

# #POWERCON2023

## Proteggere Microsoft SQL Server con Veeam: Scenari di implementazione

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# Perché Proteggere SQL Server con un tool esterno

- **Prevenzione della perdita di dati**

- Malfunzionamenti hardware, errori umani, attacchi malware o corruzione dei dischi locali possono portare alla perdita irreversibile dei dati

- **Gestione delle emergenze**

- In caso di disastro, un backup completo e regolare è cruciale per il ripristino rapido delle operazioni aziendali

- **Conformità normativa**

- Molte organizzazioni devono rispettare normative e standard specifici che richiedono la protezione e la conservazione sicura dei dati, con copie off-site e immutabili

# Opzioni di Protezione con Veeam

**Veeam Backup & Replication** offre **tre opzioni** per il backup di SQL Server:

- Backup a livello immagine delle macchine virtuali che eseguono SQL Server, in modalità **agent-less**
- Backup a livello immagine di macchine fisiche o virtuali che eseguono SQL Server, **utilizzando un agent**
- Backup a livello di singolo database **via plug-in** installato sui server che eseguono SQL Server



# Matrice di compatibilità

	Agent-less
<b>SQL server Standalone</b>	Supportato
<b>Always On Availability Group (*)</b>	Supportato
<b>SQL Failover Cluster</b>	Non Supportato

(\*) Always On Availability Group clusterless o basati su istanze multiple di Failover Cluster sono supportati solo dal Plug-in

