Advanced SQL Server backup & recovery for VM environments

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Administrative points on this webinar

- **About this material**
  - This will be deep technical content related to SQL Server and Veeam Backup & Replication.
  - Mix of PowerPoint and demos: *Something for everyone*
  - General product demos are available at:
  - More featured webinars are available at:

- **Questions**
  - Attendees can use the virtual Q&A panel.
  - **This webinar is recorded and available for replay after a few days.**
  - **Stick around** until the end of the webinar!
    - Winners will receive a choice of books!
Agenda

- Background on Veeam Backup & Replication and vPower
- Sample database overview
- Configuring backup jobs for SQL Server VMs
- U-AIR and virtual labs for SQL Server VMs
- VSS behavior for SQL Server VMs
- Instant VM Recovery for SQL Server VMs

A SQL Query walks into a bar, approaches two tables and says, “May I join you?”
Veeam Backup & Replication

100% Reliability
SureBackup™

Best RTOs
InstantRestore™

Best RPOs
SmartCDP™

vPower™
Virtualization-Powered Data Protection™

VMware vSphere
vPower

100% Reliability
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Best RPOs
SmartCDP™

vPower™
Virtualization-Powered Data Protection™

VMware vSphere
Breakthrough technology

- Publishes the backup as a regular VMDK file
  - Compressed, deduplicated, incremental

- Runs a VM **directly** from the backup file
  - Runs on regular backup storage
  - Does not make any changes to the backup file

- Automatically manages an **isolated** virtual lab
  - Workflow engine manages requests
  - Proxy appliance provides access into the isolated environment

“This is why I love Veeam. They take all the virtualization technology pieces on the table and put them together into a functioning business solution.”

– Brett Westover
  IT Administrator
  Therapeutic Research Center
SQL Server audience

- This material is targeted to DBAs, VMware administrators, and the “do it all” IT staff who has to support databases
- Mission-critical applications require additional consideration.
- Example databases in this webinar:
  - VME-PROD-DB01 and VME-PROD-DB03
  - SQL 2008 R2 and Windows Server 2008 R2
  - ~100 GB
  - Script injecting 6 million rows per hour
  - Veeam Backup & Replication v5
  - All systems are a virtual machine
  - VMware vSphere 4.1, VMware ESXi 4.1
SQL Server databases

- Backup job configuration dictates the behavior of virtual machine backups
  - Processing mode: Direct SAN
  - VSS
  - Application log processing and behavior
  - Frequency

- Point in time recovery
  - SQL scripting – comfort level of database administrator
  - Veeam Backup configuration and implications
    - Example: excluded VMDK disks, NAS resource or iSCSI LUN
Demo

- Backup job configuration
  - Note transaction log state
U-AIR

- No application-specific agents to license
  No additional products to buy
  No special backups to create

- Supports **ANY** virtualized application

- Durable—not tied to application internals

- Supports administrator- and user-directed recovery
  - Wizards for administrator-directed item recovery from Microsoft Exchange, Active Directory and SQL Server
  - User-directed item recovery from **ANY** application or database

- Maintains separation of permissions between backup administrators and application owners
How it works

The production Veeam Backup server can launch an on-demand sandbox.

Multiple VMs staged in virtual lab running from backup file.

Proxy appliance will keep on demand sandbox off of the production network.
Authentication to SQL Server

- Can be done through Windows or SQL authentication
  - U-AIR wizard allows option to be made on virtual lab and wizard creation

- Active Directory considerations
  - Job organization
  - Consider adding one of the domain controllers to the backup that contains SQL Server
Networking and isolation from production

- SQL Server in virtual lab (and U-AIR restore) can *listen to and accept* SQL connections
  - *Non-persistent* network appliance (virtual lab)
  - Cannot interact with application in production

- Virtual lab network appliance allows configured traffic in and no traffic out

- Upcoming example using SSMS
Virtual Lab ready

Virtual lab for VME-PROD-DB01 is ready.
Demo

- SQL U-AIR wizard
- SSMS connectivity
Volume shadow copy services

- Key technology to application consistency
- Veeam has a VSS implementation for SQL backups
  - Includes log truncation and other options in application-aware processing
  - Service accounts can be used
- VSS log truncation after backup doesn’t shrink files
  - SQL log files (.LDF) write the parent size out in advance
  - Additional steps required to reduce log file size
    - SQL Server agent jobs
    - SQL Server maintenance plans
Demo

- Veeam VSS configuration and application processing behavior
**Instant VM Recovery**

- **Fast**: starts VM directly from backup file
- **Readily available**: uses existing backups and backup storage
- **Buys you time**: users keep working while you troubleshoot the problem

**jr_on_the_cloud**: Did a VM restore using Veeam yesterday. Worked perfectly and was very easy. Impressed!
How it works

Veeam Backup

InstantRecovery

Virtual Machine A
running from the backup file

VM
Application
(vPower)

Virtual Machine A
running from production storage

Backup file for virtual
machine A

vSphere
Demo

- Instant VM Recovery
Ongoing innovation: Veeam “firsts”

**Version 1**
- 2-in-1: backup and replication
- Instant file-level recovery (IFLR)
- Inline deduplication
- Direct-to-target backups
- Synthetic full backups
- Replica rollback

**Version 2**
- ESXi support with VCB
- Fastest VCB performance
- Advanced VSS support

**Version 3**
- IFLR for Linux
- ESXi support without VCB

**Version 4**
- vStorage APIs
- Changed Block Tracking
- Thin-provisioned disks
- Direct SAN access
- Near-CDP replication
- Replication to ESXi
- CBT with vRDM disks

**Version 5 with vPower**
- Instant VM recovery
- U-AIR
- Recovery verification
- On-demand sandbox
- Instant indexing

**Version 6**
- Hyper-V support
- Other TBA
Additional Veeam SQL Resources

- Veeam forums and Veeam support
  - Chances are, you are not the first!

- Product demos

- Veeam Backup & Replication User Guide and Release Notes
  - User Guide: [http://www.veeam.com/veeam_backup_5_0_2_user_guide Pg.pdf](http://www.veeam.com/veeam_backup_5_0_2_user_guide Pg.pdf)
  - Release notes: [http://www.veeam.com/veeam_backup_sql_air_5_0_2_release_notes_rn.pdf](http://www.veeam.com/veeam_backup_sql_air_5_0_2_release_notes_rn.pdf)

- VM-ETC blog post
  - Using the U-AIR wizard for connecting to a physical SQL Server
  - Unsupported, but interesting
Questions and Answers

- Winners receive their choice from the following books

Available as a Kindle e-book

Available as a paperback

- Thank you for attending!

- Resources:
  - Twitter @Veeam
  - Eval: Veeam.com