About It?

Move everything to All-Flash?

Still relatively expensive for non-primary storage

Move everything to the Cloud?

High latencies, costly to recover

Try a start-up's new web appliance?

Perpetuates isolated siloes of data,  
adds new vendor Risk

Wait it out?

There are costs: Continuing Support expense of legacy equipment, Admin/Space/Energy costs of siloed resources, Inefficiencies, Missed opportunities

# 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



Primary storage,  
Nimble or Non-Nimble

**VEEAM**

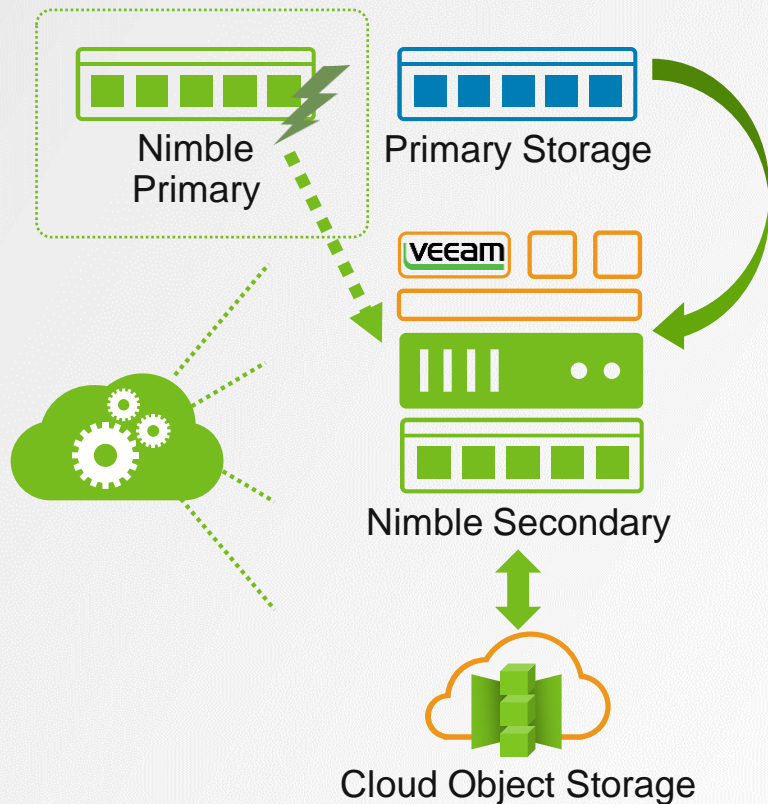
Backup & Replication Software

## 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



Instant backups with Nimble primary



Inline dedupe (and encryption) without sacrificing random IOPS



Always verified backups



Instant (no copy) VM recovery means excellent RTOs



High performance allows dev/test, analytics on backup



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
  - Can still do source side compression to save on network bandwidth
- 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

The screenshot shows the 'New Backup Repository' dialog box with the 'Storage Compatibility Settings' sub-dialog open. The settings are:

- Align backup file data blocks**  
Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage.
- Decompress backup data blocks before storing**  
VM data is compressed by backup proxy according to the backup job compression settings to minimize LAN traffic. Uncompressing the data before storing allows for achieving better deduplication ratio on most deduplicating storage appliances at the cost of backup performance.  
 This repository is backed by rotated hard drives  
Backup jobs pointing to this repository will tolerate the disappearance of previous backup files by creating new full backup, clean up backup files no longer under retention on the newly inserted hard drives, and track backup repository location across unintended drive letter changes.
- Use per-VM backup files**  
Per-VM backup files may improve performance with storage devices benefiting from multiple I/O streams. This is the recommended setting when backing up to

The diagram below the dialog illustrates the backup process. Three VMs (VM1, VM2, VM3) are shown on the left, each connected to a central 'Backup repository' icon via a 'Write stream' (Write stream 1, Write stream 2, Write stream 3). On the right, a 'Backup job' box contains three 'Backup chain' entries: 'Backup chain 1' (VM 1, VM 1, VM 1), 'Backup chain 2' (VM 2, VM 2, VM 2), and 'Backup chain 3' (VM 3, VM 3, VM 3). Below the chains are labels 'VBK', 'VIB', and 'VIB'.

