

IBM & Veeam Integrations



Benoît Henriot

Pre-Sales Systems Engineer • Veeam Switzerland

benoit.henriot@veeam.com

veeam

Veeam by the numbers



255,000

Customers worldwide
4,000 additional per month

14.7M+

VMs protected
in 200+ countries

57%

of Global 2000

74%

of Fortune 500

are Veeam customers

+73

Veeam's Net Promoter Score (NPS)
Industry Leading Customer
Satisfaction Score

More than 2x the industry average

Satisfaction level



Likelihood to renew

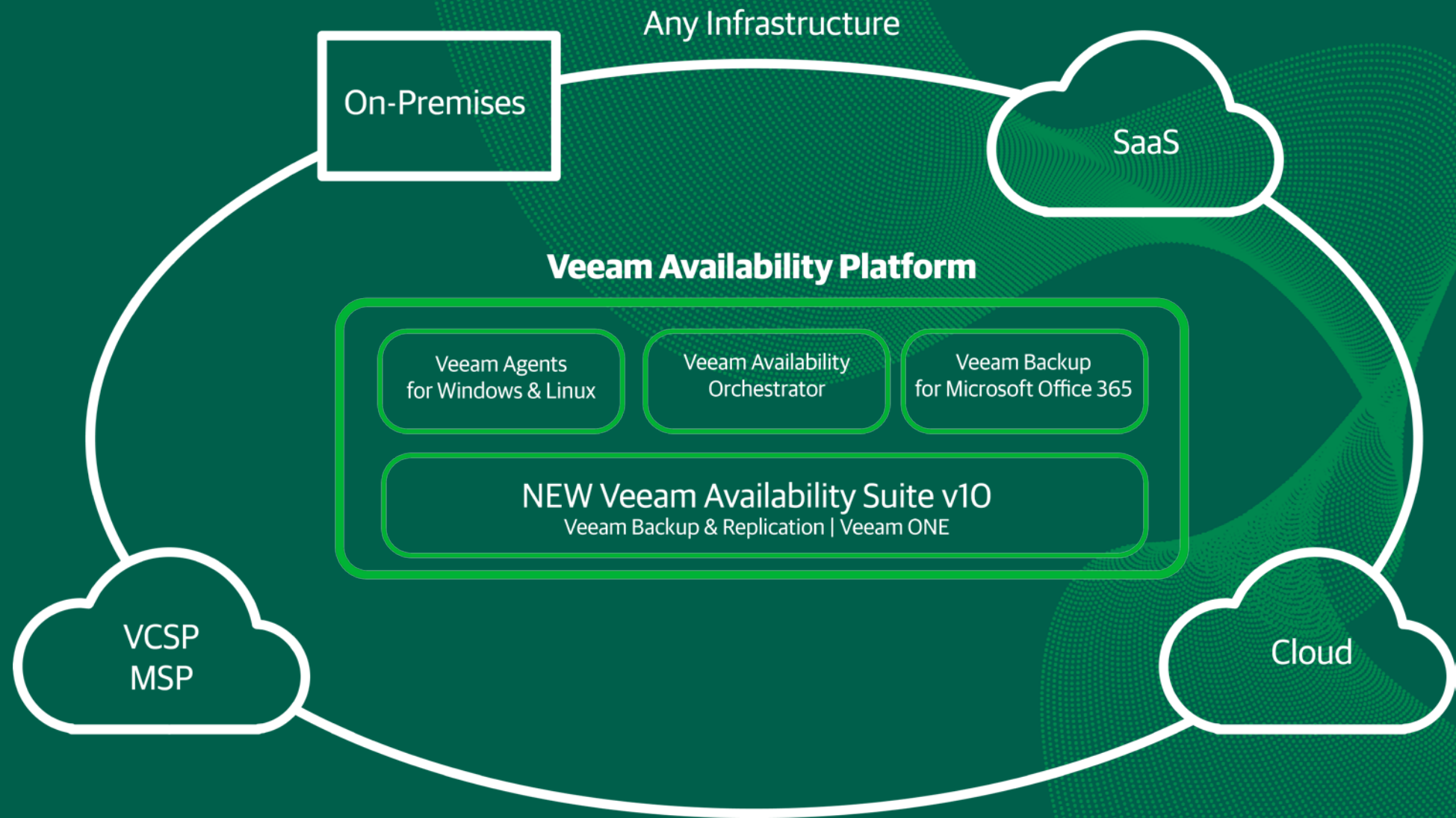


Product features and functionality



Likelihood to recommend





IBM Spectrum Virtualize & Veeam Storage Integration

Storage Integration & Direct SAN support mean 2 different things !

Veeam can do Direct SAN Backup
with ANY storage,
but can do even more with ...

... storage snapshot integration

IBM Spectrum Virtualize software running the following Systems:

- **IBM StorWize V-Series** (all generations that support minimum code level 7.6)
- **IBM SAN Volume Controller** (all generations that support minimum code level 7.6)
- **IBM/Cisco VersaStack** (converged system)

Usable Protocols by the Veeam Proxy Server

- FibreChannel (Veeam Proxy must be physical)
- iSCSI (Veeam Proxy can be virtual or physical)

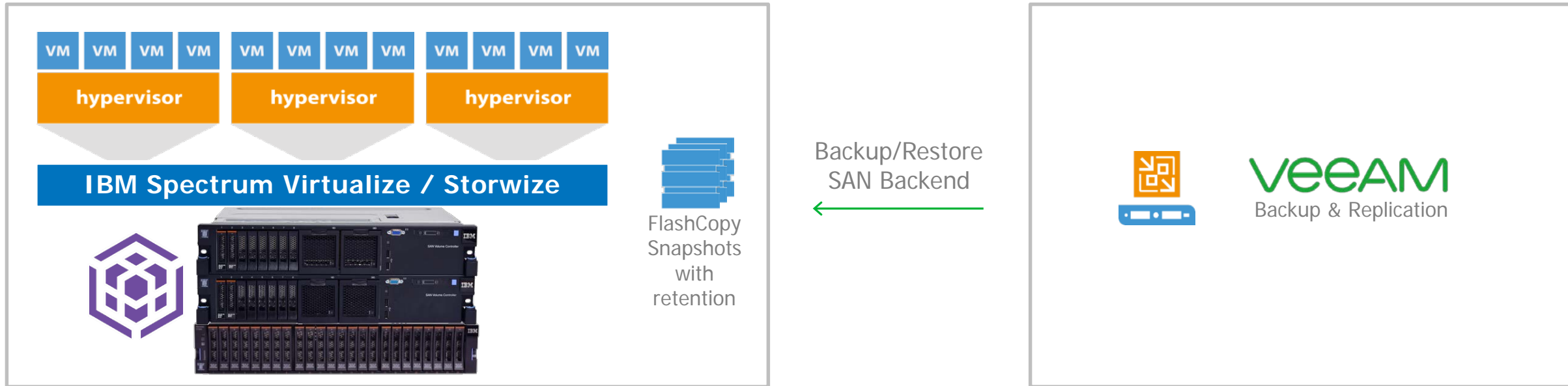
Failback to NBD-Network mode or HotAdd mode (optional)



Veeam Snapshot
only Jobs

Snapshot only Veeam Jobs

for IBM Spectrum Virtualize, IBM SAN Volume Controller and IBM Storwize



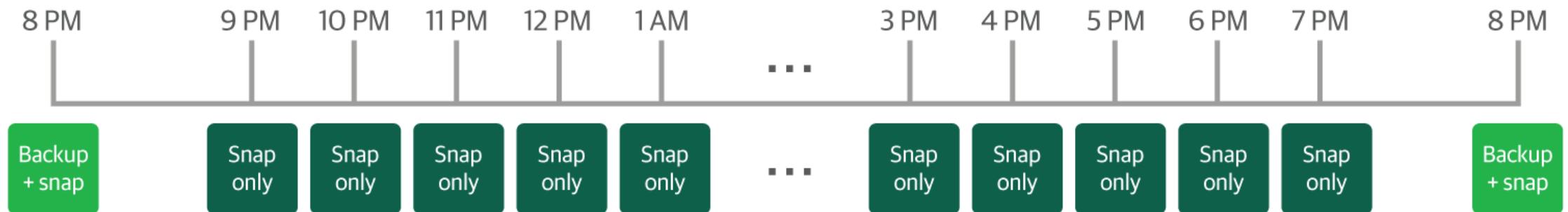
Veeam leverages **IBM FlashCopy** based Backups for:

- Agentless application aware backups – Active Directory, Exchange, SharePoint, MS SQL Server and Oracle...
- Improves RPO time – administrators can create additional snapshot-based restore points on top of traditional backups.
- High frequent Snapshots, together with the ability to restore application from them, improves RPO times even further.

