Integrating Veeam with HPE Storage Solutions

Course code: VEE_HPESS

This course covers Veeam backup and replication software in context of integrations with HPE Primera, HPE 3PAR, HPE Nimble and HPE StoreOnce products. It includes an introduction and review of Veeam, HPE Primera, HPE 3PAR, HPE Nimble, and HPE StoreOnce concepts that are important to know before working with Veeam integrations with HPE products. It also covers theory and features available in Veeam when combined with HPE products, including network-attached storage (NAS) and HPE StoreOnce Catalyst integration, local and remote copy integrations, backup and recovery flow, verification, and best practices. The course includes hands-on labs using Veeam with HPE Primera, HPE 3PAR and HPE Nimble storage arrays and HPE StoreOnce backup appliances.

Who is the course for

Customers, HPE services field engineers, call center personnel, presales and channel partners, and other field personnel who provide installation and/or operational support assistance.

What we teach you

After completing this course, students will be able to:

- Describe the core components of Veeam
- Describe local and remote replication features of HPE Primera, HPE 3PAR, and HPE Nimble storage arrays
- Talk about Veeam integrations with HPE storage arrays (HPE Primera, HPE 3PAR and HPE Nimble), including advantages
- Describe HPE StoreOnce basics
- List types of HPE StoreOnce backup targets—VTL, NAS, HPE StoreOnce Catalyst
- Discuss deduplication technology
- Explain VTL and NAS replication and HPE StoreOnce Catalyst copy
- Plan, configure and perform Veeam backup and recovery by using HPE storage and backup products
- Configure backup replication (local and Remote)

Required skills

Before attending this course, students must have:

- Basic VMware® vSphere® administration experience
- Basic understanding of iSCSI, fibre channel, backup, and SAN technologies
- Basic Veeam, HPE Primera, HPE 3PAR, HPE Nimble, and HPE StoreOnce knowledge

Course outline

Module 1: Veeam Introduction/Review

- Components
  - Core components
  - Data transfer scheme
  - Veeam Backup Server
  - Veeam Backup Proxy (VMware)
  - Veeam Backup Proxy—transport mode (VMware)
  - Direct storage SAN access mode (VMware)
  - Direct storage NFS access mode (VMware)
  - Virtual appliance mode (VMware)
  - Network mode (VMware)
  - Veeam backup repository
  - WAN acceleration
- Backup

GOPAS Praha
Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno
Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava
Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk

– Full backup
– Incremental backups
– Reverse incremental backup
– Forward incremental backup
– Forever forward incremental versus forward incremental backup
– Active full and synthetic full
– Backup copy
– Backup copy overview
– Replication (VMware)
– Agent backup
– NAS backup
• Recovery
– Instant VM Recovery (IVMR) introduction
– Instant VM Recovery flow
– Instant VM Recovery for Microsoft Hyper-V
– Full VM recovery
– VM file recovery
– Virtual drive recovery (VMware vSphere only)
– Recovery from a replica
– Objects recovery—Veeam Explorer
– Objects recovery—Instant File-Level Recovery (IFLR)
• Verification
– SureBackup/SureReplica recovery verification
– SureBackup recovery verification flow
– SureReplica recovery verification flow
– On-demand Sandbox/DataLabs
– Product editions
– Veeam Universal License
– Veeam principal integration points with HPE infrastructure
– HPE and Veeam—integration focus introduction

Module 2: HPE Storage Review

• HPE Primera/HPE 3PAR local replication
• HPE Primera/HPE 3PAR snapshot
• HPE Primera/HPS 3PAR virtual copy
• HPE Primera/HPE 3PAR clone
• HPE Nimble local replication
• HPE Nimble snapshot
• Snapshot life cycle
• Volume collections and schedules
• HPE Nimble zero copy clones
• Recovery scenarios using local replication

Module 3: HPE Storage Review—Remote Replication

• HPE Primera/HPE 3PAR remote replication
• HPE Primera/HPE 3PAR remote copy
– FC-based remote copy