# 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

Enable Nimble  
compression and dedupe  
to provide better data  
efficiency

### ■ 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

Advanced Settings

Backup Maintenance Storage Notifications vSphere Integration Scripts

Data reduction

- Enable inline data deduplication (recommended)
- Exclude swap file blocks (recommended)
- Exclude deleted file blocks (recommended)

Compression level:

None

Disabling compression reduces performance due to increased amount of data that must be transferred to the target storage.

Storage optimization:

Local target (16TB+ backup files)

Lowest deduplication ratio and largest incremental backups. Recommended for jobs producing full backup files larger than 16TB.

Encryption

- Enable backup file encryption

Password:

Add...

Loss protection enabled Manage passwords

Save As Default OK Cancel

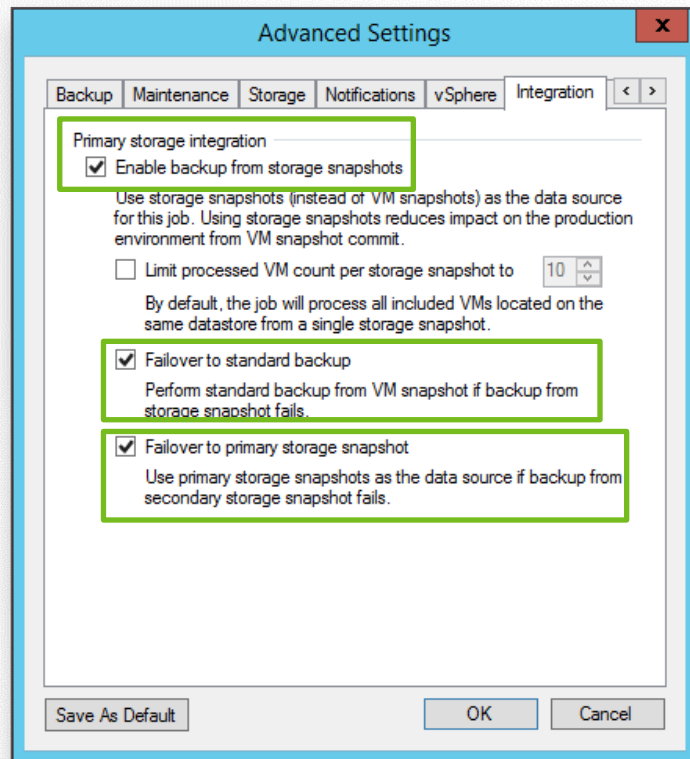
# Nimble Integration – Primary Settings

## 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



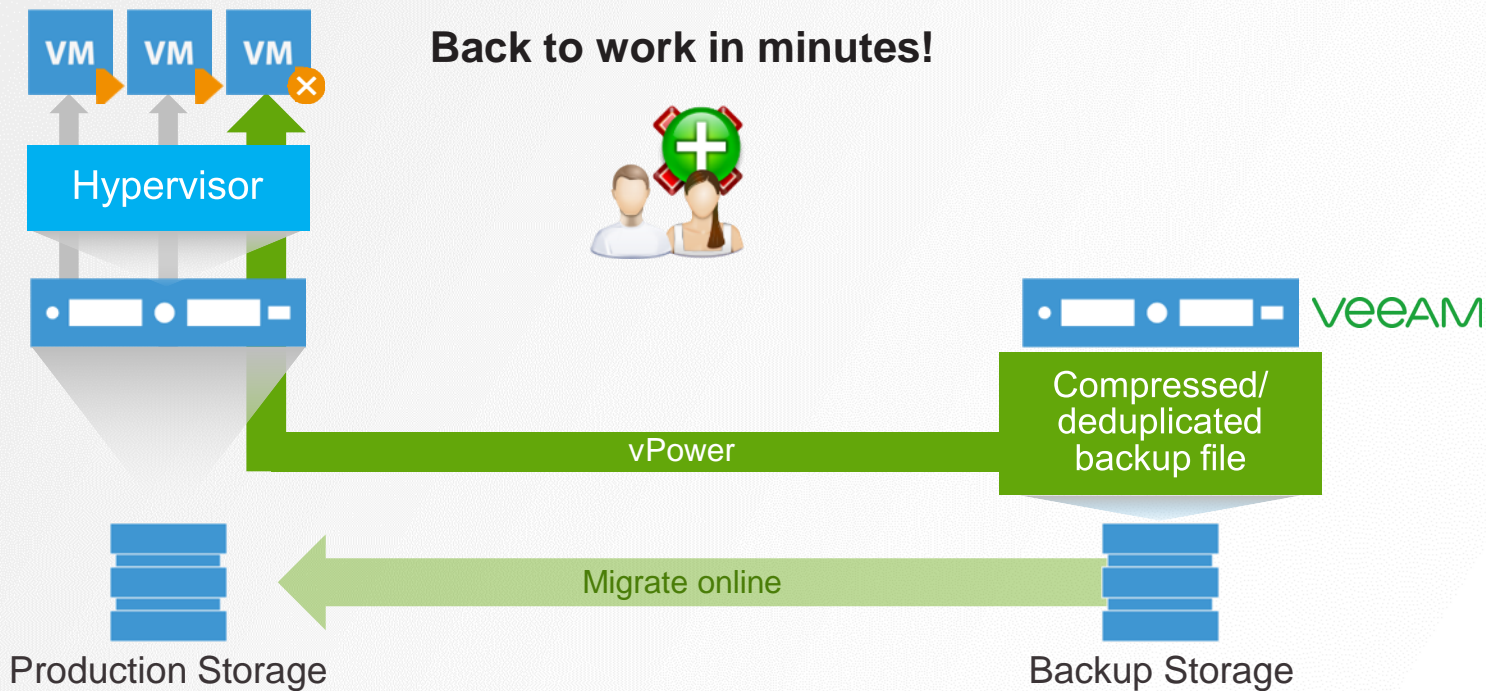
