Backup & DR Automation With Veeam

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Agenda

- Why Veeam?
- Save Time with Automation
- Automation with VAO
- Demo
- Automated Testing with Veeam DataLabs

Why Veeam?

Simple

Built-in intelligence
Actionable insights
100% verified recovery
Scalable architecture

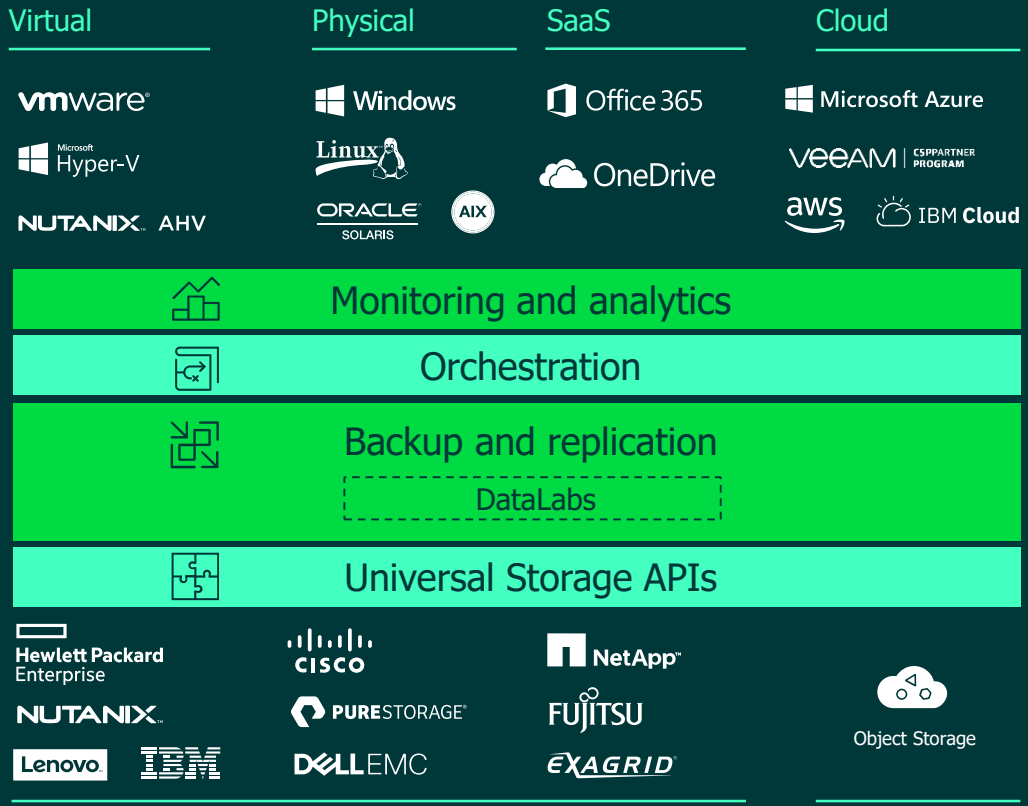
Flexible

Software defined
Hardware agnostic
Copy data management
Cloud ready

Reliable

"It Just Works"
Portable data format
Instant recovery
Strong support

A Single Platform for Cloud, Virtual and Physical



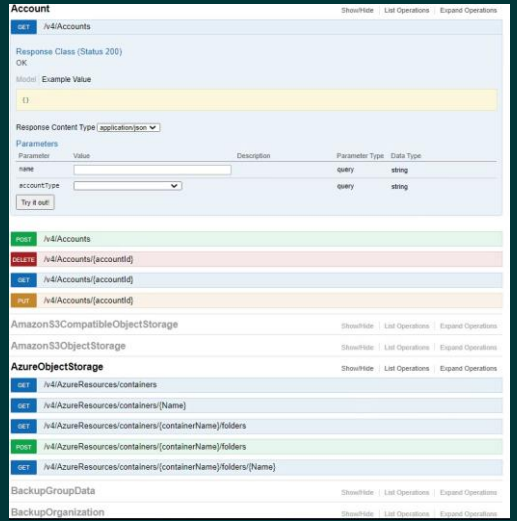
Save Time With Automation

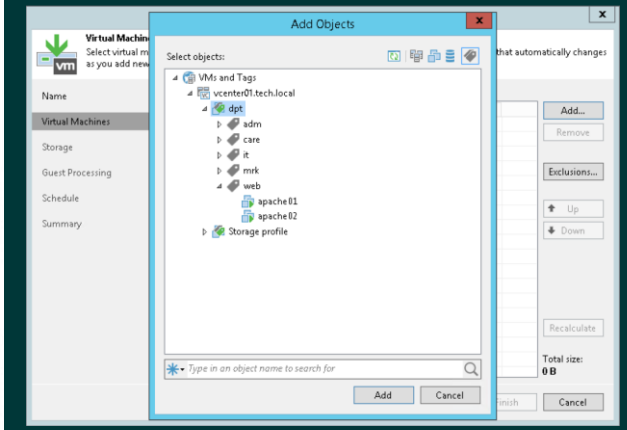
- Automated reporting
- PowerShell SnapIn
- vSphere Web Client Plug-in
- Rest APIs
- Data Integration API

