Symantec NetBackup Blueprints
Blueprint for Microsoft Active Directory

Symantec Education Services
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Notice

This NetBackup Blueprint presentation includes example diagrams that contain objects that represent applications and platforms from other companies such as Microsoft and VMware. These diagrams may or may not match or resemble actual implementations found in end user environments. Any likeness or similarity to actual end user environments is completely by coincidence.

The goal of the diagrams included in this blueprint presentation is not to recommend specific ways in which to implement applications and platforms from other companies such as Microsoft and VMware; the purpose of these diagrams is to illustrate NetBackup best practices only.

For guidelines and best practices on installing and configuring applications and platforms from other companies, please refer to best practice documentation and other resources provided by those companies.
These **Blueprints** are designed to show customer challenges and how NetBackup solves these challenges.

- Each **Blueprint** consists of:
  - **Pain Points**: What challenges a customer faces
  - **Whiteboard & Example Diagram**: Shows how NetBackup solves the customer challenges
  - **Advantages**: Summarizes the NetBackup advantages

- Use these **Blueprints** to:
  - Understand the customer challenges and how NetBackup solves them
  - Present the NetBackup best practice solution
Pain Points
• The recovery process is tedious and difficult.

• The entire system state needs to be restored; increases downtime.

• Active Directory authoritative restores require the use of command-line system tools, such as NTDSUTIL.

• The Domain controller has to be disconnected from the network during an Authoritative restore. This prevents users from accessing the network resources during the recovery.

• The Domain Controller must be rebooted at least twice, creating additional downtime and risk.

• Restoring a Domain Controller to dissimilar hardware may present a variety of issues.
NetBackup Advantages
NetBackup Microsoft Active Directory (AD) backs up the Active Directory online and enables the granular restores of AD objects from a single pass AD backup.

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>DETAILS</th>
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<tbody>
<tr>
<td>Granular restores of Active Directory data</td>
<td>Granular recovery includes the ability to recover all items with full attributes. For example, users, servers, and printers. Day-to-day and Disaster recovery (DR) restores can be performed with a single backup image.</td>
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<tr>
<td>Eliminates the need to reboot the AD server</td>
<td>Minimizes downtime and keep the applications up and running.</td>
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<tr>
<td>Ease of use and control</td>
<td>Leverages Microsoft VSS system state backup for ease of use and control.</td>
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</table>
Whiteboards and Diagrams
<table>
<thead>
<tr>
<th>TERM</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>Active Directory (AD)</td>
<td>AD is Microsoft's directory service that is available with Windows servers. It is a centralized system that automates network management of user data, security, and distributed resources. Microsoft Exchange, SQL, and SharePoint depend upon AD.</td>
</tr>
<tr>
<td>Granular Recovery Technology (GRT)</td>
<td>GRT enables individual objects to be restored from a one-pass full backups. GRT is supported for Microsoft Exchange, Microsoft SharePoint, and Active Directory backups.</td>
</tr>
<tr>
<td>Network File System (NFS)</td>
<td>NFS is a widely recognized, open standard for client and server file access over a network. It allows clients to access files on dissimilar servers through a shared TCP/IP network. NFS is typically bundled with the host operating system. NetBackup uses GRT and NFS to recover the individual objects that reside within a database backup image.</td>
</tr>
<tr>
<td><strong>TERM</strong></td>
<td><strong>DESCRIPTION</strong></td>
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<tr>
<td>-------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Lightweight Directory Access Protocol (LDAP)</td>
<td>It is an application protocol used over an IP network to manage and access the distributed directory information service.</td>
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<tr>
<td>Active Directory Application Mode (ADAM)</td>
<td>It is a new mode of Active Directory that is designed specifically for directory-enabled applications. ADAM is a Lightweight Directory Access Protocol (LDAP) directory service that runs as a user service, rather than as a system service. It provides flexible support for directory enabled applications.</td>
</tr>
<tr>
<td>Active Directory Lightweight Directory Services (AD/LDS)</td>
<td>Formerly known as Active Directory Application Mode (ADAM). It can provide directory services for directory-enabled applications without incurring the overhead of domains and forests.</td>
</tr>
<tr>
<td>TERM</td>
<td>DESCRIPTION</td>
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<tr>
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</tr>
<tr>
<td>System State</td>
<td>System State includes the registry, the COM+ Class Registration database, boot and system files. If the server is a domain controller, the data also includes the Active Directory database and the SYSVOL directory.</td>
</tr>
</tbody>
</table>
Active Directory granular NetBackup restores are supported on the following systems:

- Windows Server 2003 R2 SP 2
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2

Master server, media server, and clients must all have NetBackup 6.5.4 or later installed. In addition, they all must be at the same level.

Network File System (NFS) must be installed on the media server and all the Active Directory domain controllers or ADAM/LDS hosts.

NetBackup Client Service must be configured to log on as an account with domain privileges on the AD or ADAM server.
NetBackup for Active Directory agent is installed along with the NetBackup client software. No separate installation is required. A valid license for the agent must exist on the master server.

One **Application & Database Pack** license is required for each Active Directory domain that requires granular, object-level restores of AD objects.

Full database recovery of Active Directory is included with the Standard Client license.
Example Diagram: **Active Directory**

**Host properties**

- If corrupt data is found and if the **Consistency Check** ... option is not selected, the job fails.
- Use while backing up the currently selected Windows Server 2008 clients.
Whiteboards: Active Directory
GRT Backup process

1. Database is backed up to disk
2. Disk image is mounted to Active Directory server using NFS
3. Active Directory is enumerated and structure is stored in catalog
Example Diagram: Active Directory
Configuring policies for AD granular restores

Policy type must be MS-Windows

The Enable granular recovery option for AD granular restores must be set.

Granular-level restores can be performed only if the backup is written to a disk storage unit.

Include ADAM: \ directive in the backup selection to protect ADAM/AD LDS data on computers where it is installed. This directive does not include Active Directory.

AD items are only fully backed up.

To back up AD, select any one of the following directives:
System State: \ Shadow Copy Components: \ OR ALL_LOCAL_DRIVES
Example Diagram: **Active Directory**

Restoring System State

Complete disaster recovery of a domain controller

Full Active Directory restore, such as when restoring AD schema

When AD GRT is not configured in the backup policy or if the storage unit (such as media manager storage units) does not support GRT restores.
Example Diagram: **Active Directory Restoring System State**

1. **Select System State**

2. **Select System State to Restore**

3. **Restore System State**

   - **Destination Options**
   - **Restore Everything to Its Original Location**

   - **Restore Options**
   - **Overwrite Existing Files**

   - **Start Restore**
Example Diagram: **Active Directory**

Restoring Active Directory objects

1. Select the objects to be restored.
2. NetBackup History: For time range 12/31/1969 7:00:00 PM to 11/24/2015 8:25:03 AM

3. NetBackup restores deleted objects from the Active Directory Deleted Objects container. Deleted objects that are no longer in the Active Directory Deleted Objects container can be restored if the following check box is selected:

   - Recreate deleted objects that cannot be restored from the Active Directory Deleted Objects container.
### Debug Logging: Active Directory

#### Debug logs and their locations

<table>
<thead>
<tr>
<th>LOG NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>
| **bpbkar** | The **backup and archive manager** (bpbkar) is used to read client data, which is sent to the media server to write to the storage media.  
Windows: `install_path\NetBackup\logs\bpbkar`  
UNIX: `/usr/openv/netbackup/logs/bpbkar` |
| **nbfsd** | The **NetBackup File System** (nbfs) service runs on the media server. NBFSD makes a NetBackup backup image appear as a file system folder to the NetBackup client over a secure connection. |
| **bpbrm** | The **NetBackup backup and restore manager** (bpbrm) manages the client and bptm process. It also uses the error status from the client and from bptm to determine the final status of backup and restore operations.  
Windows: `install_path\NetBackup\logs\bpbrm`  
UNIX: `/usr/openv/netbackup/logs/bpbrm` |
## Debug Logging: Active Directory