# Nimble Integration - Replication

The screenshot displays the 'Edit Backup Job [bj1Rp15f300Vp1]' window. The 'Secondary Target' section is active, showing a table for 'Secondary destination jobs' with columns for 'Name' and 'Free'. A dialog box titled 'Nimble Snapshot Replicated Copy' is overlaid on the main window. The dialog contains the following text and controls:

- Title: Nimble Snapshot Replicated Copy
- Section: Nimble Snapshot Replicated Copy
- Control: Number of snapshot copies to retain: 14 (with a spinner)
- Control:  Use as the data source
- Text: Eliminates impact on the primary storage by enabling backup job read source VM data from the secondary storage.
- Buttons: OK, Cancel

The 'Use as the data source' checkbox and its associated text are highlighted with a green border in the original image.

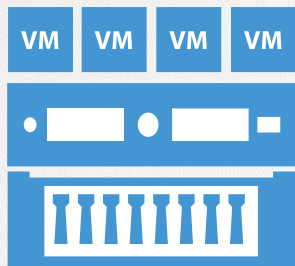
# Instant VM Recovery—How it works



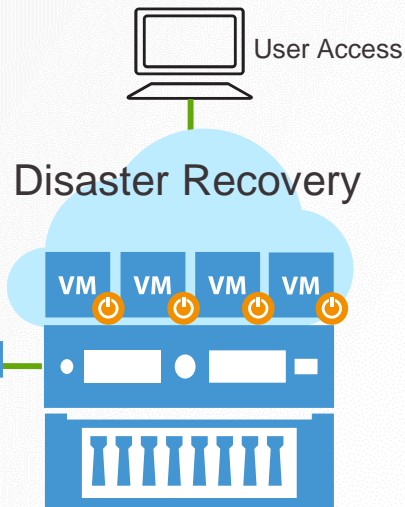
# Verified Protection and Leveraged Data SureBackup (SureReplica) & On-Demand Sandbox™