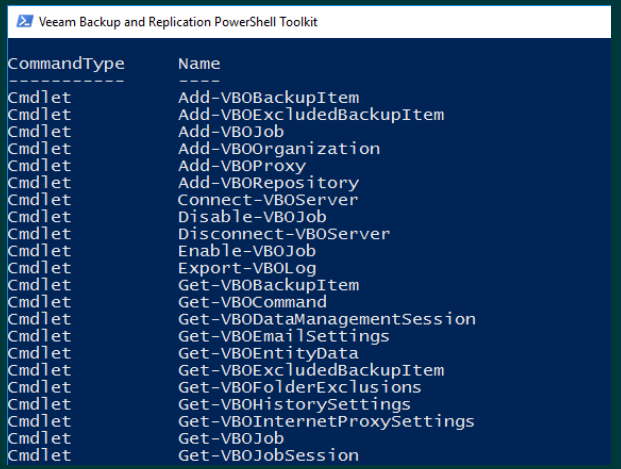
RESTful API

Tagging

PowerShell







Protect with DR automation at the core

Veeam Availability Orchestrator

Environments

Bigger

More complex

Change rapidly

DR planning

Time

Resources

Personnel

Orchestration Automation

Veeam Availability Orchestrator

- Create, customize and update compliance and DR documentation on a recurring schedule or on demand
- Extensible orchestration of disaster recovery and planned migrations of any app, any data at any time meets SLAs
- Planned migrations, patch testing and application upgrades. All with a proven security and audit trail

Veeam Datalabs

Leverage data for greater business acceleration

- Achieve faster application deployment
- Implement DevOps and DevTest environments

- Gain operational efficiency via automated testing
- Empower application delivery and deployment
- Achieve SLAs via testing against RTO and RPO targets
- Reliable and simple-to-use BCDR orchestration

Orchestration Automation

Challenge

- Improve DR and migration success
- Maximize application development
- Maintain service continuity
- Prove reliability of platform

Solution

- Intelligent orchestration for DR and migration operations
- Deploy test and sand-box environments from backup
- Automated testing of DR and migration plans
- Showcase SLA attainment with documented outcomes

Non-stop operations and business acceleration

Veeam® Availability Orchestrator v3

Non-stop operations and business acceleration for today's modern enterprise with reliable and simple-to-use BCDR orchestration, automated testing and assured compliance.

Key capabilities for Veeam Replicas, Veeam Backups, and NetApp ONTAP Snapshots

Reliable recovery

- Reliable, scalable orchestration
- Application-centric

Automated testing

- Non-disruptive
- Scheduled and on demand
- Readiness checks

Dynamic documentation

- Audit trails
- Compliance reporting
- Built-in change tracking
- Proactive remediation

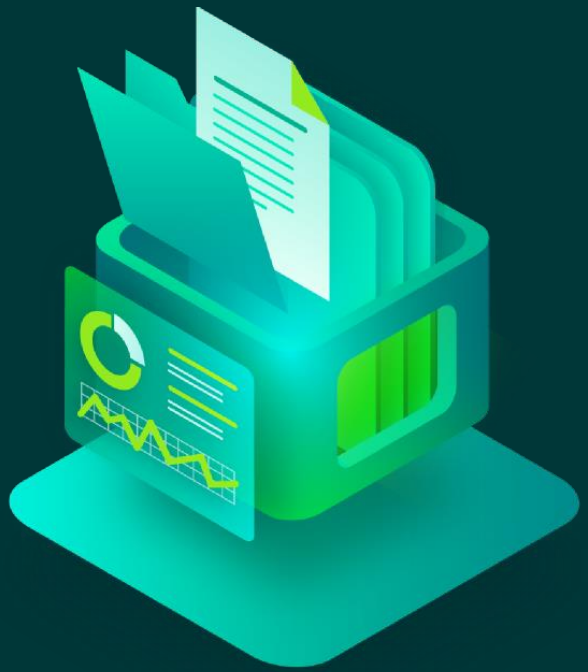
Automation with VAO

- Automation of recovery with Orchestration Plans
- Upload custom PowerShell scripts for use in Orchestration Plans
- Automation of testing Orchestration plans with Veeam DataLabs on demand or scheduled
- REST API & Swagger UI

Orchestration Plans

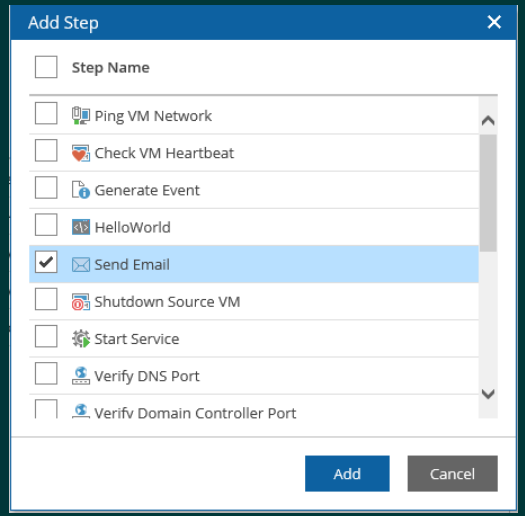
What is an Orchestration Plan?