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– Native IP-based remote Copy
– Remote copy terminology
• Replication modes
– Synchronous mode
– Asynchronous periodic mode
– Asynchronous streaming mode
– Synchronous long distance mode
– Peer persistence
• HPE Nimble remote replication
– Replication components
– Partner
– Replication QOS—bandwidth limit
– How replication works—the basics
– Volume collection schedules—more information
– Replication and deduplication notes

Module 4: Veeam and HPE Storage Integration

• HPE storage integration
– Common VADP agentless backup process (vStorage API—Data Protection)—overhead
– Storage integration—standard backup
– Comparison—overhead of standard VMFS snapshots compared to hardware snap
– Storage integration introduction
– Veeam integration with HPE primary storage
– Leverage on HPE storage snapshots
– Veeam backup job from HPE primary storagesnapshots process overview—VEEAM advantage
– Storage integration—backup with Veeam snapshot integration
– Benefit of using hardware snapshots (HPE 3PAR, HPE Primera, HPE Nimble) for backup
– VMware VM snapshot challenges summary
– Storage integration versus traditional approach summary
– Veeam supports direct connectivity to HPE primary storage
• Veeam and HPE storage features
– HPE 3PAR/HPE Primera snapshot orchestration
– Backup from HPE 3PAR/HPE Primera replicated storage snapshots
– Nimble snapshot orchestration and replication over WAN
– Backup from HPE Nimble snapshots on the secondary array
– How to configure snapshot-only jobs
– Configuring snapshot and backup-file in a single job
– Summary view—Veeam snapshot orchestration with HPE 3PAR/HPE Primera
– Instant VM Recovery from HPE storage snapshot
– Traditional restore via LAN
– Faster restore via SAN
– How to improve restore speed—more technical details
– Veeam On-Demand Sandbox/DataLabs from HPE storage snapshot
– Veeam Explorer for storage snapshots
– Restore application items from storage snapshots
– HPE Recovery Manager Central

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– Backup policy including storage snapshots
– Veeam supports HPE 3PAR and HPE Nimble VVOLs for VMware vSpher

Module 5: HPE StoreOnce Review

• What is HPE StoreOnce?
• HPE StoreOnce backup systems
• HPE StoreOnce—emulation types
• Virtual tape libraries
• NAS shares
• HPE StoreOnce interfaces—traditional NAS/VTL
• HPE StoreOnce Catalyst
– Which benefits does HPE StoreOnce Catalyst deliver?
– HPE StoreOnce interfaces with HPE StoreOnce Catalyst
• Deduplication
– Deduplication—what is it?
– HPE StoreOnce deduplication
– Deduplication data locality
– Typical deduplication ratios
– HPE StoreOnce appliance architecture
– HPE StoreOnce Catalyst ISV integration
– Source/server side HPE StoreOnce Catalyst deduplication
• HPE StoreOnce replication
– Replication of VTL and NAS shares
– Replication granularity
– HPE StoreOnce replication deployment options (VTL/NAS)
– Appliance fan-out
– Appliance fan-in
– HPE StoreOnce Catalyst copy
– HPE StoreOnce Catalyst—ISV-controlled replication
– HPE StoreOnce Catalyst Copy deployment options
– Seeding the replication target

Module 6 Veeam and HPE StoreOnce Integration

• Veeam and HPE StoreOnce integration components
• HPE StoreOnce—Veeam basics
• HPE StoreOnce deployment
• HPE StoreOnce and Veeam with NAS integration
• HPE StoreOnce and Veeam with HPE StoreOnce Catalyst integration
• Suggested architectural design
• Support for deduplicating storage systems
• HPE StoreOnce Catalyst and Veeam agents for Windows and Linux servers
• Veeam agents for Windows—backup repository setting
• Veeam and HPE StoreOnce Catalyst features
– Benefit of HPE StoreOnce deduplication for Veeam's repositories
– Multistreamed write (per VM backup file)
– HPE StoreOnce: deduplication across VMs and jobs
– Virtual synthetic full—fast full backup with Catalyst

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