# SQL Cluster Backup by Agent How to

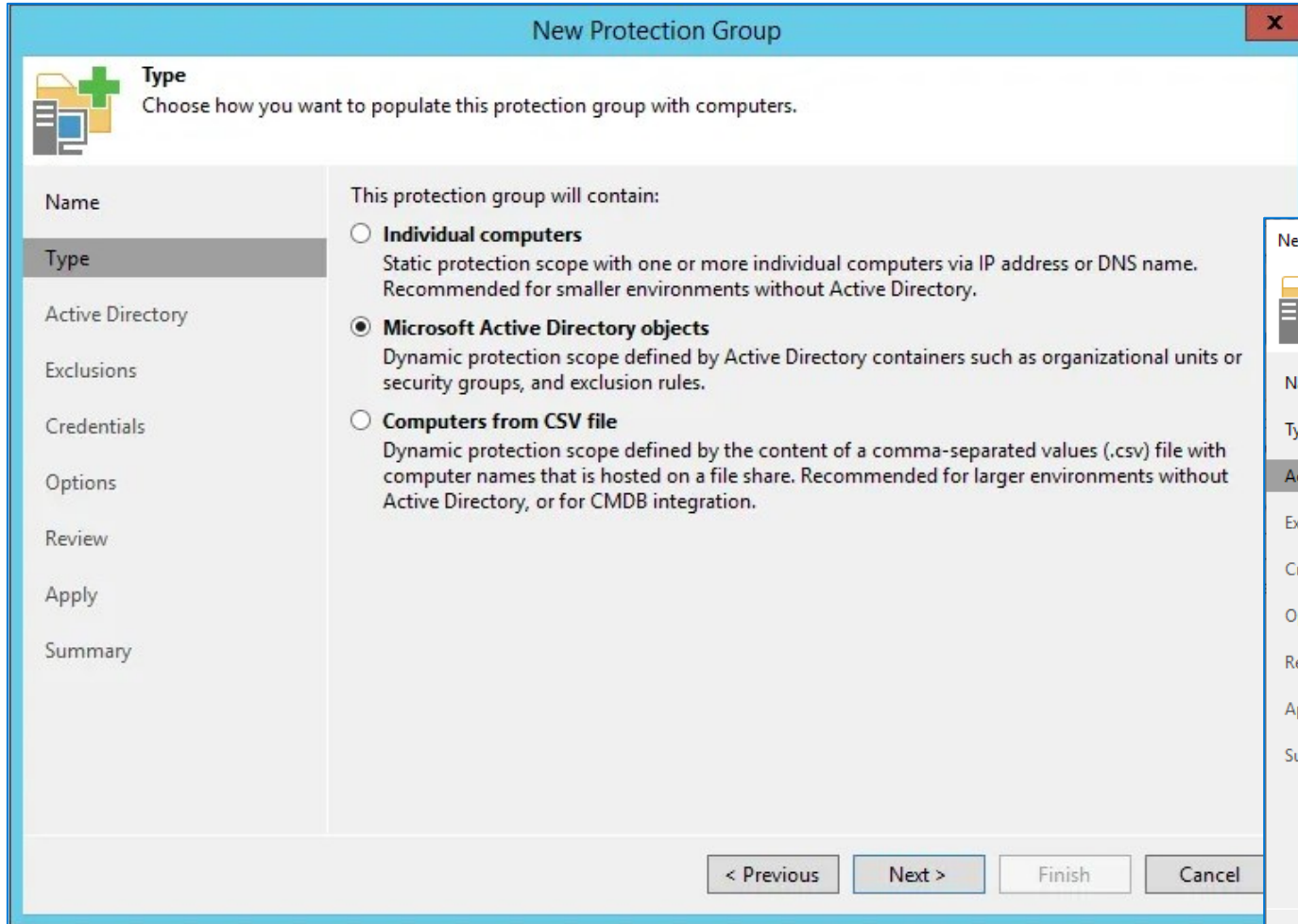
# Checklist



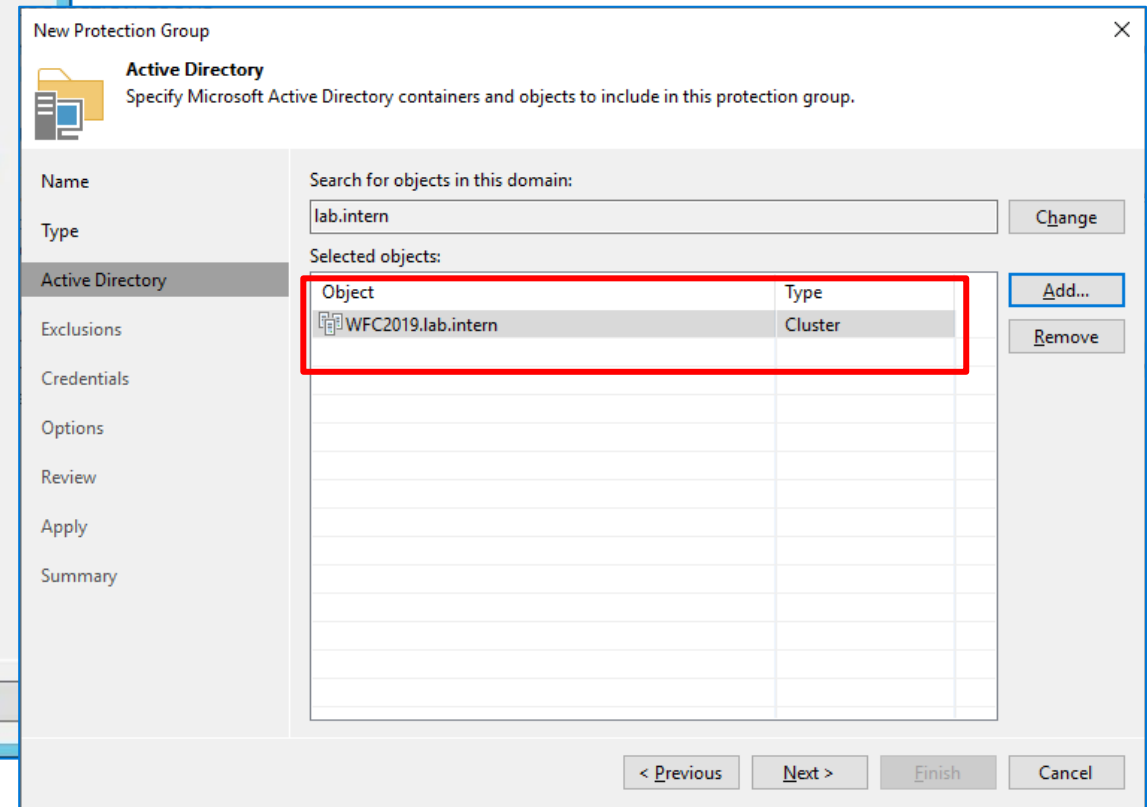
- DNS
- Configurazione di rete
- Firewall
- Impostazioni di protezione locali (S.O.)

[https://helpcenter.veeam.com/docs/backup/agents/used\\_ports.html](https://helpcenter.veeam.com/docs/backup/agents/used_ports.html)

# Create il Protection Group



! Per i cluster selezionare il **CNO**  
(Cluster Name Object)



# Opzioni

New Protection Group ✕

**Options**  
Specify host discovery schedule and automatic backup agent deployment options.

**Name**

**Type**

**Active Directory**

**Exclusions**

**Credentials**

**Options**

**Review**

**Apply**

**Summary**

**Discovery**

Rescan protection group every:

Daily at this time: 9:00 PM  Everyday

Periodically every: 1  Hours

**Deployment**

Distribution server:  
VBR-01.lab.intern

Protected computers will download backup agent redistributable from this server.

- Install backup agent automatically (recommended)
- Auto-update backup agent
- Install changed block tracking driver on Windows Server OS
- Perform reboot automatically if required