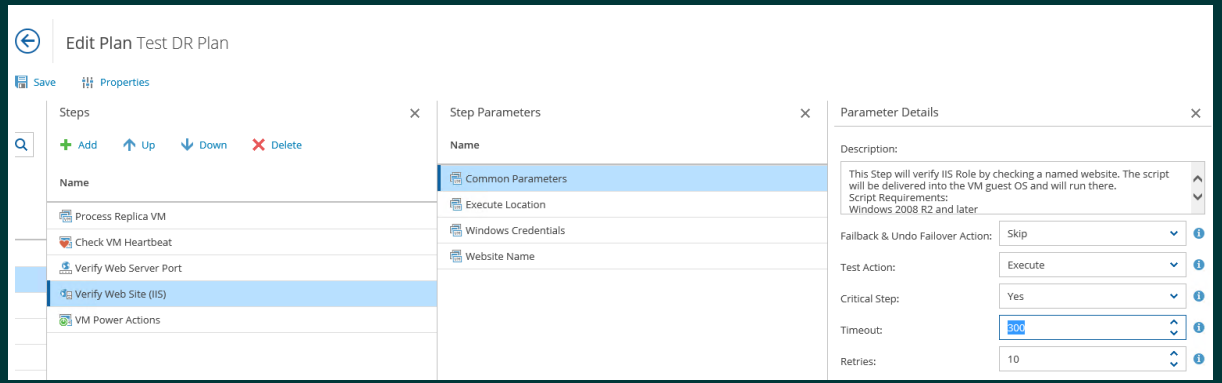
- A collection of
  - Virtual Machines
  - RPO/RTO
  - Plan Steps
  - Recovery Location (if applicable)
  - Fully Documented



Plan Steps and Step Parameters

- Add or remove steps for each VM in the plan
- Change execution order
- Customize parameter settings for each plan step





Orchestration Plan Steps Available

Register VM	Verify Exchange Mailbox
Process Replica VM	Verify Exchange MAPI Connectivity
Restore VM	Verify Exchange Services
Ping VM Network	Verify Global Catalog Port
Check VM Heartbeat	Verify Mail Server Port
Generate Event	Verify SharePoint URL
Prepare DC for DataLab	Verify SQL Database
Send Email	Verify SQL Port
Shutdown Source VM	Verify Web Server Port
Start Service	Verify Web Site (IIS)
Veeam Job Actions	VM Power Actions
Verify DNS Port	Custom Script
Verify Domain Controller Port	Protect VM Group

Parameter Variables

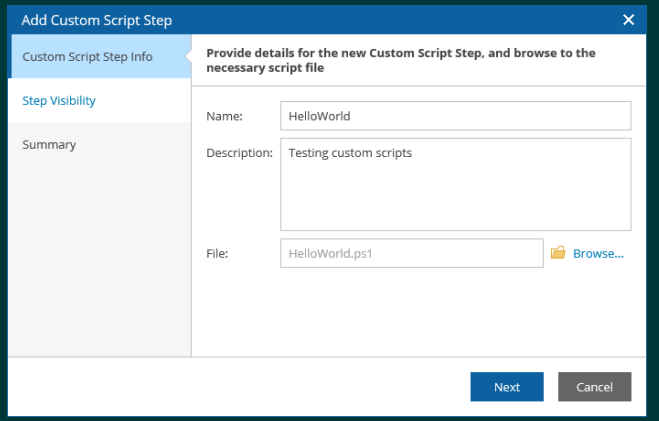
Parameter Variable	Content
%vm_fqdn%	FQDN of the currently processed VM
%current_vm_ip%	IP address of the currently processed VM
%current_vm_name%	Name of the currently processed VM
%current_vm_ip_list%	All IP addresses of the currently processed VM
%replica_vm_ip%	IP address of the currently processed replica VM
%replica_vm_ip_list%	All IP addresses of the currently processed replica VM
%replica_vm_name%	Name of the currently processed replica VM
%replica_vm_state%	State of the currently processed replica VM
%source_vm_ip%	IP address of the source VM
%source_vm_ip_list%	All IP addresses of the source VM
%source_vm_name%	Name of the source VM
%plan_name%	Name of the orchestration plan
%vao_server_name%	Name of the VAO server
%plan_state%	Current state of the orchestration plan
%plan_test_mode%	Boolean variable that indicates whether the plan is currently being tested (True/False)
%group_name%	Name of the currently processed VM group
%plan_summary%	Output information on the orchestration plan (error/warning/success for all steps)
%group_summary%	Output information on the currently processed VM group
%vm_summary%	Output information on the currently processed VM
%vao_ui%	URL to access HOME page of the VAO UI

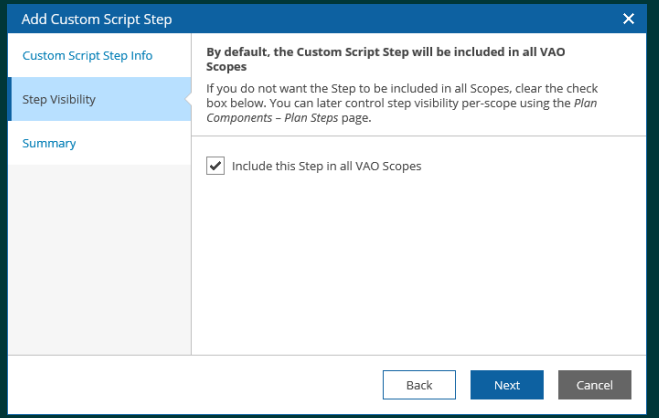
Adding Custom Scripts - PowerShell

Execute PowerShell scripts on a Veeam Backup & Replication server, the VAO server, or inside each VM included in the plan.

You can customize settings required for script execution and pass various parameters into the script: credentials, runtime variables (such as *vm_name* or *plan_state*) and any other custom parameters you require.