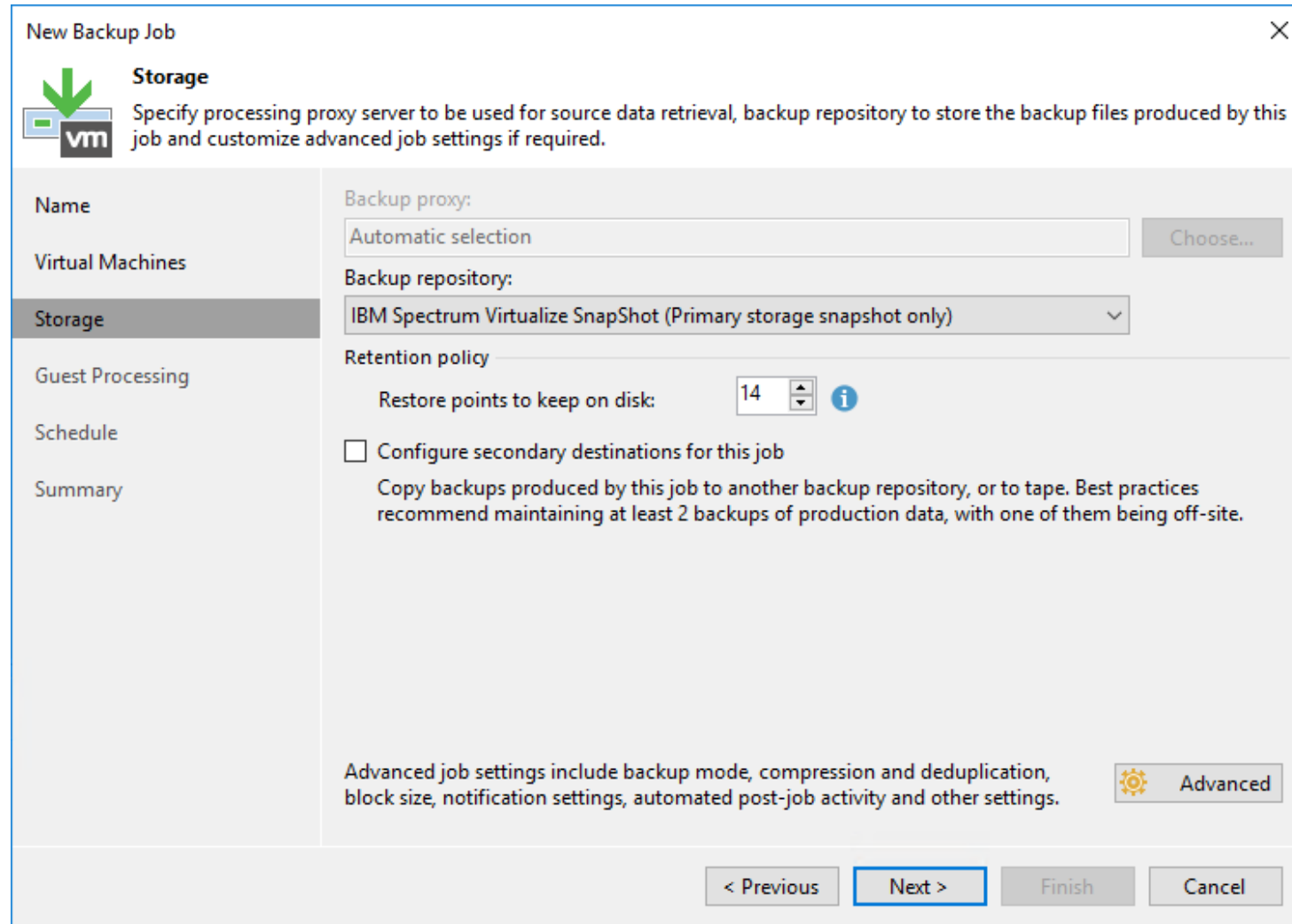
Use of Storage Snapshots for better RPO

During backup, data transport and consistency processing reduce performance of applications, resulting in backup processing e.g. only once a day.


Solution: Leverage storage snapshots between the backup for better Recovery Point Objectives (RPO) of once per hour, or more frequently.



Enabling Snapshot only Jobs



New Backup Job

 **Storage**
Specify processing proxy server to be used for source data retrieval, backup repository to store the backup files produced by this job and customize advanced job settings if required.

Name

Virtual Machines

Storage

Guest Processing

Schedule

Summary

Backup proxy:
Automatic selection Choose...

Backup repository:
IBM Spectrum Virtualize SnapShot (Primary storage snapshot only) ▾

Retention policy

Restore points to keep on disk: 14 i

☐ Configure secondary destinations for this job
Copy backups produced by this job to another backup repository, or to tape. Best practices recommend maintaining at least 2 backups of production data, with one of them being off-site.

Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings. ⚙️ Advanced

< Previous Next > Finish Cancel

Licensing for Snapshot only jobs

IBM FlashCopy license needed

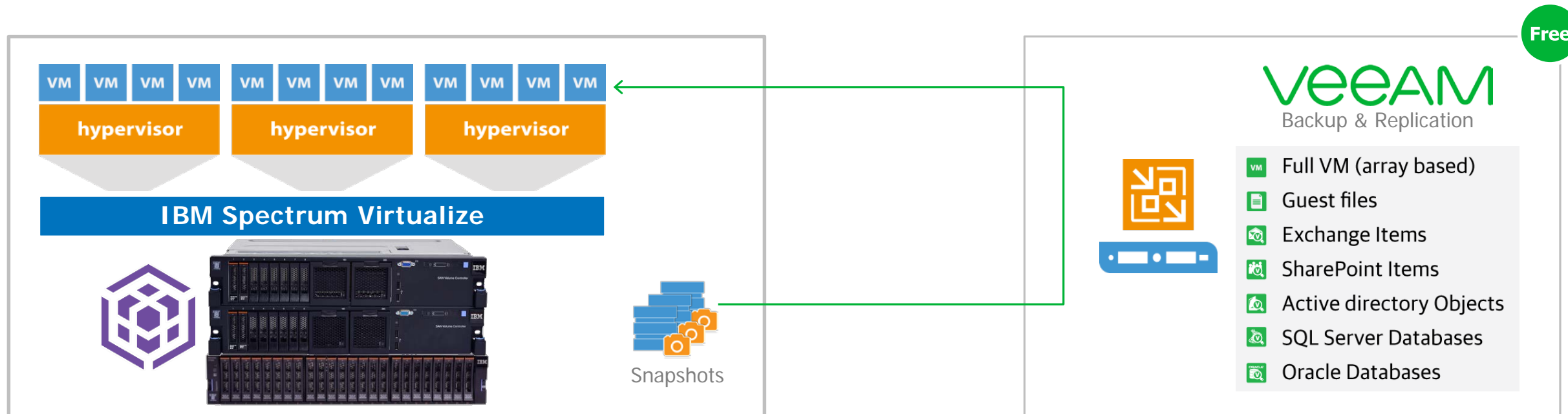
Snapshot only Veeam Job needs one of the following Versions:

- Veeam Backup & Replication Standard or higher
- Veeam Availability Suite Standard or higher
- Veeam Essentials Standard or higher

Veeam Explorer for Storage Snapshots

Veeam Explorer for Storage Snapshots

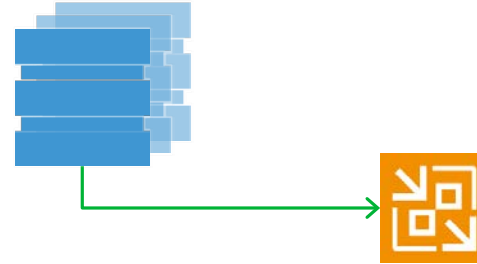
for IBM Spectrum Virtualize, IBM SAN Volume Controller and IBM Storwize



Veeam restores VMs (Instant VM Recovery), guest files, application items and databases directly from **IBM FlashCopy**

- Works with a FlashCopy created by Veeam, IBM or any 3rd Party software. VMs need to be on the VMDK base.
- Easy-to-use interface. New snapshots are automatically detected and restores can be started.
- Veeam Backup Free Edition only provides VM and guest file restore. Application items and DBs can be exported.
- Veeam Backup & Replication Enterprise Edition provide additional application items and DB restore to original place.