Production



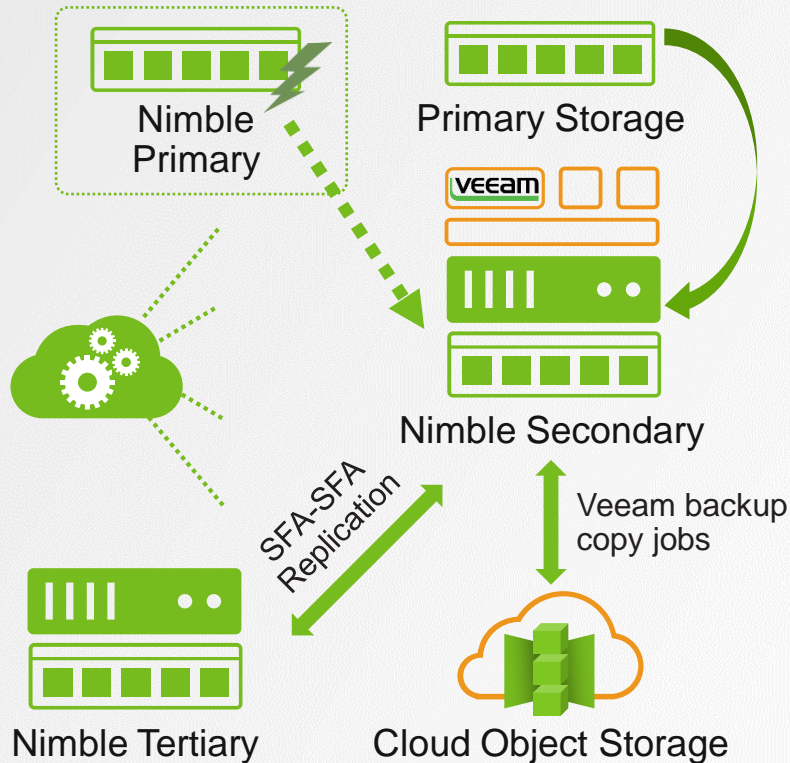
Disaster Recovery



Verification job

- ✓ VM
- ✓ OS
- ✓ App
- 📄 Report

# Tertiary Copies With SFA—For DR



	Using Veeam Backup Copy Jobs	Replicate SFA to SFA
Schedule controlled by	Veeam	Nimble
Data movement by	Veeam	Nimble
Speed	Slower	Faster
Retention policies for tertiary copy	Can set different retention policies	Will be identical as secondary copy
Failover activity	Since Veeam controls the backup jobs, can run restores from tertiary copy without any additional activity	Use Veeam to rescan volumes in downstream SFA to discover and mount repositories
Heterogeneity	Can replicate to other 3 <sup>rd</sup> party storage/archival systems or to the cloud	Nimble-Nimble only



# Veeam v9.5 Integration with Nimble



## Backup from Storage Snapshots

Minimize impact  
on production VMs

Simplify scheduling

Agentless, application-  
aware consistency



## Veeam Explorers™ for Storage Snapshots

RTPO™ <15 Minutes

Granular recovery

Instant visibility



## On-Demand Sandbox™ for Storage Snapshots

Verified recoverability

Test, dev, training and  
troubleshooting

Low-risk deployments

# SF-Series Product Family—Specs



<b>Connectivity Options</b>	iSCSI or FC
<b>Usable Capacity</b>	Up to 200 TB
<b>Deduplication</b>	Inline, 8:1 expected
<b>Effective Capacity</b>	Up to 1.5 PB
<b>Read/ Write IOPS</b>	Up to 40K