PowerShell





Custom Scripts – Common Parameters

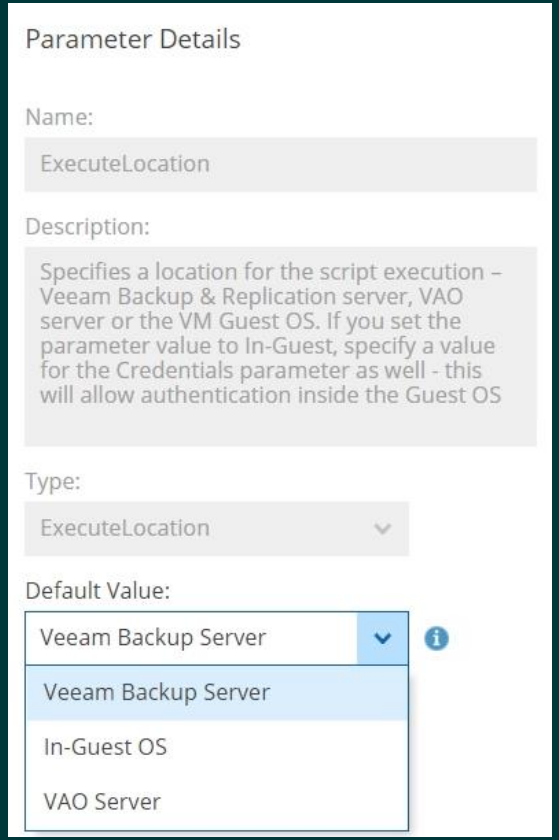
Parameter	Description	Default Value
Critical Step	Defines whether the step is critical for VM recovery. If you mark the step as Critical, its failure for a VM from a crtitical VM group will halt the plan.	No
Execute Location	Defines whether the script will run on the Veeam Backup & Replication server, on the VAO server or in-guest of the VM.	Veeam Backup Server
Windows Credentials	Credentials required to gain access to the in-guest OS. Applies only if the **Execute Location** parameter value is set to In-Guest OS.	—
Timeout	Maximum amount of time (in seconds) for the step to execute.	300
Retries	Number of retries that will be attempted if the step fails on the first try.	10
Failback & Undo Failover Action	Defines whether the step will be executed during the Failback and Undo Failover operations.	Skip
Test Action	Defines whether the step will be executed during plan testing in a DataLab.	Skip

VAO already includes a number of out-of-the-box common default parameters that you can configure

Configuring Common Parameters

Execute Location

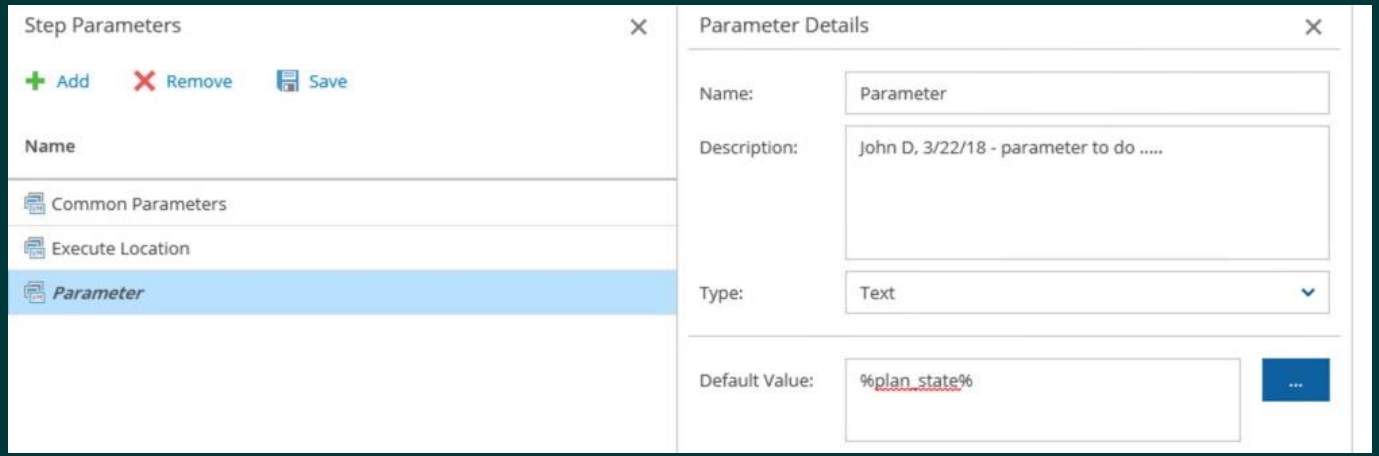
- Guest OS (*requires Windows credentials*)
- Veeam Backup Server
- VAO Server



Adding Custom Parameters

- Script parameters must match custom step parameters in the VAO UI

- To add custom parameters:
  - Script > Step Parameters > Add
- Script errors and exceptions may cause failover plans to halt



Script Output, Errors, and Warnings

To show custom script information in the console and log files:

- Write-Host cmdlet

To show errors and warnings during script execution and pass to VAO:

- Write-Error cmdlet
- Write-Warning cmdlet

```
Param(
    [Parameter(Mandatory=$true)]
    [string]$folderName
)

try {
    $fileName = "HelloWorld.txt"
    "Hello World!" | Out-File -FilePath "$folderName\$fileName"
    Write-Host "File $fileName was created in folder $folderName"
}
catch {
    Write-Error "Failed to create file in folder $folderName"
    Write-Error $_.Exception.Message
}
```

Fundamentals of Automated Testing in VAO

Demo

The secret behind the automation

What are Veeam DataLabs?