Veeam Explorer for Storage Snapshots



- Instant VM Recovery
- File Recovery: Win/Linux/Unix
- Object/DB Restore
- Use snapshot created by Veeam (manually), IBM or other 3rd Party
- For VMDK-based VMs

Veeam Backup & Replication



Instant VM Recovery



Universal
Application
Recovery



AD



Win Files



Domino
Single 'Mail'
by U-AIR



SharePoint



Linux Files
(19 FS, btrfs, XFS,
LVM1/2 friendly names)



Exchange



MS SQL



VLAB



Oracle
11/12

...and more

Veeam Explorer for Storage Snapshots

The screenshot displays the Veeam Explorer for Storage Snapshots application. The interface includes a top menu bar with 'HOME' and 'VOLUME' tabs, and a 'VOLUME TOOLS' section with 'Create Snapshot', 'Delete Snapshot', 'Rescan', and 'Manage Volume' buttons. The main area is divided into a left sidebar for navigation and a central pane for object details.

Storage Infrastructure Tree:

- Storage Infrastructure
 - IBM Spectrum Virtualize
 - pdccstor03
 - vmfs.demo
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-10-05-0701
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-10-04-0700
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-10-03-0701
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-10-02-0701
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-10-01-0700
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-09-27-0701
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-09-26-0701
 - VeeamProductionSnapshot_VMware - Create IBM S.2017-09-25-0700

Object Details Table:

| NAME | HOST | STATE | SIZE |
|-----------|---------------------|---------------------------------|---------|
| demo-win1 | esx3.democenter.int | Application-consistent snapshot | 19.8 GB |

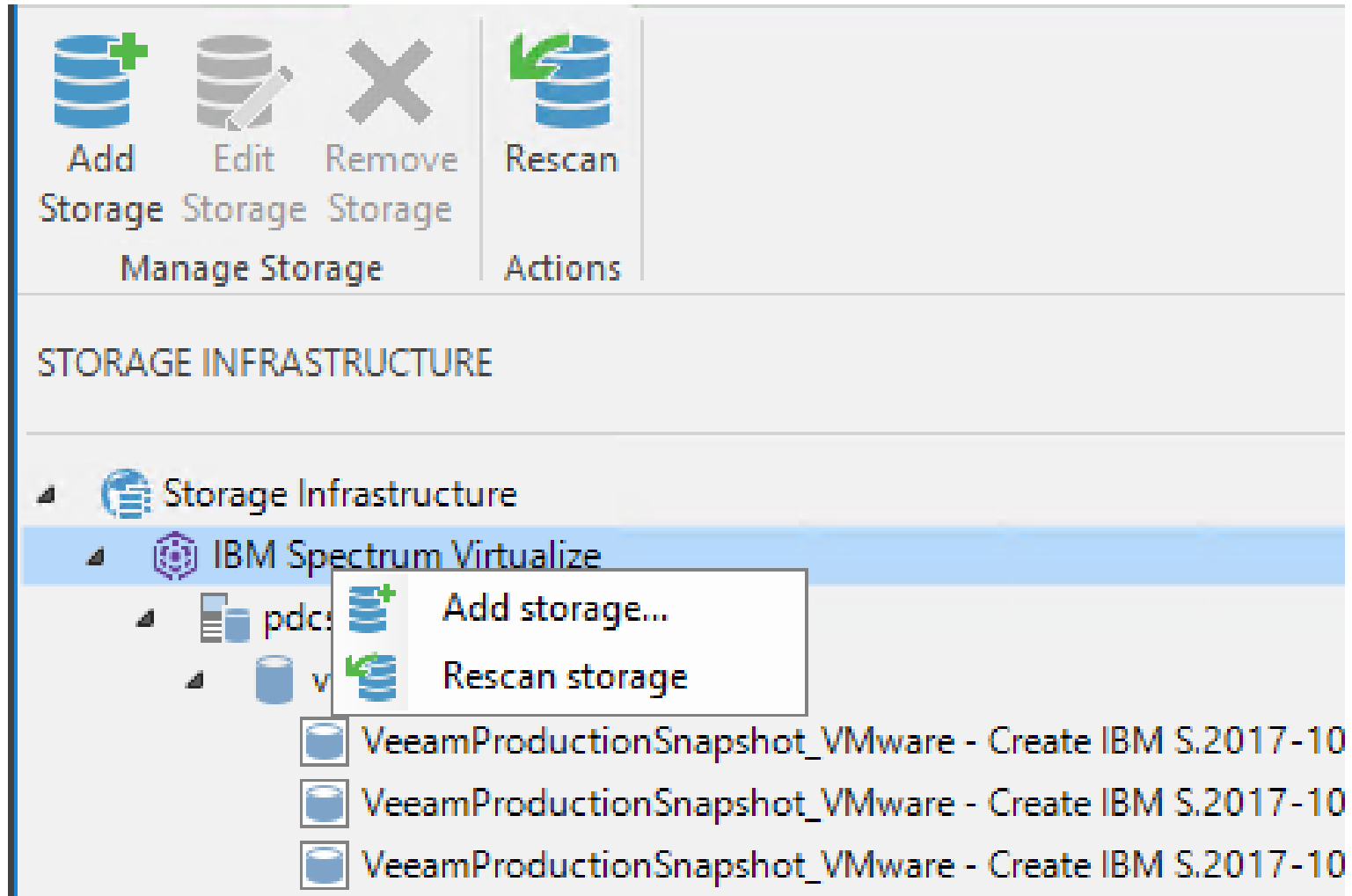
Navigation Sidebar:

- HOME
- INVENTORY
- BACKUP INFRASTRUCTURE
- STORAGE INFRASTRUCTURE (Selected)
- TAPE INFRASTRUCTURE
- FILES

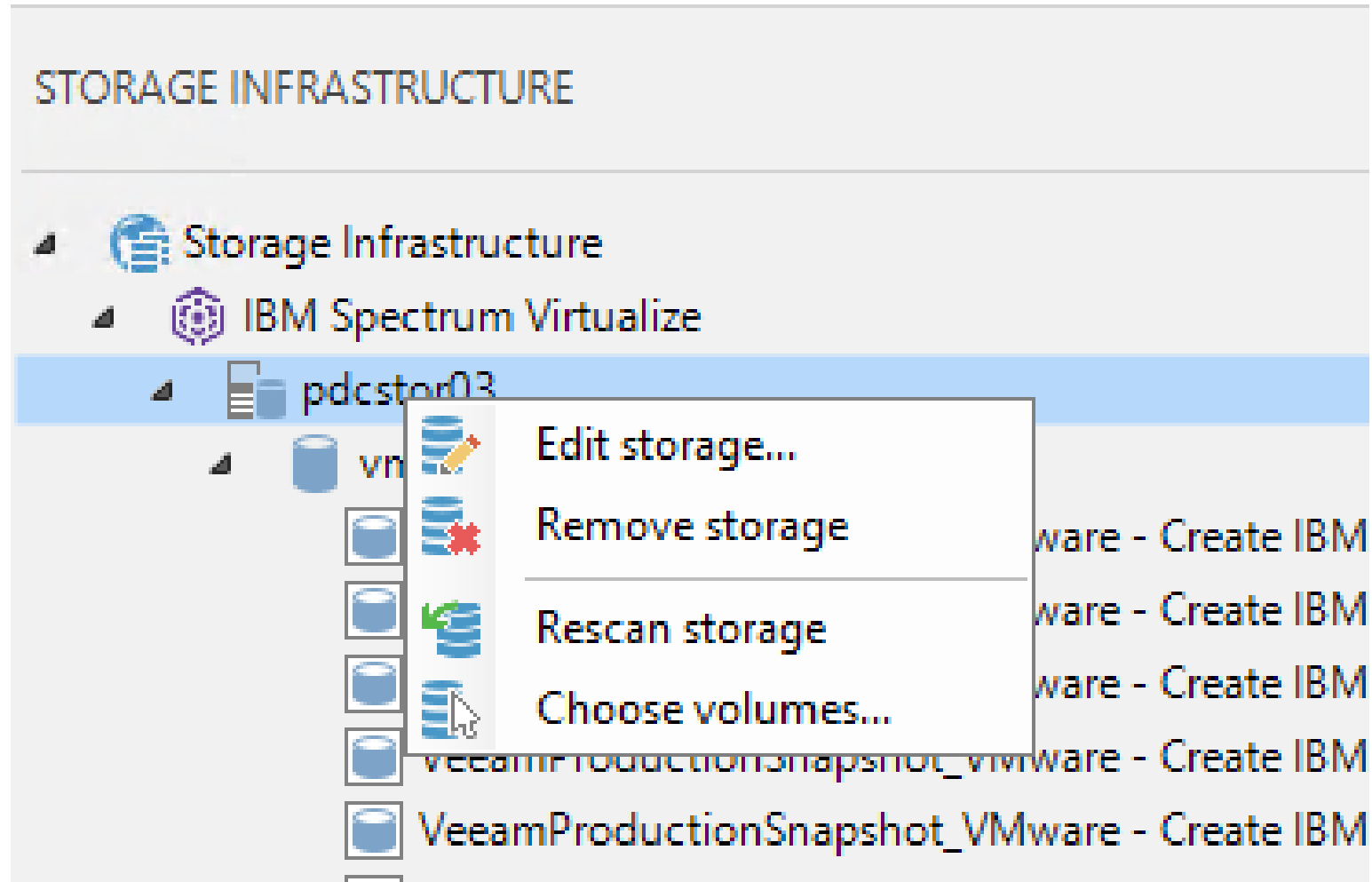
Status Bar:

1 VIRTUAL MACHINE | CONNECTED TO: LOCALHOST | NFR: 268 DAYS REMAINING

Veeam Explorer for Storage Snapshots




Veeam Explorer for Storage Snapshots



Veeam Explorer for Storage Snapshots

Edit IBM Spectrum Virtualize Storage


 **Name**
Register IBM Spectrum Virtualize storage by specifying its DNS name or IP address.

| | |
|----------------|---|
| Name | DNS name or IP address: <input type="text" value="172.21.240.150"/> |
| Credentials | Description: <input type="text" value="Created by DEMOCENTER\admin at 8/21/2017 11:16 PM."/> |
| Access Options | |
| Summary | |

< Previous **Next >** Finish Cancel

Veeam Explorer for Storage Snapshots

Edit IBM Spectrum Virtualize Storage

 **Credentials**
Type in storage administrator credentials.

Name

Credentials

Access Options

Summary

Select credentials with Local Administrator privileges on the server you are adding


Credentials: Add...

[Manage accounts](#)

< Previous Next > Finish Cancel

Veeam Explorer for Storage Snapshots

Edit IBM Spectrum Virtualize Storage



Access Options
Specify how this storage can be accessed by Veeam.

Name

Credentials

Access Options

Summary

Protocol to use:

☒ Fibre Channel (FC)
☒ iSCSI
☐ NFS

Volumes to scan:

Automatic detection (all VMFS volumes found with the initial scan)

Choose...

Backup proxies to use:

Automatic selection

Choose...

< Previous

Next >

Finish

Cancel

Veeam Explorer for Storage Snapshots

The screenshot displays the Veeam Explorer for Storage Snapshots interface. The top navigation bar includes a 'HOME' tab and a 'VIRTUAL MACHINE' tab. Below the navigation bar, there are three main sections: 'Instant VM Recovery', 'Guest Files', and 'Application Items'. The 'STORAGE INFRASTRUCTURE' section on the left shows a tree view of storage objects, including 'Storage Infrastructure', 'IBM Spectrum Virtualize', 'pdcstor03', and 'vmfs.demo'. The 'demo-win1' virtual machine is selected, and a context menu is open, showing options: 'Instant VM recovery...', 'Restore guest files', and 'Restore application items'.

VM TOOLS

HOME VIRTUAL MACHINE

Instant VM Recovery Guest Files Application Items

Restore

STORAGE INFRASTRUCTURE

Storage Infrastructure

IBM Spectrum Virtualize

pdcstor03

vmfs.demo

VeeamProc

VeeamProc

VeeamProc

VeeamProc

NAME HOST STATE

demo-win1 esx3.democenter.int Applic

Instant VM recovery...

Restore guest files

Restore application items

Veeam Explorer for Storage Snapshots

The screenshot displays the Veeam Explorer for Storage Snapshots application. The top navigation bar includes 'HOME' and 'VIRTUAL MACHINE' tabs. Below the navigation bar, there are icons for 'Instant VM Recovery', 'Guest Files', and 'Application Items'. The left sidebar shows the 'STORAGE INFRASTRUCTURE' tree, with 'Storage Infrastructure' expanded to show 'IBM Spectrum Virtualize', 'pdcstor03', and 'vmfs.demo'. The main area shows a table of snapshots with columns 'NAME', 'HOST', 'STATE', and 'SIZE'. A context menu is open over the 'demo-win1' snapshot, showing options: 'Instant VM recovery...', 'Restore guest files', and 'Restore application items'. The 'Restore guest files' option is selected, and a sub-menu is open showing 'Microsoft Windows...' and 'Linux and other...'.

| NAME | HOST | STATE | SIZE |
|-----------|---------------------|---------------------------------|------|
| demo-win1 | esx3.democenter.int | Application-consistent snapshot | |

- Instant VM recovery...
- Restore guest files
 - Microsoft Windows...
 - Linux and other...
- Restore application items

Veeam Explorer for Storage Snapshots

The screenshot displays the Veeam Explorer for Storage Snapshots application. The interface includes a top navigation bar with 'HOME', 'VM TOOLS', and 'VEEAM BACKUP AND REPLICATION' tabs. Below this is a 'VIRTUAL MACHINE' section with icons for 'Instant VM Recovery', 'Guest Files', and 'Application Items'. The main area is divided into a left sidebar for 'STORAGE INFRASTRUCTURE' and a central table of snapshots.

STORAGE INFRASTRUCTURE

- Storage Infrastructure
 - IBM Spectrum Virtualize
 - pdccstor03
 - vmfs.demo
 - VeeamProc...
 - VeeamProc...
 - VeeamProc...
 - VeeamProc...
 - VeeamProc...

Snapshot Table

| NAME ↑ | HOST | STATE | SIZE |
|-----------|---------------------|---------------------------------|---------|
| demo-win1 | esx3.democenter.int | Application-consistent snapshot | 19.8 GB |

Context Menu for 'demo-win1':

- Instant VM recovery...
- Restore guest files
- Restore application items
 - Microsoft Active Directory objects...
 - Microsoft Exchange mailbox items...
 - Microsoft SharePoint content...
 - Microsoft SQL Server databases...
 - Oracle databases...



Veeam Explorers

Application Item Level Recovery

MAILBOX STORES

- Sharon Hooper
- Shawn Lieu
 - Calendar
 - Contacts
 - Deleted Items
 - Drafts
 - Inbox
 - Journal
 - Junk E-Mail
 - News Feed
 - Notes
 - Outbox
 - Permanently Deleted Items
 - RSS Feeds
 - Sent Items
 - Suggested Contacts
 - Sync Issues
 - Tasks
- Sterling Wilson
- Steven James
- Suky Bains
- SystemMailbox{edab5c29-01fa-4d-...