Debug logs and their locations (continued)

<table>
<thead>
<tr>
<th>LOG NAME</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>bpdbm</strong></td>
<td>The <strong>NetBackup Database Manager</strong> (bpdbm) manages the configuration, error, and file databases.</td>
</tr>
<tr>
<td></td>
<td>Windows: <code>install_path\NetBackup\logs\bpdbm</code> UNIX: <code>/usr/openv/netbackup/logs/bpdbm</code></td>
</tr>
<tr>
<td><strong>bprd</strong></td>
<td>The <strong>NetBackup request daemon</strong> (bprd) responds to client and administrative requests for backups, restores, and archives.</td>
</tr>
<tr>
<td></td>
<td>Windows: <code>install_path\NetBackup\logs\bprd</code> UNIX: <code>/usr/openv/netbackup/logs/bprd</code></td>
</tr>
<tr>
<td><strong>tar</strong></td>
<td>The <strong>Tape Archive program</strong> (tar) writes restore data to the client disk.</td>
</tr>
<tr>
<td></td>
<td>Windows: <code>install_path\NetBackup\logs\tar</code> UNIX: <code>/usr/openv/netbackup/logs/tar</code></td>
</tr>
</tbody>
</table>
### GRT BACKUPS
- Bpbkar
- nbfsd: This log is present on the client and the media server.

### NON GRT RESTORES
- Bpbrm
- bpbm
- bprd
- tar

### GRT RESTORES
- bpdbm
- bpbrm
- bprd
- nbfsd: This log is present on the client and the media server.
Life Preservers
When restoring user objects, you must reset the object's user password and enable the object's user account:

- For AD user objects, use the Microsoft Active Directory Users and Computers.
- For ADAM/AD LDS user objects, use ADSI Edit.

Computer object credentials change every 30 days and the credentials from the backup may not match the credentials that are stored on the actual computer.

NetBackup does not support granular restores of Group Policy Objects.

To restore Active Directory group membership links may require that the restore job be run twice.

Distributed File System, which is a part of Shadow Copy components should be backed up as a separate option and excluded from the Active Directory backup.
Can you restore user group memberships without restoring the user?

• Yes, it is possible. Note that the restore operation requires the **Overwrite existing files** radio button for the restore operation initiated through the BAR GUI to retrieve the deleted attributes. Else, the deleted group membership is not retrieved.

Can you limit the NBU client service with certain permissions?

• For AD GRT it is required that the NetBackup Legacy Client Service (bpinetd) on the DC runs under the context of domain admin credentials as documented in the following article: [http://www.symantec.com/docs/HOWTO34116](http://www.symantec.com/docs/HOWTO34116)

Can you restore the entire schema?

• It is possible to restore the entire schema. One method is to restore the entire AD (Full System State). This takes the AD schema back to the point of the image backup. However, if the environment involves multiple DCs, there could be challenges involved. AD GRT operations are always authoritative.
Can you restore individual Sites and Services?

- Yes, Individual sites and services data can be restored using AD GRT.

Can you do a full DC recovery without taking the DC offline?

- A full DC recovery implies complete System State recovery, which includes AD. This requires the DC to be taken offline into DSRM.
Best Practices: Active Directory
Top Support Technotes

• NetBackup 7.6 Administrator's Guide Volume 1
  http://www.symantec.com/docs/DOC6452
• NetBackup 7.x hardware compatibility list (HCL)
  http://www.symantec.com/docs/TECH76495
• NetBackup 7.x operating system compatibility list
  http://www.symantec.com/docs/TECH76648
• 7.6 Troubleshooting Guide
  http://www.symantec.com/docs/DOC6470
Thank You!

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