Veeam DataLabs

Designed to help users maintain availability and security by reducing the risks of malware, rolling out new upgrades and patches, DevOps, DevTest, and even mitigate compliance risks.

Features

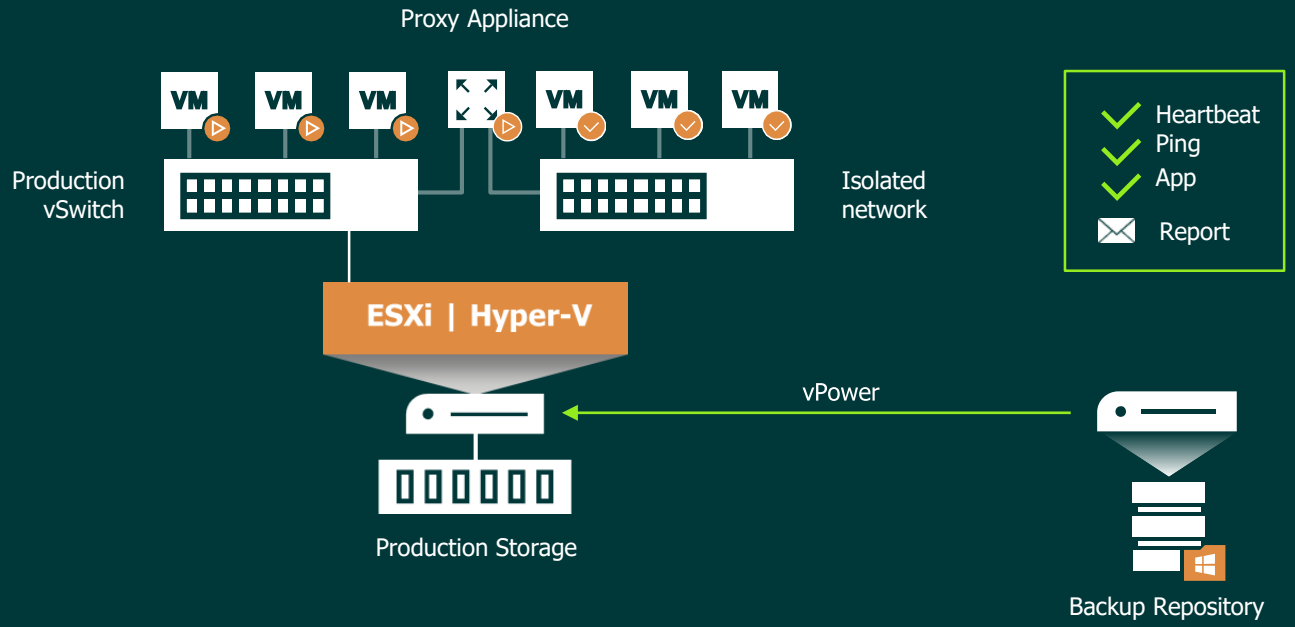
On-Demand Sandbox

SureBackup and SureReplica

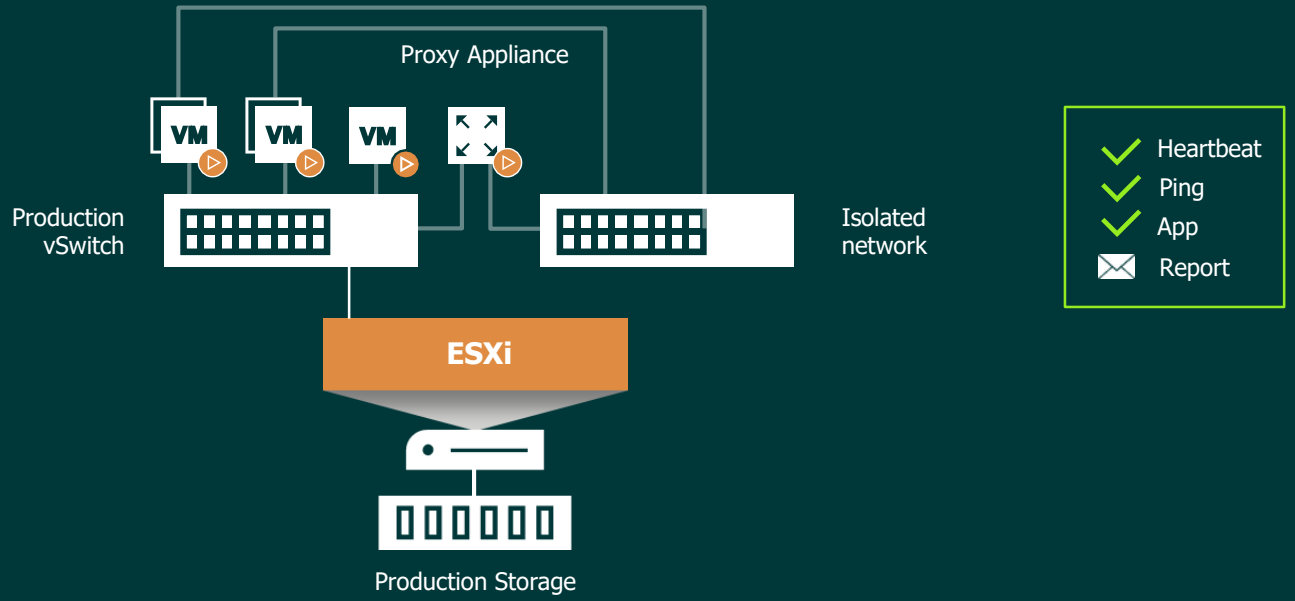