CONTENT DATABASES

- Databases
 - WSS_Content.mdf
 - Veeam ATL LAB
 - Subsites
 - Content
 - Announcements
 - Calendar
 - Cloud Connect
 - Customized Reports
 - Form Templates
 - Links
 - Shared Documents
 - Site Assets
 - Site Pages
 - Style Library
 - Tasks
 - Team Discussion
 - Veeam Availability Suite
 - Veeam MP
 - VeeamONE

ACTIVE DIRECTORY

- ga.local
 - Users and Computers
 - AD Demo
 - Computers
 - Dev Teeam
 - Domain Controllers
 - ForeignSecurityPrincipals
 - Horizon6
 - ISE's
 - Managed Service Accounts
 - Microsoft Exchange Security Groups
 - OSE's
 - Program Data
 - QC Users
 - Service Accounts
 - System Center demo accounts
 - TLA
 - Users
 - Veeam LAB
 - Windows8

DATABASES

- ATLSQL01
 - VEEAM_DEMOS
 - Veeam_Demos_1

Restore Wizard

Fine tune the restore point

Select the undesired operation in the list below. The database will be restored to the state prior to transaction involving the selected operation.

| Time | Operation | Object | Type | Account |
|-------------------|------------------|---------------|-------|------------------------|
| 4/18/2014 1:44 PM | Modified row | AllListsAux | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row (4) | DocStreams | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | AllDocs | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | DocsToStreams | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | DocsToStreams | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | DocsToStreams | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | DocsToStreams | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | DocsToStreams | Table | PILIPINAS\Administratr |
| 4/18/2014 1:44 PM | Inserted row | AllUserData | Table | PILIPINAS\Administratr |

Back Next Cancel

/u01/oradata/orcl/users01.dbf
/u01/oradata/orcl/example01.dbf
[Log files](#)
/u01/oradata/orcl/redo03.log

Licensing required

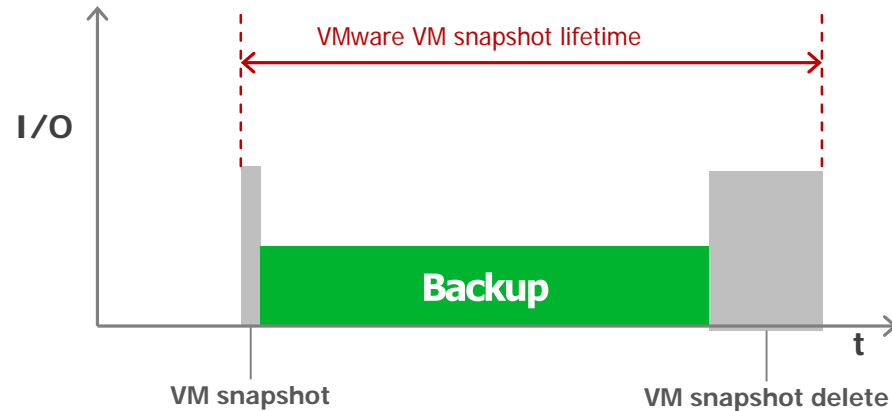
- 1 IBM FlashCopy license (but no Flashcopy manager!)
- 2 Veeam Explorer for Storage Snapshots needs one of the following versions:
 - Veeam Backup & Replication Enterprise or higher
 - Veeam Availability Suite Enterprise or higher
 - Veeam Essentials Enterprise or higher

Standard Edition can be used as well, however **Application** restore is limited to export/import processing with no “direct restore to original” option.

Veeam Backup from Storage Snapshot

VMware Snapshot challenges

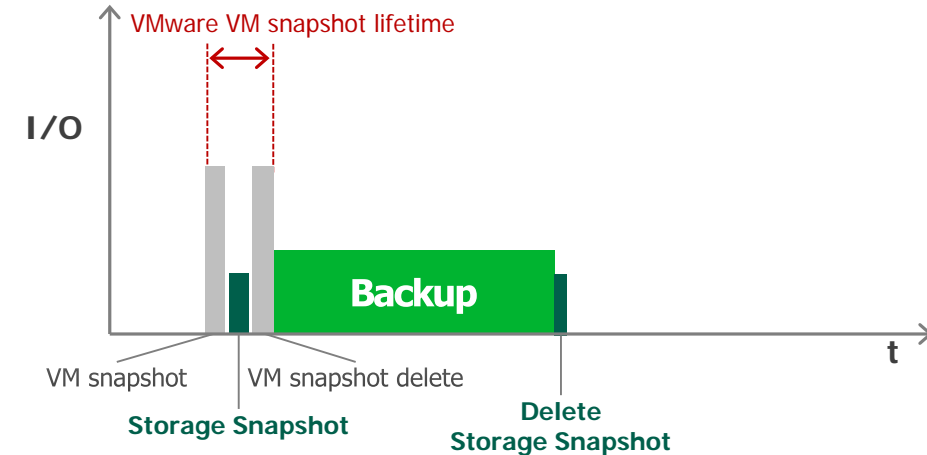
Standard VM Backup



To be able to use Incremental Forever Image Level Backups with Change-Block-Tracking over the VMware Storage API, a VM Snapshot is required. However, VM Snapshots come with drawbacks, as all changes during the backup were written to the Snapshot and they need to be committed to the main storage when the snapshot is deleted. This lead to:

- High Storage Load at Snapshot delete
- Potential VM stuns at Snapshot delete
- It will take a long time to delete the Snapshot

With Snapshot Integration



Together with Veeam unique agentless Application Aware Backup engine Veeam creates storage snapshots directly after the VMware Snapshot to preserve the consistent state within it. After the storage snapshot was created, Veeam will release the VMware VM snapshot immediately.

As the storage snapshot can be deleted without any overhead, there will be no negative effects to the VMs. Veeam can use VMware Change Block Tracking to read directly from the storage snapshots.

Example of a standard VMware API backup from a Storage without Snapshots

| Summary | |
|------------------|---------|
| Duration: | 3:14:42 |
| Processing rate: | 14 MB/s |
| Bottleneck: | Source |

| Data | |
|--------------|----------------|
| Processed: | 129.2 GB (87%) |
| Read: | 124.1 GB |
| Transferred: | 48.6 GB (2.6x) |

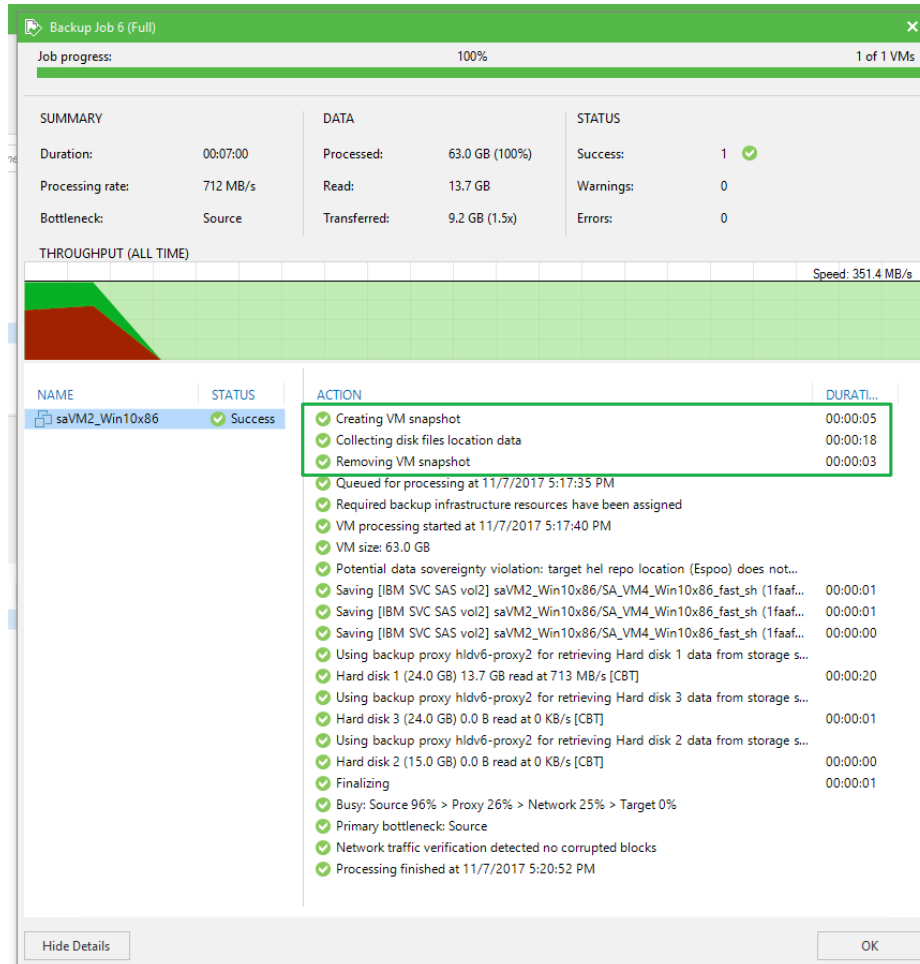
| Status | |
|-----------|---|
| Success: | 4 |
| Warnings: | 0 |
| Errors: | 0 |

