Advanced Replication Techniques for vSphere Environments

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Agenda

- Overview of Veeam Backup & Replication
- How replication fits into DR strategies
- VM replication features with Veeam
- Network traffic efficiency techniques
- Replication results and job summary
What is a replicated VM?

- What Veeam replication is not
  - Backup repository data mover
  - LUN replication

- Inventoried and ready to run VM
  - Not running from a backup
  - Ready to go on ESXi host
  - (Can be) Production-class storage
  - No specific Veeam requirement
    - Direct Attached Storage
    - Lower-end NAS
    - iSCSI/FC targets
    - Dissimilar targets fully supported
Replication options

- **Same site**
  - Examples include SAN A to SAN B
  - Development cluster to production cluster for the most critical VMs

- **Off-Site examples**
  - Production site to DR site
  - Production site A to Production site B
Replication features - Traffic

- V6 introduces the distributed proxy
  - Standalone data mover for backup and replication jobs
  - Adds scalability to solution
  - Allows compression of proxy-to-proxy communication; critical for wide area networks
  - Traffic rules (throttling and time enforcement) also permitted
Replication features - Traffic

- Proxy-to-Proxy compression important on both first pass and incremental runs of replication job
Replication features – Seeding and Mapping

- **Seeding**: First full pass of replicated VM can go to a removable drive where limited bandwidth exists.
  - Starts as a backup, restored in remote site and differences rolled in

- **Mapping**: Compares differences between existing VM and replication candidate
  - Beneficial if same templates are used

- Both situations will go onward with only incremental transfers (leveraging other traffic efficiencies)
  - Changed block tracking as well
Example of replicating 5 VMs

- Five low change-rate VMs replicated in 13 minutes

<table>
<thead>
<tr>
<th>VM name</th>
<th>Status</th>
<th>Action</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSA-REPLDEMO1</td>
<td>Success</td>
<td>Processing 'SSA-REPLDEMO-12'</td>
<td>0:02:17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparing next VM for processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Processing 'SSA-REPLDEMO-13'</td>
<td>0:02:15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparing next VM for processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Processing 'SSA-REPLDEMO-14'</td>
<td>0:02:07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparing next VM for processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Processing 'SSA-REPLDEMO-15'</td>
<td>0:02:01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All VMs have been processed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Load: Source 78% &gt; Proxy 15% &gt; Network 28% &gt; Target 24%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary bottleneck: Source</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Job finished at 2/29/2012 9:35:01 AM</td>
<td></td>
</tr>
</tbody>
</table>

Summary:
- Duration: 0:13:07
- Processing rate: 74 MB/s
- Bottleneck: Source

Data:
- Processed: 56.8 GB (100%)
- Read: 1.3 GB
- Transferred: 1.2 GB (1.1x)

Status:
- Success: 5
Replication features – Multiple recovery points

- vSphere VMs have a default of 7 recovery points, maximum of 28 recovery points for a replication VM
  - Hourly
  - Daily
  - Smart CDP
  - Change-rate is important
Replication features – Guest networking

- Supports differing IP spaces
- Supports differing port groups
Replication features – Failover and Failback

- Failover will select from the recovery point
- Once replicated VM is failed over, options exist:
  - Failback
  - Commit failover
  - Undo failover
- Intelligence on disk differences
VM consistency techniques

- For Windows VMs; Veeam’s VSS requestor is available
- For Linux VMs; VMware Tools Quiescence is available
- Application consistency on replications as well
How replication fits into DR strategies

- Additional level of recovery
  - Very short RPO and RTO comparatively
  - Good solution for a number of VMs
  - Supplement to local backups, copying backup files
- Same interface as Veeam backup jobs
  - If you are using Veeam for backup, replication is included at no additional cost
Questions?

- For more information, contact Veeam!
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- Demos: [http://vee.am/demos](http://vee.am/demos)
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