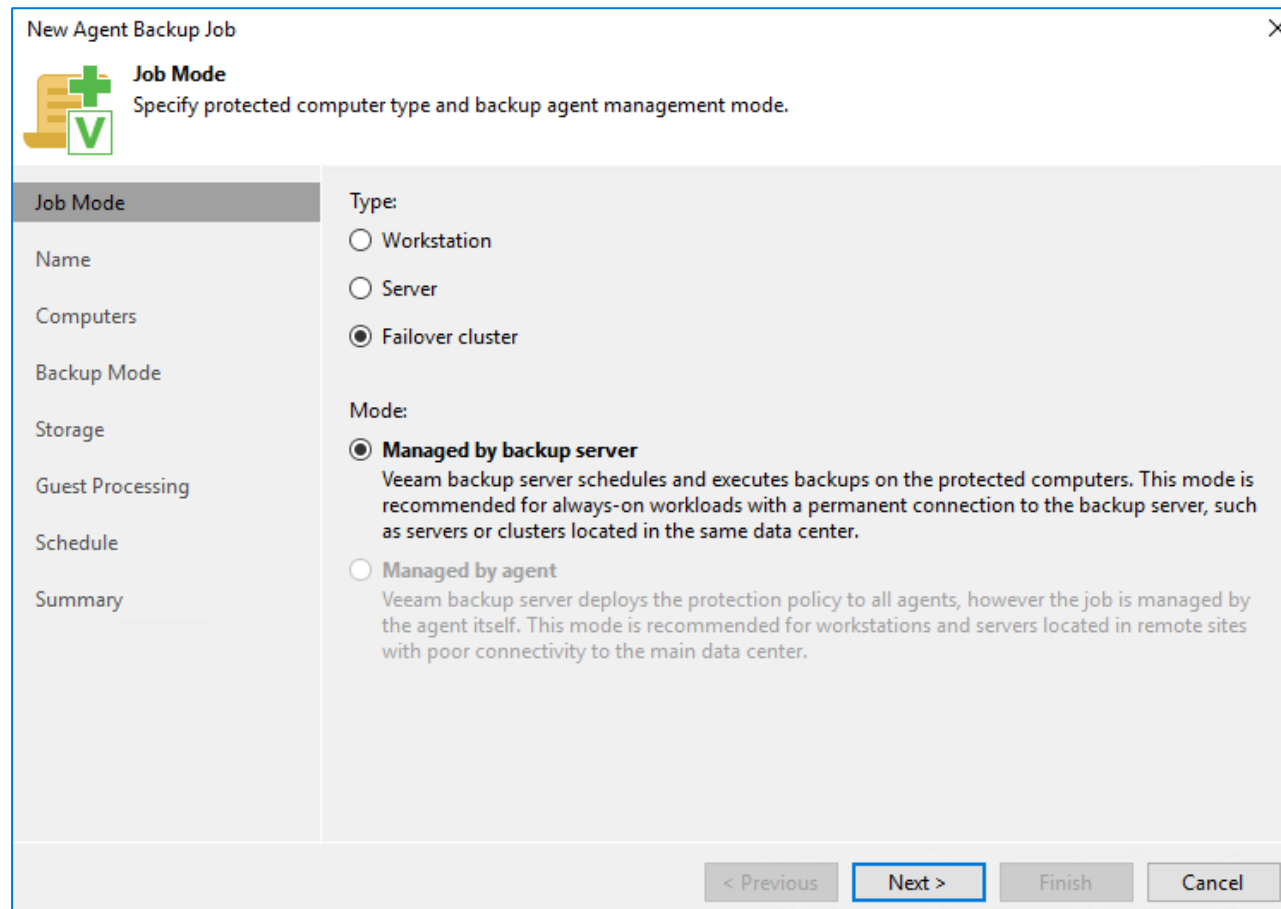
Customize advanced protection group settings such as e-mail notifications.

< Previous **Next >** Finish Cancel



# Creare il Backup Job

! Creare il job solo **dopo** che l'agent è in esecuzione su ogni nodo



The screenshot shows the 'New Agent Backup Job' wizard window, specifically the 'Job Mode' step. The window title is 'New Agent Backup Job' with a close button (X) in the top right corner. Below the title bar, there is a green plus sign icon and a 'V' logo icon. The text 'Job Mode' is followed by the instruction 'Specify protected computer type and backup agent management mode.' On the left side, there is a vertical list of steps: 'Job Mode' (highlighted), 'Name', 'Computers', 'Backup Mode', 'Storage', 'Guest Processing', 'Schedule', and 'Summary'. The main area on the right contains two sections: 'Type' and 'Mode'. Under 'Type', there are three radio buttons: 'Workstation', 'Server', and 'Failover cluster' (which is selected). Under 'Mode', there are two radio buttons: 'Managed by backup server' (selected) and 'Managed by agent'. The 'Managed by backup server' option has a descriptive text: 'Veeam backup server schedules and executes backups on the protected computers. This mode is recommended for always-on workloads with a permanent connection to the backup server, such as servers or clusters located in the same data center.' The 'Managed by agent' option has a descriptive text: 'Veeam backup server deploys the protection policy to all agents, however the job is managed by the agent itself. This mode is recommended for workstations and servers located in remote sites with poor connectivity to the main data center.' At the bottom of the window, there are four buttons: '< Previous', 'Next >' (highlighted with a blue border), 'Finish', and 'Cancel'.

New Agent Backup Job

**Job Mode**  
Specify protected computer type and backup agent management mode.

**Job Mode**

Name

Computers

Backup Mode

Storage

Guest Processing

Schedule

Summary

Type:

Workstation

Server

Failover cluster

Mode:

**Managed by backup server**  
Veeam backup server schedules and executes backups on the protected computers. This mode is recommended for always-on workloads with a permanent connection to the backup server, such as servers or clusters located in the same data center.

**Managed by agent**  
Veeam backup server deploys the protection policy to all agents, however the job is managed by the agent itself. This mode is recommended for workstations and servers located in remote sites with poor connectivity to the main data center.