| VM name | Status |
|----------|---------|
| SCSM02 | Success |
| SCORCH01 | Success |
| SCVMM01 | Success |
| SCSM01 | Success |
| SQLSC01 | 100% |
| SCOM12 | Pending |

| Action | Duration |
|---|----------|
| Queued for processing at 5/19/2013 8:54:51 PM | |
| Required backup infrastructure resources have been assigned | |
| VM processing started at 5/19/2013 10:17:02 PM | |
| VM size: 120.0 GB (95.8 GB used) | |
| Using source proxy BRproxy01.lab.local [hotadd] | |
| Indexing guest file system | 0:06:20 |
| Preparing guest for hot backup | 0:01:39 |
| Creating snapshot | 0:00:31 |
| Releasing guest | 0:01:43 |
| Saving [LUN03 - LAB VMs] HDL_SQLSC01/HDL_SQLSC01.v... | |
| Saving [LUN03 - LAB VMs] HDL_SQLSC01/HDL_SQLSC01.v... | 0:00:01 |
| Saving [LUN03 - LAB VMs] HDL_SQLSC01/HDL_SQLSC01.n... | 0:00:01 |
| Hard Disk 1 (40.0 GB) 21.0 GB read at 13 MB/s [CBT] | 0:27:35 |
| Hard Disk 2 (40.0 GB) 24.6 GB read at 16 MB/s [CBT] | 0:26:45 |
| Hard Disk 3 (40.0 GB) 5.2 GB read at 6 MB/s [CBT] | 0:15:12 |
| Truncating transaction logs | 0:03:51 |
| Removing VM snapshot | 0:27:36 |

- **<34 min open VMware VM Snapshot** at this example.
- Veeam uses parallel Disk backup to reduce time window but the VMware VM Snapshot is open for a long time.
- This **leads in a <28min VMware VM Snapshot commit** with high IO at Storage and possible performance impact on the VM

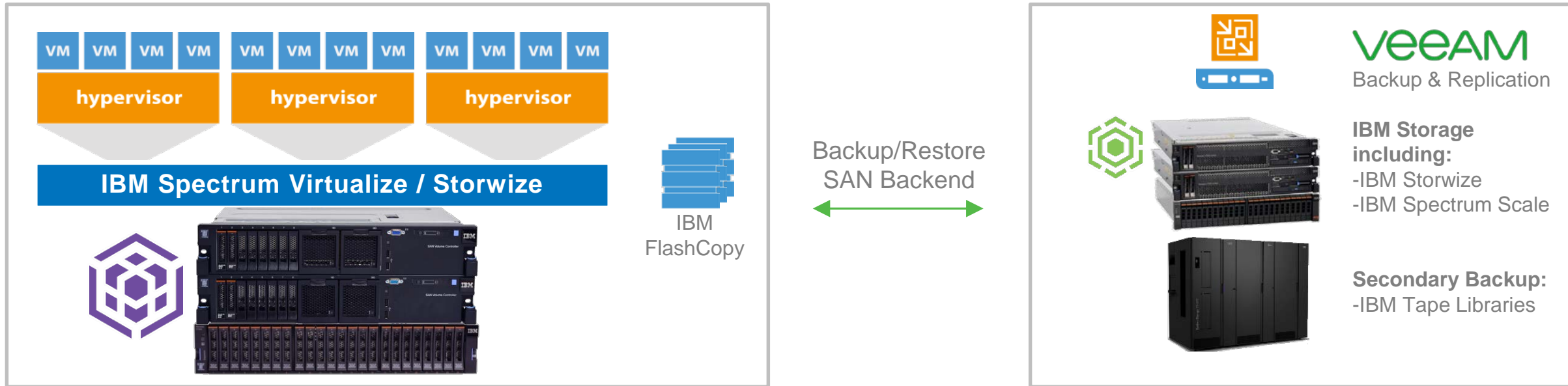
With use of IBM Storage FlashCopy Snapshots for Veeam Backups



- VMware VM Snapshot is only open until the storage snapshot was created. 18 seconds in this example.
- It creates **IBM FlashCopies** in the background directly after the VM Snapshot creation.
- Nearly instant VMware **VM Snapshot commit. 3 Seconds** in this example.
- Works with **FC/iSCSI VMware Datastores**

Veeam Backup from Storage Snapshot

for IBM Spectrum Virtualize, IBM SAN Volume Controller and IBM Storwize



Veeam leverages **IBM FlashCopy** for backups for:

- Agentless application aware backups – Active Directory, Exchange, SharePoint, MS SQL Server and Oracle...
- Minimizes VMware backup API performance impact on production VMs during backup
- Improves RTO and RPO times with technologies like Instant VM Recovery and Application Restore out of FlashCopies or Backups
- **2x** the backup speed vs. standard VMware API backups. **10x** the speed of other storage snapshots backup solutions through usage of VMware Change Block Tracking

Licensing required

1

IBM FlashCopy

2

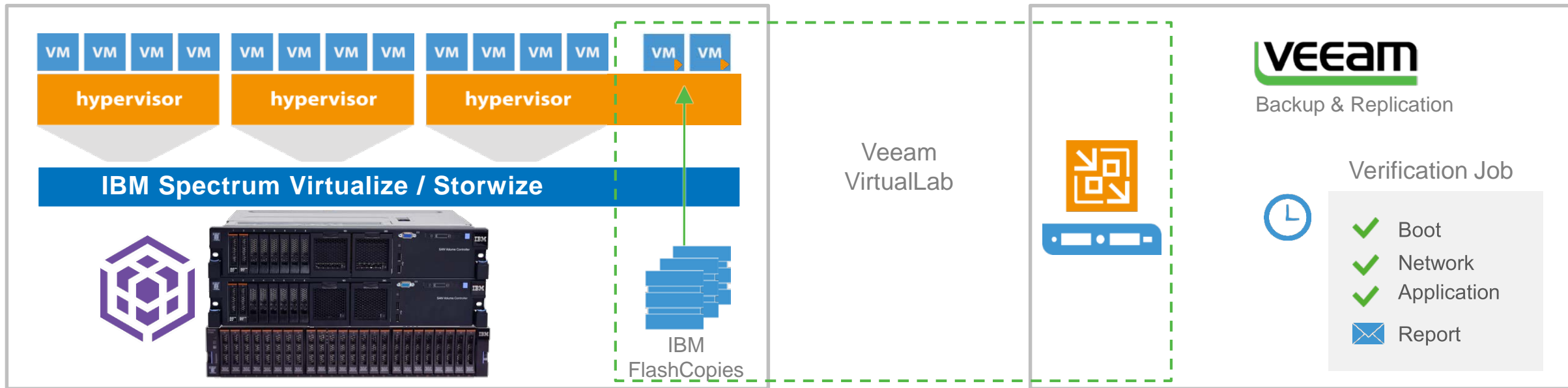
Veeam Backup from Storage Snapshot is included with:

- Veeam Backup & Replication Enterprise Plus
- Veeam Availability Suite Enterprise Plus
- Veeam Essentials Enterprise Plus

On-Demand Sandbox for Storage Snapshots

On-Demand Sandbox for Storage Snapshots

for IBM Spectrum Virtualize, IBM Storwize and SAN Volume Controller



Veeam leverages IBM FlashCopies to provide automated restore verification and on-demand labs

- VMs can be started in an On-Demand Sandbox environment to test applications, scripts, upgrades, development,...
- FlashCopies can be used to schedule automated restore tests of VM boot, network connection and application start.
- Works with FlashCopies created by IBM or any 3rd Party software. VMs need to be on VMDK base.
- Automated reporting of restore tests can be sent by mail. (Enhanced Report in Veeam Availability Suite).