Staged Restore

Secure Restore

How DataLabs works with Backups

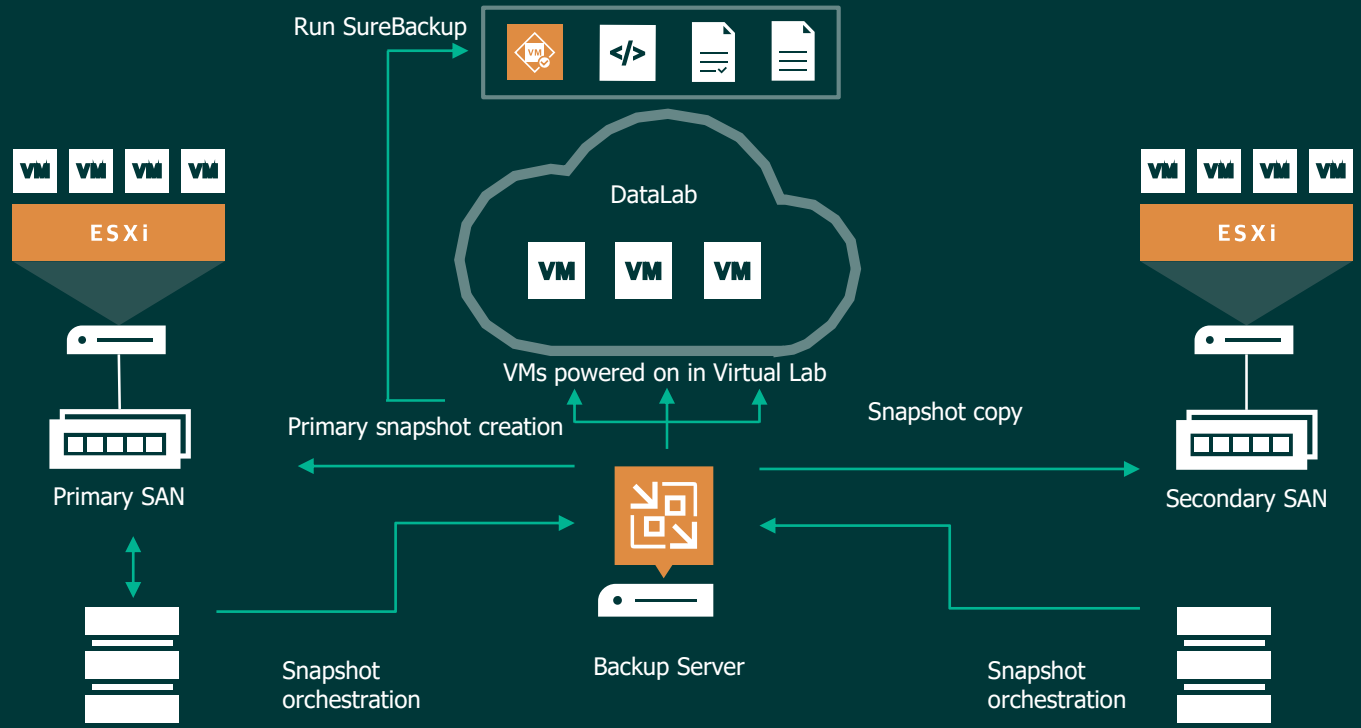


How DataLabs works with Replicas



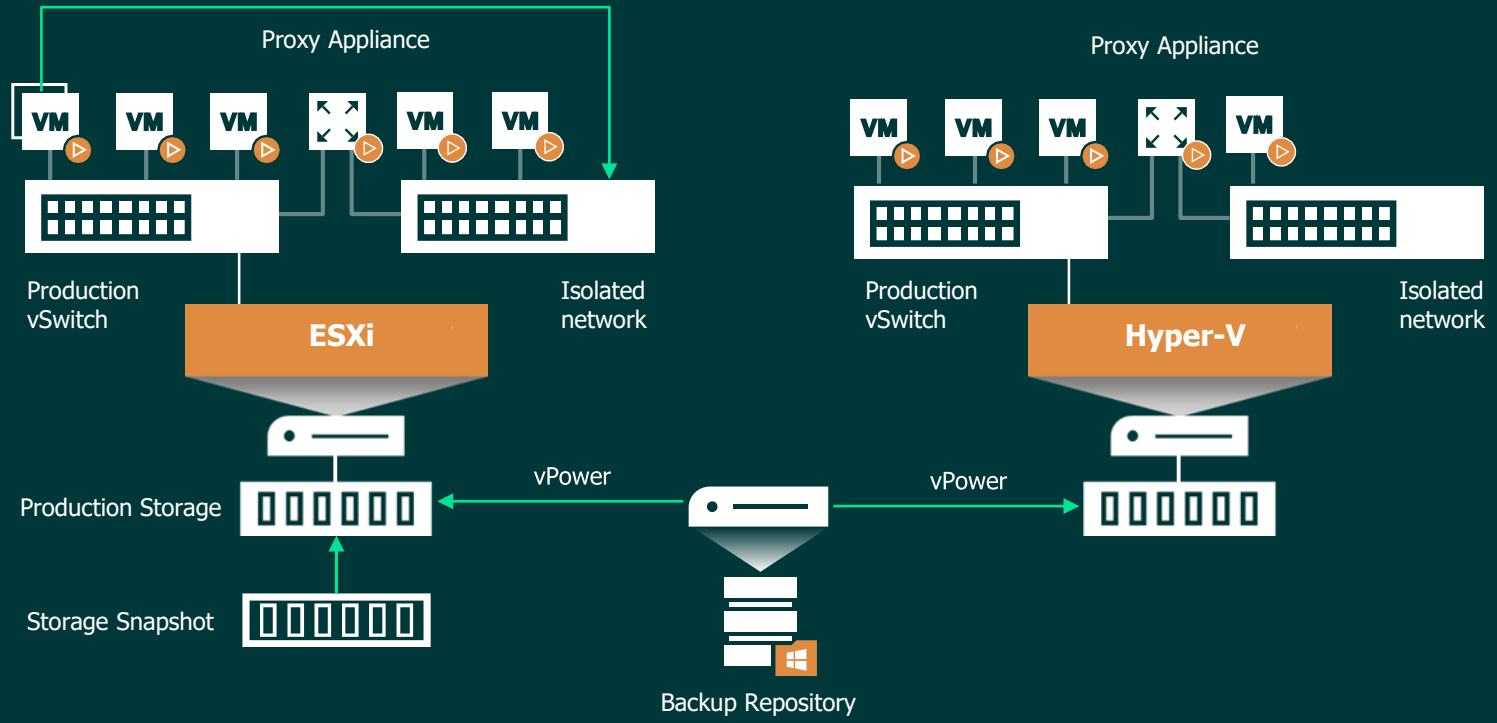
The Storage Snapshots advantage

Create a powerful backup and DR strategy with Veeam Snapshot only backup jobs, SureBackup and Veeam On-Demand Sandbox For Storage Snapshots