< Previous   Next >   Finish   Cancel

# Backup Job Mode



Per il job relativi ai Failover Cluster sono disponibili solo le modalità di backup a livello di volume e di backup dell'intero sistema

Edit Agent Backup Job SQL Cluster

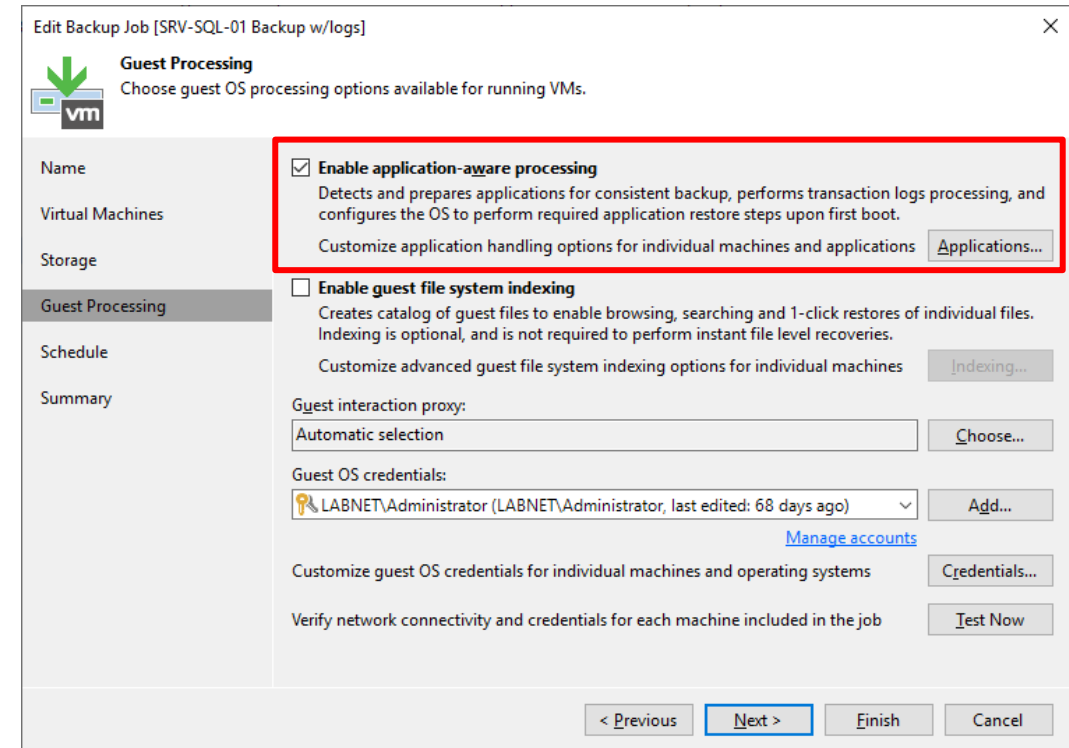
 **Backup Mode**  
Choose what data you want to backup from selected computers.

Job Mode	<input checked="" type="radio"/> <b>Entire computer</b> Back up entire computer image for fast recovery on any level. Deleted, temporary and page files are automatically excluded from the image to reduce the backup size.
Name	
Computers	<input type="radio"/> <b>Volume level backup</b> Back up images of specified volumes, for example only data volumes. Deleted, temporary and page files are automatically excluded from the image to reduce the backup size.
<b>Backup Mode</b>	
Storage	
Guest Processing	
Schedule	
Summary	

< Previous   Next >   Finish   Cancel

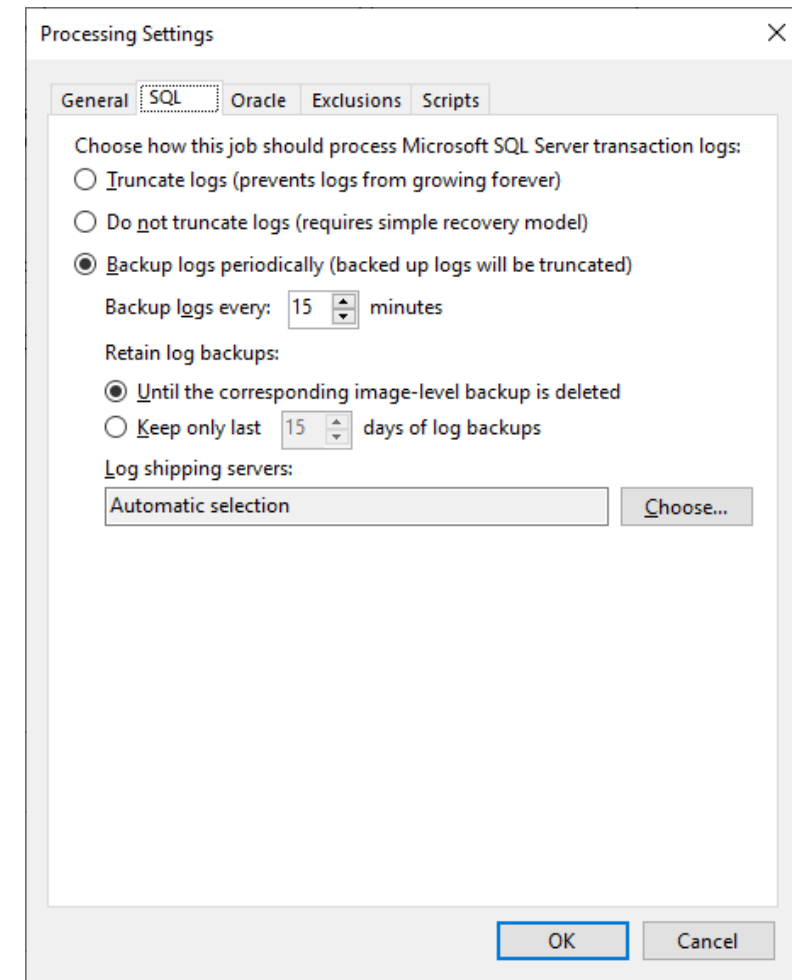
# Veeam «Application Aware Processing»