On-Demand Sandbox for Storage Snapshots

Instantly start a group of VMs in a Virtual Lab

High Performance as IBM FlashCopy can be used for it

Put your backups to work!

- Troubleshooting
- Testing workarounds and patches
- Rollout Tests (will an Update harm the production)
- Training
- Software Development
- SAP Sandbox Tests
- Migration Tests with actual production data
- Penetration Tests

"We're building roughly 8 to 10 test environments at any given time.

**With Veeam,
it's not only
possible, but
easy and
automated."**

– Theresa Brownfield
Lead Principal IS Operations Engineer
John I. Haas, Inc.

Licensing for on demand sandbox

IBM FlashCopy license needed

On-Demand Sandbox for Storage Snapshots needs one of the following Versions:

- Veeam Backup & Replication Enterprise Plus
- Veeam Availability Suite Enterprise Plus
- Veeam Essentials Enterprise Plus

Veeam Agents for AIX

Hi! We're trying to get back to the 80's, but our time machine is broken and we heard you're an expert on 1980's technology, so we were wondering if you could help us?

Sure! But you gotta take me with you!!



What it is!

Agreement with Cristie Software

Rebranded existing proven solution

Will extend over the years

What it isn't?

No agent for HP UX

Brand new product

v1 will **not** integrate with VBR

Why? Isn't Unix a dying breed?

Not yet! – IBM AIX is still strong after 32 years!

Cover requests by existing Enterprise customers

Fill need for Fortune 500 & Global 2000 companies

Proven for application performance, reliability and security

Veeam Agent for IBM AIX

Specifications

Supported AIX versions:

- 6.1
- 7.1
- 7.2

Light install:

- Disk space: 16MB
- Memory: 256MB

Configuration:

- 'veeam' GUI
- Command-line using ini files

Recovery media

Supported: ISO image available for PXE and NIM bootable images

Veeam Agent for IBM AIX

Veeam Backup Console

1. Make Recovery CD

2. System Configuration

3. Backup

4. WPARs

5. Log Files

6. Exit

Redraw: ^L

Veeam Agent for IBM AIX

Make Recovery CD

The CD ISO will be approximately 400Mb in size.
Temporary Storage requires at least 1Mb free space.

ISO Location: /tmp/dr.iso

Temporary Storage: /tmp/veeamrcd

NFS Server (optional):