# 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

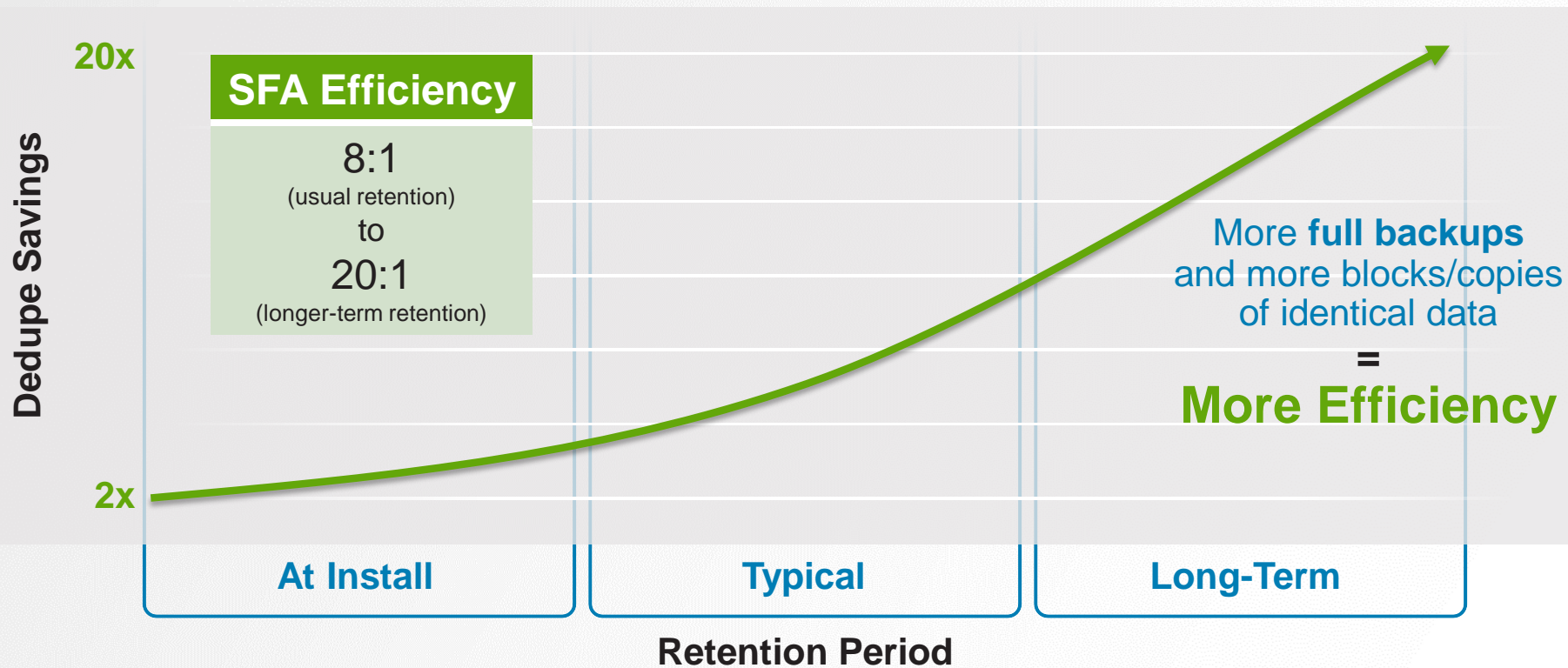
- Encryption at Rest
  - Same key for volumes within the same dedupe domain
- Volume Folders
- Scale out
  - Deploy multiple independent SFAs per site

# Nimble SF-Series Secondary Flash Array—Specs



Platform	SF100	SF300
Connectivity	iSCSI or FC	
Max Write Throughput	400 MB/s	800 MB/s
Mandatory Flash Requirement	8%—to enable high dedupe ratio	
Raw Capacity	21TB–126 TB	42 TB–252 TB
Usable Capacity	16 TB–100 TB	30 TB–200 TB
Effective Capacity (8:1)	800 TB	1.6 PB
Max Read/ Write IOPS (upto)	20K	40K
Expansion shelves	Up to 2	Up to 2

# Data Efficiency—A Function of Data and Time



# Nimble Product Line Comparison



Storage Tier

## Primary Storage

## Secondary Storage

Usage/  
Workloads



**High performance** primary applications  
**Other** primary applications



Backup, DR, Test/Dev,  
other secondary  
applications

# Secondary Flash Array – Next Steps

*Integrated with leading  
Data Availability software*



**Flash-enabled  
Storage**



**Dedupe & Capacity  
Optimized**



**Multicloud Flash Fabric™**



**InfoSight Predictive  
Analytics**

## Learn

- Product datasheet, Solution brief, Best Practice Guide, Nimble and partner Blogs, Video
- SF-Series Product webpage  
<https://www.nimblestorage.com/technology-products/secondary-flash-arrays/>

## Demo

- Request a demo through your Reseller, Nimble Sales rep or at [www.nimbleStorage.com](http://www.nimbleStorage.com)

## Contact

- Technical contact [kkupfer@nimblestorage.com](mailto:kkupfer@nimblestorage.com) or your local SE.



# nimblestorage

a Hewlett Packard Enterprise company

## The Power of Predictive





Thank you

VEEAMON FORUM