- Tecnologia Veeam basata su **Microsoft VSS**
- VSS è responsabile della disattivazione delle applicazioni nella macchina virtuale e della creazione di una visualizzazione coerente dei dati dell'applicazione nel sistema operativo guest della macchina virtuale
- In questo modo non saranno presenti transazioni non completate quando Veeam Backup & Replication farà generare lo snapshot della VM e inizierà a copiarne i dati



# Veeam «Application Aware Processing» - Flusso

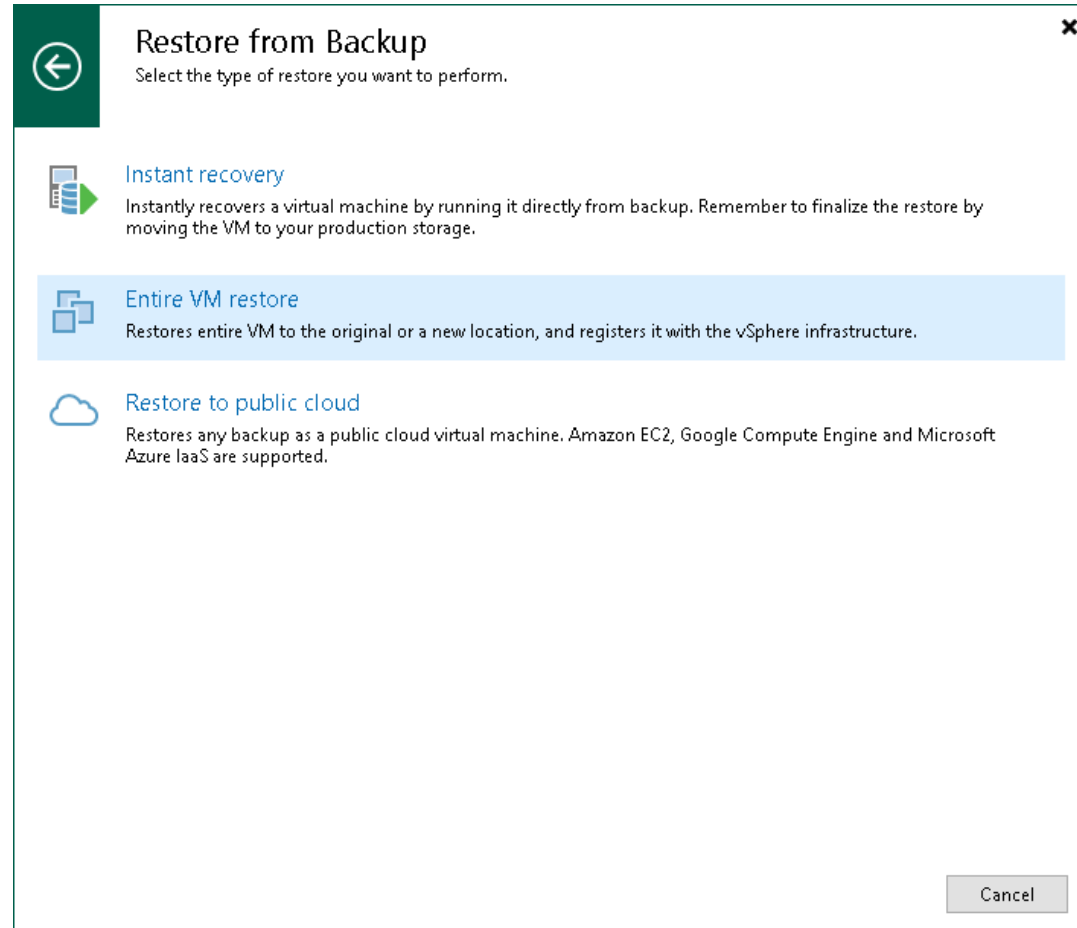
- Veeam Backup & Replication funge da **VSS requestor** e attiva una **snapshot VSS** della VM
- Veeam Backup & Replication attiva una **hypervisor snapshot** della VM
- Microsoft VSS riprende le attività di I/O inattive nel sistema operativo guest della macchina virtuale
- Il job procede come di consueto
- Veeam Backup & Replication può eventualmente **troncare i transaction log** dopo che il backup (o la replica) sono stati creati completati con successo



# Opzioni di ripristino

# Ripristini per ogni esigenza

- Bare metal recovery
- Export as virtual disk
- Instant VM Recovery
- Instant database recovery
- Application item recovery
- Restore guest files
- Restore to Microsoft Azure
- Restore to Amazon EC2
- Restore to Google Cloud
- Restore to Nutanix AHV



# Shared Volume, Active/Passive Cluster

- Veeam rileva automaticamente i nodi «owner» dei volumi ed esegue il backup dei nodi di un cluster in un singolo file di backup
- Include la logica per il backup e il ripristino dei transaction log nei nodi appropriati

The screenshot displays the Veeam backup console interface. It shows a list of nodes and their backup status. A callout box with a green background and black text states: "Shared volume will be backed up from current owner node".