Terminal type (optional): xterm

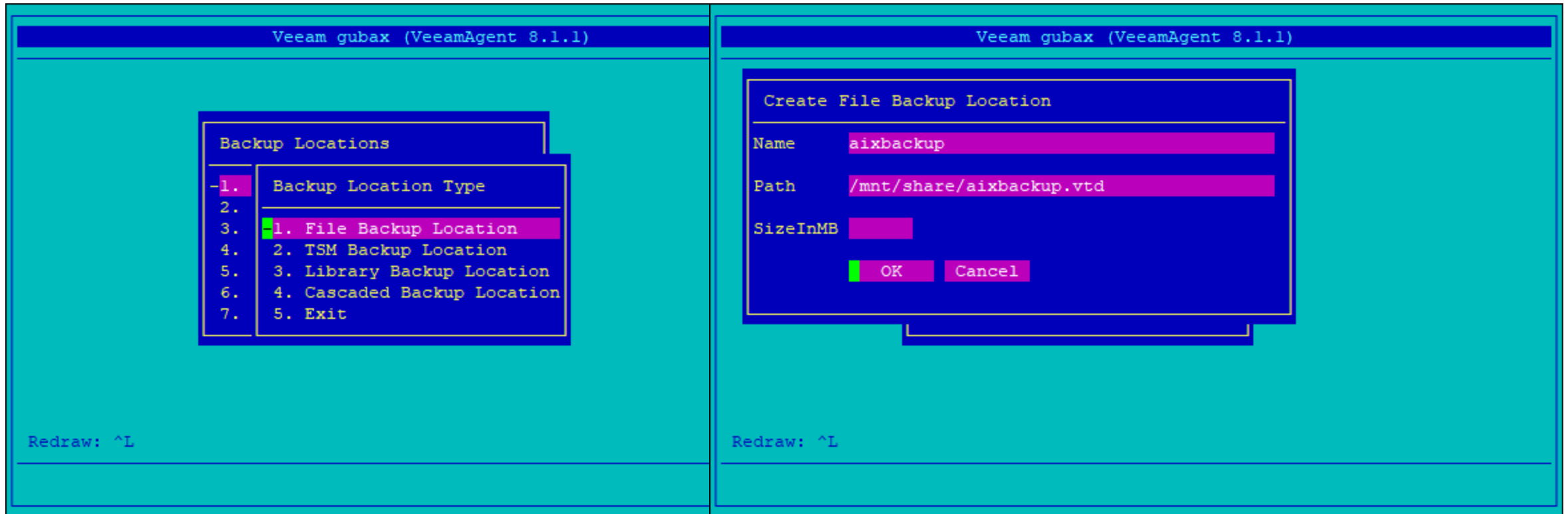
OK Cancel

Redraw: ^L

How backup works

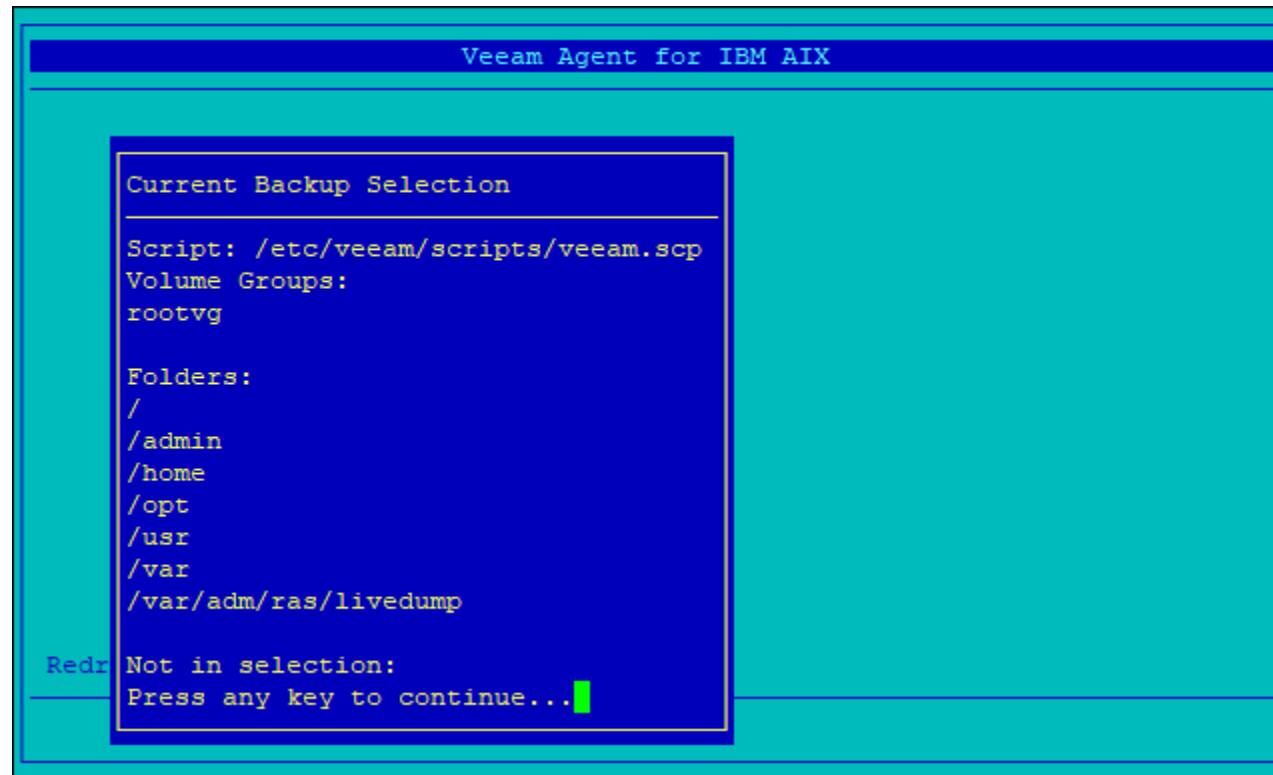
Backup location defined via 'veeam' GUI

Different backup location options



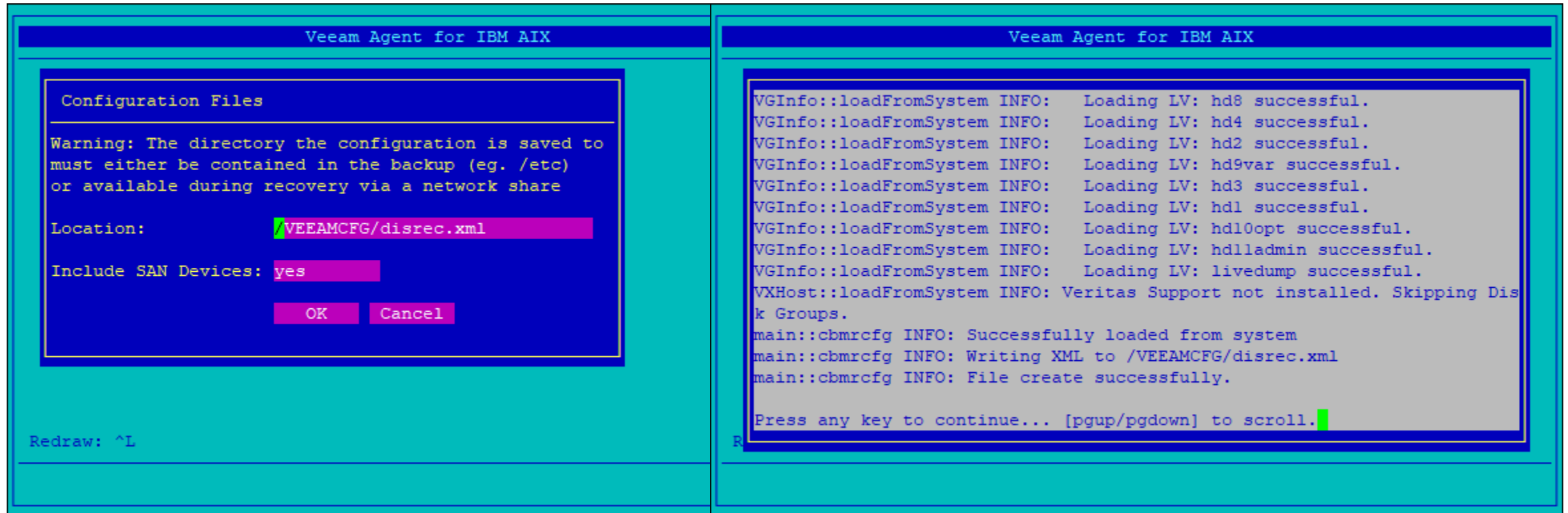
How backup works

Backup selection defines WHAT to backup



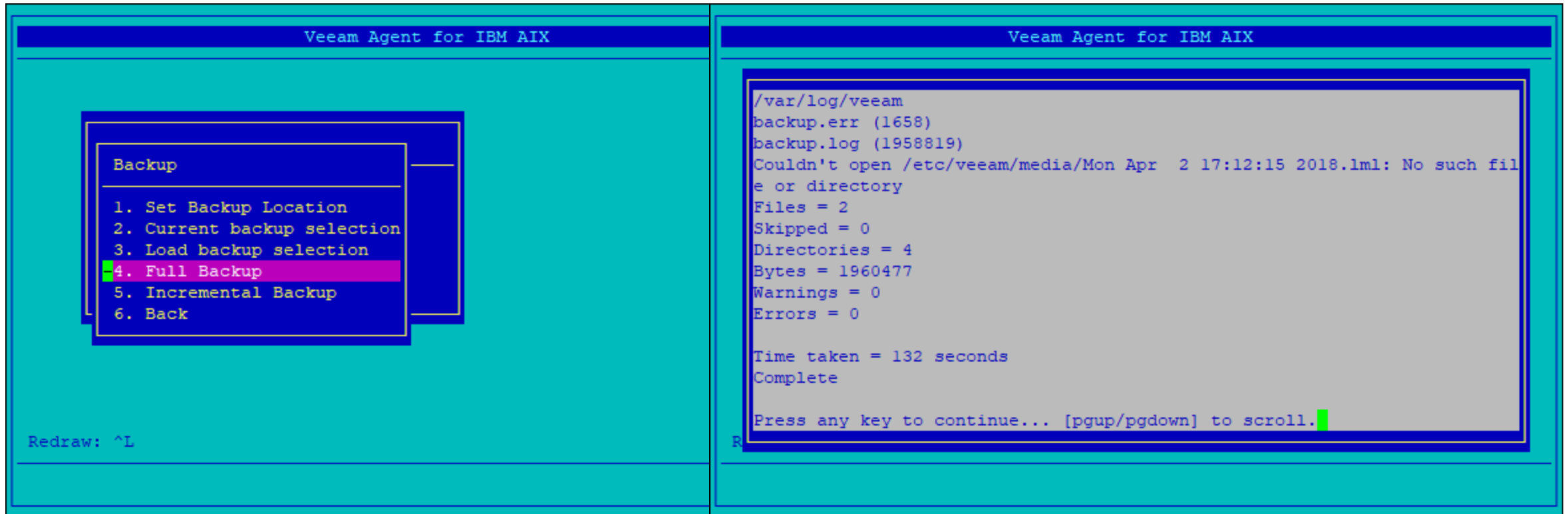
How backup works

System configuration ONLY backup



How backup works: types

Full backup (VTD) or incremental (tar.gz)



Installation

The background is a solid dark green color. On the right side, there is a large, abstract, wavy shape that resembles a stylized 'S' or a ribbon. This shape is filled with a lighter green, dotted pattern, creating a textured effect. The shape flows from the top right towards the bottom right, with a slight curve in the middle.

Installation

.tar.gz file

Installable via SMIT (System Management Interface Tool)







Installable via RPM

Bare Metal Recovery

Bare Metal Recovery

ISO unique PER machine

Use FULL backup file to perform restore

| cs-qnap01 > test-scratch > nigel > backups > np-solaris11-3 > 2017-12-11_12-30-23 | | | | | ▼ | 🔄 |
|---|--|------------------|-----------------|--------------|---|---|
| ^ | Name | Date modified | Type | Size | | |
| |  dr.iso | 11/12/2017 13:20 | Disc Image File | 174,200 KB | | |
| |  full.vtd | 11/12/2017 12:55 | VTD File | 5,215,016 KB | | |
| |  machine.snar | 11/12/2017 14:11 | SNAR File | 4,595 KB | | |
| |  machine.tar.gz | 11/12/2017 13:20 | WinRAR archive | 1,663,476 KB | | |
| |  machine.tar.gz.0 | 11/12/2017 13:30 | 0 File | 2,154 KB | | |
| |  machine.tar.gz.1 | 11/12/2017 14:11 | 1 File | 1,767 KB | | |

Licensing



Licensing

Licensed per agent – same method as VAL/VAW

Upfront model

Subscription model

Prices will be announced later



Support

Support

Gather logs option included

Same level support as VAW/VAL

Thank you

The background is a solid dark green color. Overlaid on this is a large, abstract, wavy shape that flows from the bottom left towards the right side of the frame. This shape is filled with a fine, light green dot grid pattern, giving it a textured, digital appearance. The waves are smooth and undulating, creating a sense of movement and depth.