On Demand Sandbox

Start a copy of your production environment at any time for a variety of testing, security, training or troubleshooting purposes



Use cases for Veeam DataLabs

Increase Innovation

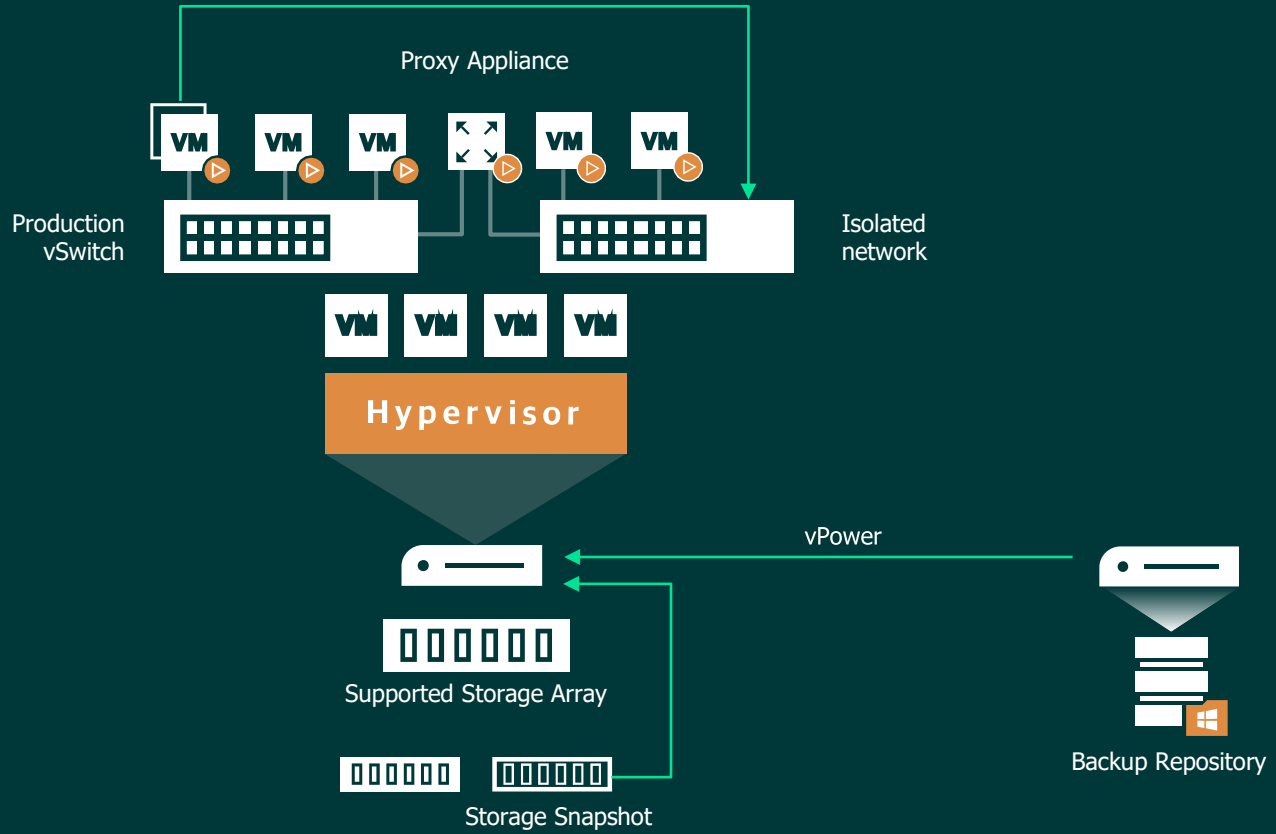
Improve DevOps, IT services & operations