NAME	STATUS	ACTION
clusterA.ad.local	Success	Calculating digests
cn1.ad.local	Success	
cn2.ad.local	Success	

NAME	STATUS	ACTION
clusterA.ad.local	Success	Getting list of local users
cn1.ad.local	Success	Recovery (disk 0) (450,0 MB) 16,0 MB read at 16 MB/s [CBT]
cn2.ad.local	Success	EFI system partition (disk 0) (99,0 MB) 99,0 MB read at 99 MB/s
		(C:) (49,4 GB) 5,6 GB read at 594 MB/s [CBT]
		shared-1 (E:) (24,9 GB) 86,0 MB read at 86 MB/s [CBT]
		Finalizing
		Truncating transaction logs
		Truncating SQL server transaction logs
		Incremental backup created
		Collecting recovery media files
		Network traffic verification detected no corrupted blocks
		Processing finished at 24.06.2019 21:54:44

# Clusters Backup File



Il file di backup .VBK contiene tutti i nodi del Cluster

Backup Properties SQL Always On Cluster Backup

Repository: ExaGrid TMP0X-RV Node 1 Folder: /home/exagrid/TPM0X-RV/SQL Always On Cluster Backup - SQLAO.AperatureLabs.biz

Files:

Name	Data Size	Backup Size	Deduplication	Compression	Date
SQL Always On Cluster Backup - SQLAO.Apera...	2.06 GB	857 MB	1.0 x	2.4 x	1/17/2018 10:00:...
SQL Always On Cluster Backup - SQLAO.Apera...	2.53 GB	1.15 GB	1.0 x	2.2 x	1/16/2018 10:01:...
SQL Always On Cluster Backup - SQLAO.Apera...	1.44 GB	586 MB	1.0 x	2.6 x	1/15/2018 10:00:...
SQL Always On Cluster Backup - SQLAO.Apera...	2.28 GB	1.06 GB	1.0 x	2.2 x	1/14/2018 10:00:...
SQL Always On Cluster Backup - SQLAO.Apera...	1.07 TB	19.4 GB	34.6 x	1.6 x	1/13/2018 10:02:...
SQL Always On Cluster Backup - SQLAO.Apera...	2.50 GB	1.14 GB	1.0 x	2.2 x	1/12/2018 10:01:...
SQL Always On Cluster Backup - SQLAO.Apera...	1.47 GB	569 MB	1.0 x	2.6 x	1/11/2018 10:00:...
SQL Always On Cluster Backup - SQLAO.Apera...	2.21 GB	1.18 GB	1.0 x	2.2 x	1/10/2018 10:01:...

Objects:

Name	Original Size
TPM02-SQLAO1.Aperat...	25.5 GB
TPM02-SQLAO2.Aperat...	18.5 GB

Restore points:

