Implementing Storage Spaces/ Implementing Data Deduplication

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Lab Summary 4

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Implementing Storage Spaces/ Implementing Data Deduplication

Storage Spaces is a storage virtualization feature built into Windows Server 2016. There are two components: storage pools and storage spaces. There are two different scenarios in this lab. The first scenario is to create storage space. Since there is no hardware-based RAID card, the administrator should create a storage pool. Also, storage pools are physical disk groups that aggregated into a single logical disk so that the admin can manage multiple physical disks as one single disk. The storage should have high-availability and redundancy with a three-way mirrored volume. Also, the storage tiering should be implemented and configured by mixing SSD and HDD. The other lab is to implement data deduplication to maximize storage availability.

The management has purchased a number of hard disk drives (HDDs) and SSDs. Utilizing both SSDs and HDDs can meet both cost and performance requirements. If only using HDD, the capacity would suffice, but the performance would not. Deploying SSDs only provides maximum performance with lower capacity. This is the reason both HDDs and SSDs should be deployed to achieve the best capacity and performance within the range of budget. To create a storage pool, the administrator should use Hyper-V virtual machines.

In this case, three-way mirrored virtual disks are created because it has more redundancy than two-way mirrored virtual disks do. Since there are three copies of data, two disks could be corrupted, and the backup is still available. The three-way mirrored virtual disks provide a high redundancy solution, whereas there are other disadvantages. It should have at least five physical disks. If not, two-way mirrored virtual disks would be the solution. By using Server Manager, the first six disks in the physical disks are selected as a storage pool. The three-way mirrored virtual disks should have at least five disks to be created, as mentioned. Once the three-way mirrored

virtual disks are deployed, the admin copies a text file and remove the sixth physical drive to examine if the text file is removed when the disk failure happened.

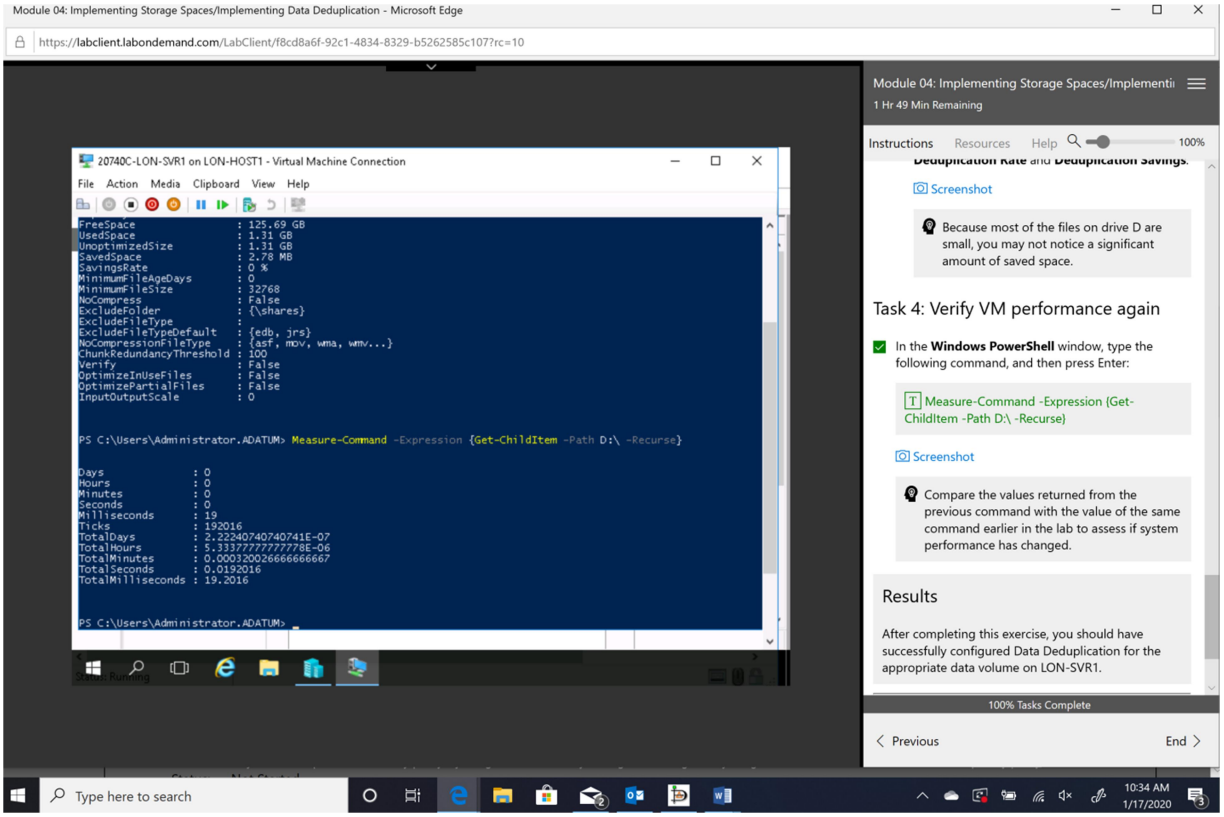
The next task is to enable and configure storage tiering. This feature might not be needed for a small amount of data in the storage spaces. Since the company is the corporation-level enterprise, it should have the storage tiering for both HDDs and SSDs. It also helps maximize the capacity of the storage and the performance as well.

