Objectives

* Know the benefits of having storage pool
* Configure storage pools

##### Read about “Use Storage Spaces and storage pools” pages 274 through 279 of e-book “Exam Ref MD-100 Windows 10 - Exam Ref ". As you read, make note of important information and summarize the notes in bullet points. Have a minimum of two notes for each page

##### Use Storage Spaces and storage pools :

* Storage Spaces is a technology that is useful for desktop or server devices that have multiple hard disks that can be combined to provide storage redundancy by pooling separate disks and allowing Storage Spaces to manage their administration effectively.
* Storage Spaces uses NTFS and the ReFS file format to configure volumes, which provides greater file resilience through ReFS self-healing capabilities. The redundancy aspects are derived by distributing data across several disk drives and using virtual disk arrays in a RAID configuration or as mirror sets. The operating system maintains the logical disks and presents the virtualized disk as a logical unit number (LUN), which the system can then access. You might have seen the LUN terminology before; it is a term used with Storage Area Network protocols such as Fibre Channel or iSCSI.
* **Get-VHDSet** Obtains information about a VHD Set file such as a list of all checkpoints that the set contains.
* **Optimize-VHDSet** Optimizes the allocation of space that VHD Set files use when used with the compact operation to optimize the files. Reclaims unused space and rearranges blocks, normally reducing the size of a VHD file.
* **Thin provisioning** Enables you to allocate an intended storage that has greater capacity than is physically present at the time of creation. If you over-specify the amount of capacity compared to the data you currently have, the storage space engine disregards the extra storage capacity until datasets grow to require the storage. At this point, the extra storage is allocated. At any point, you increase the maximum size of an existing storage space and add drives as they are required at a later date. Thin provisioning is more economical and efficient because it allows organizations to deploy physical storage only when needed, thereby saving on operating costs, such as datacenter rack space costs associated with storing unused drives in situ.
* **Fixed provisioning** Similar to traditional fixed storage allocation methods, by which you specify that the spaces will not increase beyond the initial storage capacity allocated at the same time as storage space creation. With fixed provisioning, you specify the hard limit for the size of the storage pool.

**Configure Storage Spaces:**

* Select **Start**, enter **Storage Spaces**, and then select **Manage Storage Spaces**.
* Select **Create a new pool and storage space**.
* If prompted, accept the UAC prompt.
* Select the drives you want to add
* After the storage pool has been created, the Manage Storage Spaces console manages and maintains it within Control Panel, where you can add, rename, or delete drives. If a physical disk is removed permanently from the pool, it must be reformatted before it can be used in another PC. Just like with mirrored or RAID disk sets, if you need to move the pooled disks to another computer, always move them as a unit so that their integrity is maintained.
* As part of your exam preparation, create a storage space, provision a storage pool, and simulate a drive failure. In [Figure 3-34](https://jigsaw.vitalsource.com/books/9780137472147/epub/OEBPS/xhtml/ch03.xhtml#ch03fig34), one of the physical drives used to create the storage space has been disconnected from the computer. Even with only one drive, the E drive continues to be available within File Explorer, and applications and users will be unaware of the failure until they review any notification in the Action Center.

**Manage Storage Spaces by using Windows PowerShell:**

* You can script the creation, repair, and administration of Storage Spaces by using Windows PowerShell. There are many more storage management–specific cmdlets that relate to storage operations

1. Add three hard disks to your server VM and configure ONLY one storage pool using the newly added disks. Document the steps in details. You can use the reference links below.

|  |  |
| --- | --- |
| Add new hard disk | A picture containing text, screenshot, indoor, computer  Description automatically generated |
| Chose scsi | A screenshot of a computer  Description automatically generated |
| Next |  |
| Keep your capacity 5 or more | A screenshot of a computer  Description automatically generated |
| All 3 disk add it now | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Create new pool | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Name the pool | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| Next | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Create the pool | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Right click in the pool and add a virtual hard disk | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Next | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Simple and next | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Give space | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Create | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| And create | A screenshot of a computer  Description automatically generated |
| Next | A screenshot of a computer  Description automatically generated |
| Give size for wizard | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| Give letter here is e | A screenshot of a computer  Description automatically generated |
| Click next | A screenshot of a computer  Description automatically generated |
| Create wizard | A screenshot of a computer  Description automatically generated |
| All set | A screenshot of a computer  Description automatically generated |
|  |  |

1. Use GPO to map the storage pool drive you create in task 2 as a network drive for all domain users. Document the steps in details. You can use the reference links below.

|  |  |
| --- | --- |
| Create new policy and go to edit then go to drive maps in users configuration | A picture containing text, screenshot, monitor, computer  Description automatically generated |
| Put the path for hard disk and give him a letter | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| Go to targeting | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| Click in new item and go to security group | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| Go to browse to give permission for all users domain | A picture containing text, screenshot, monitor, indoor  Description automatically generated |
| All set , as a picture we can see the new drive with letter h in client computer | A picture containing text, monitor, screenshot, computer  Description automatically generated |
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