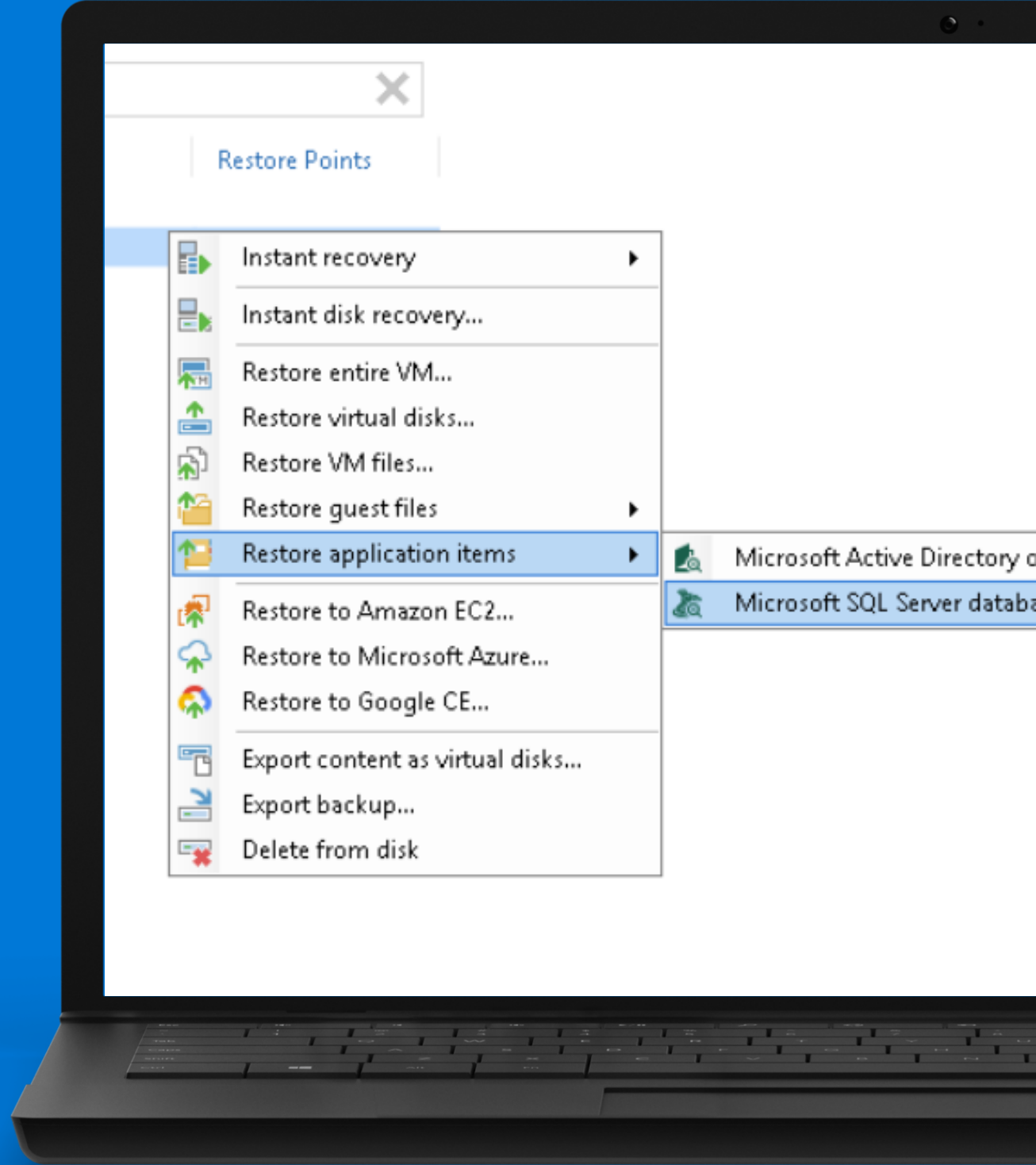
Date	Type	Status
1/17/2018 10:00:59 ...	Increment	OK
1/16/2018 10:01:44 ...	Increment	OK
1/15/2018 10:00:49 ...	Increment	OK
1/14/2018 10:01:08 ...	Increment	OK
1/13/2018 10:02:52 ...	Full	OK
1/12/2018 10:01:48 ...	Increment	OK
1/11/2018 10:01:23 ...	Increment	OK
1/10/2018 10:01:56 ...	Increment	OK
1/10/2018 12:46:26 ...	Full	OK
1/9/2018 10:01:14 PM	Increment	OK
1/8/2018 10:02:18 PM	Increment	OK