Another method to maximize storage availability is to implement data deduplication. Since data deduplication helps remove all the duplications of data in the storage, it can create more space with more data. Before configuring data deduplication, the admin should check the status of data deduplication and how the virtual machine performs so that they can be verified how the data deduplication helps increase the storage space.

Data deduplication tends to run as a background task with low-priority by identifying and compressing the duplicate chunks and replacing redundant copies. It can be configured through the Server Manager by setting the Deduplication Schedule. Also, PowerShell prompt can configure to start data deduplication manually.

There are many components in this lab. The main goal of the lab is, however, to maximize the storage spaces and maintain high performance. Three-way mirrored virtual disks and data deduplication are the components to increase more spaces; the storage tiering is to bring the performance as high as it could.

Grammarly processed


Module 04: Implementing Storage Spaces/Implementing Data Deduplication - Microsoft Edge
https://labclient.labondemand.com/LabClient/f8cd8a6f-92c1-4834-8329-b5262585c107?rc=10
20740C-LON-SVR1 on LON-HOST1 - Virtual Machine Connection
File Action Media Clipboard View Help
FreeSpace : 125.69 GB
UsedSpace : 1.31 GB
UnoptimizedSize : 1.31 GB
SavedSpace : 2.78 MB
SavingsRate : 0 %
MinimumFileAgeDays : 0
MinimumFileSize : 32768
NoCompress : False
ExcludeFolder : {\shares}
ExcludeFileType :
ExcludeFileTypeDefault : {edb, jrs}
NoCompressionFileType : {asf, mov, wma, wmv...}
ChunkRedundancyThreshold : 100
Verify : False
OptimizeInUseFiles : False
OptimizePartialFiles : False
InputOutputScale : 0
PS C:\Users\Administrator.ADATUM> Measure-Command -Expression {Get-ChildItem -Path D:\ -Recurse}
Days : 0
Hours : 0
Minutes : 0
Seconds : 0
Milliseconds : 19
Ticks : 192016
TotalDays : 2.22240740740741E-07
TotalHours : 5.33377777777778E-06
TotalMinutes : 0.000320266666666667
TotalSeconds : 0.0192016
TotalMilliseconds : 19.2016
PS C:\Users\Administrator.ADATUM>
Module 04: Implementing Storage Spaces/Implementi
1 Hr 49 Min Remaining
Instructions Resources Help 100%
Screenshot
Because most of the files on drive D are small, you may not notice a significant amount of saved space.
Task 4: Verify VM performance again
In the Windows PowerShell window, type the following command, and then press Enter:
Measure-Command -Expression {Get-ChildItem -Path D:\ -Recurse}
Screenshot
Compare the values returned from the previous command with the value of the same command earlier in the lab to assess if system performance has changed.
Results
After completing this exercise, you should have successfully configured Data Deduplication for the appropriate data volume on LON-SVR1.
100% Tasks Complete
Previous
End
Type here to search
10:34 AM
1/17/2020