Security

Compliance & analytics

Disaster Recovery Simulation

DataLabs Simplified View



Secure Restore

Microsoft Windows Defender

ESET NOD32 Smart Security

Symantec Protection Engine

Plus any other anti-virus software with CMD support

1. Select restore point

Veeam Backup & Replication

Backup repository

Mount Server

2. Mount disks directly from backup file to mount server

Anti-virus software installed with latest definitions

3. Anti-virus check

VM

4a. No infections found; continue restore

VM

VM VM VM VM

Hypervisor

4b. Infection found; proceed recovery but disable network

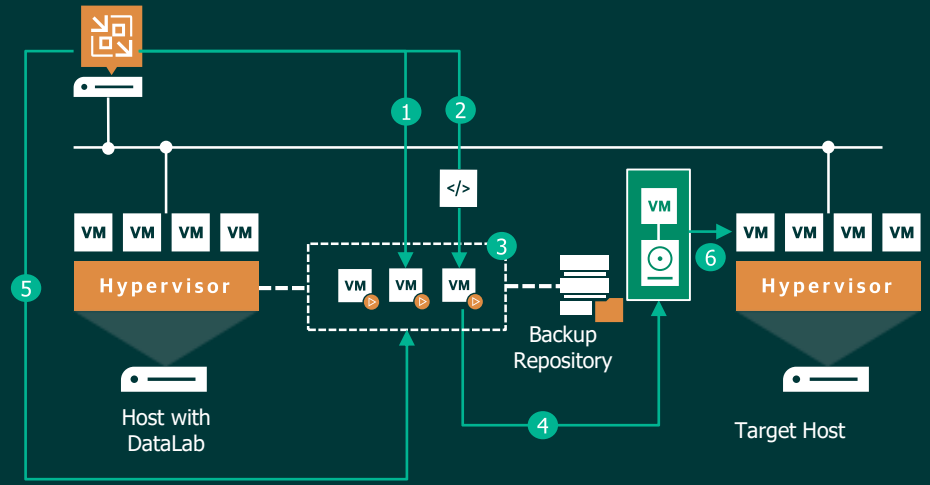
VM

4c. Infection found; stop restore

Staged Restore

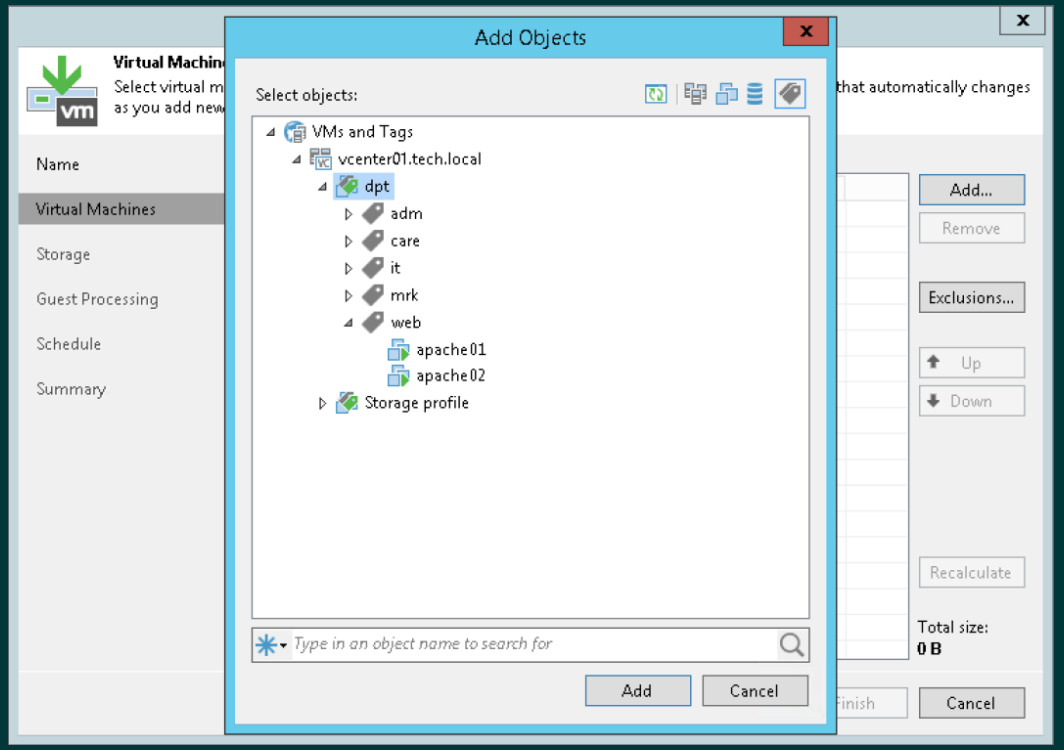
For staged restore, Veeam Backup & Replication uses a preconfigured DataLab, an executable script located on the backup server, and credentials to connect to VMs and run the script.

1. VMs started directly from compressed and deduplicated backup repository files
2. Script is copied from the backup server to VMs that are being restored
3. Copied script is run on every VM
4. VM changes during script execution are written to VM delta files
5. After the script execution is complete, VMs are powered off in the virtual lab
6. VMs are restored in a changed state to the production environment



Random B&R Stuff

- SLA based policies
- Based on tags
- Automated through VMware vCenter



Other Veeam Automation Resources

/VeeamHub

/veeamagent

/VeeamHub/Veeam

/cookbooks/veeam

forums.veeam.com/

tag:veeam

Thank you

VEEAM