OK



# DEMO

SQL Server  
Backup &  
Restore



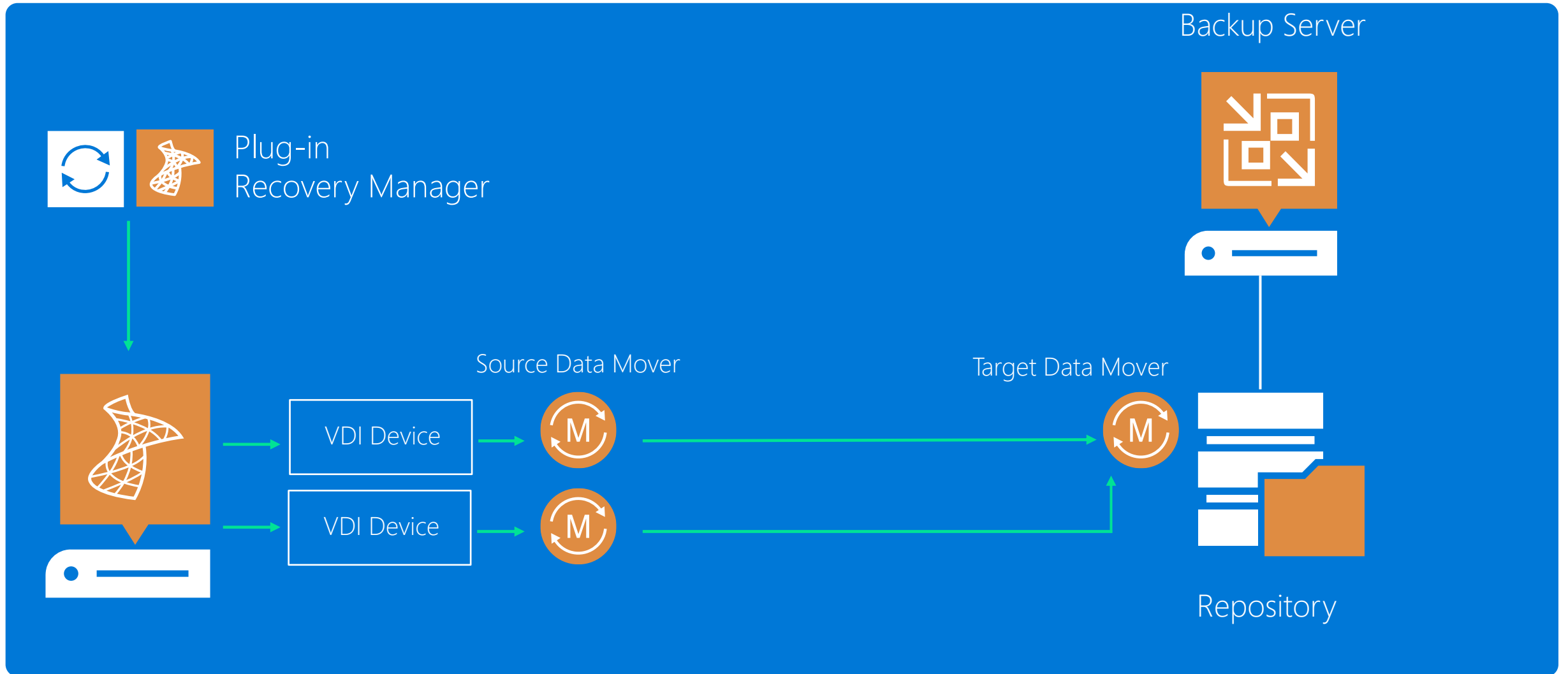
Restore Points

- Instant recovery
- Instant disk recovery...
- Restore entire VM...
- Restore virtual disks...
- Restore VM files...
- Restore guest files
- Restore application items**
- Restore to Amazon EC2...
- Restore to Microsoft Azure...
- Restore to Google CE...
- Export content as virtual disks...
- Export backup...
- Delete from disk

- Microsoft Active Directory o...
- Microsoft SQL Server databa...

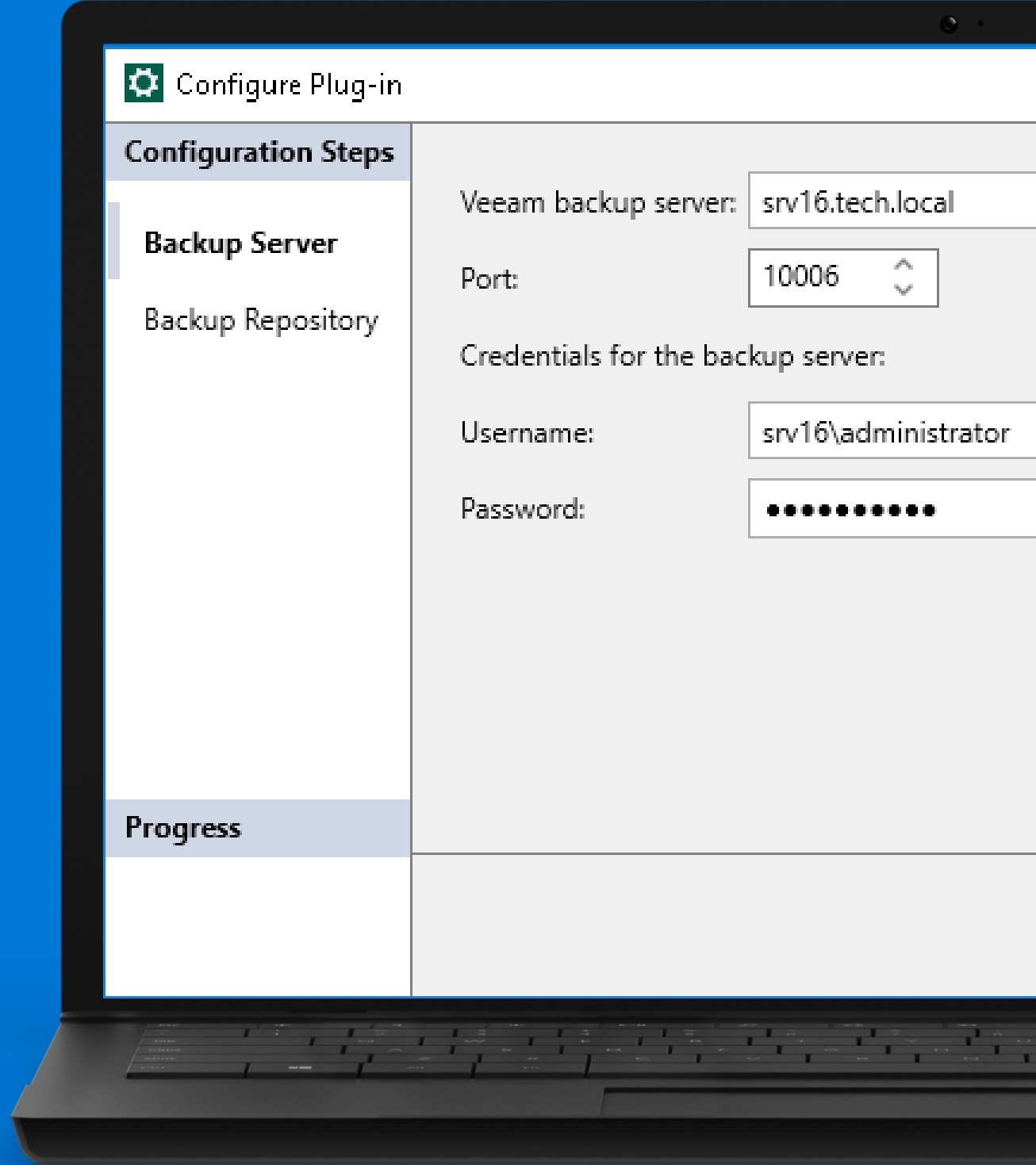
# Veeam Plug-in for Microsoft SQL Server

# Architettura



# DEMO

SQL Server Backup &  
Restore Via Plug-In



# Grazie

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