**Test run - 7th March 2024**

* VM
  + Created a Windows Server 2022 DC with hotpatch VM on a D2ads\_v5 VM in Azure + 500GB Data Disk (Premium SSD), 2300 IOPS, 150MB/s throughput, no caching.
  + Note, there are very few Dv5 machine skus available at the moment for testing, D2a series does supported nested
  + Installed PowerShell 7.4.1 following Microsoft Learn ([here](https://learn.microsoft.com/en-us/powershell/scripting/install/installing-powershell-on-windows?view=powershell-7.4)) using the MSI package - this would be the most common scenario for any customer. MSI would likely be deployed through a package manager e.g. SCCM
  + Started PowerShell 7.4.1 as administrator (powershell version confirmed)
* Azure
  + Storage account created (stwinwsltestaccount) - hierarchical namespace and NFSv3 enabled, hot, LRS, public access selected networks, soft delete disabled, standard encryption, general purpose v2
  + Container created (wsltest) - default settings
* VM
  + Ran: Install-Module -Name WSLBlobNFS -Scope CurrentUser -No issues
  + Ran: Import-Module -Name WSLBlobNFS -Force -No issues
  + Ran: Get-Command -Module WSLBlobNFS
    - A screen shot of a computer

      Description automatically generated
  + Ran: Get-Help -Full -Name on each command - No issues
  + Ran: Install-WSLBlobNFS
    - this failed with error "This module installation is not supported on Powershell Core. Please use Powershell Desktop edition"
    - **Suggest**: README update - current documentation says "This module is currently only supported on Powershell Desktop and not on Powershell Core (PS 7)". This suggests that there should be a desktop version of Powershell 7. Might I suggest reworking this to:
      * "This module is currently on supported on Powershell 5.1 (Powershell Desktop) and does not currently support Powershell 7+ (Core)"
    - **Suggest:** make the code returned error message similar

**Test failed at this point** - Unable to locate the desired version of powershell.  This is likely where a customer would run into issues.

Finding this [document](https://learn.microsoft.com/en-us/powershell/module/microsoft.powershell.core/about/about_powershell_editions?view=powershell-7.4) - "Desktop, which runs on .NET Framework. PowerShell 4 and below, as well as PowerShell 5.1 are available for full-featured Windows editions like Windows Desktop, Windows Server, Windows Server Core and most other Windows operating systems. This is the original PowerShell edition and is included in the default installation of the operating system."

This seems to suggest that you need to use Powershell 5.1, not Powershell 7 as the README suggests.

Testing this:

A screenshot of a computer program

Description automatically generated

Restarting the tests at Step 1:

* + Ran: Install-Module -Name WSLBlobNFS -Scope CurrentUser    -No issues
  + Ran: Import-Module -Name WSLBlobNFS -Force    -No issues
  + Skipped the Get-Help and Get-Command steps
  + Ran: Install-WSLBlobNFS -No Issues
    - **Suggest**: Can a parameter be added to eliminate prompts
    - **Suggest**: Can a parameter be added to prevent a restart
    - Together this would allow something like a build agent (SCCM for example) to automate the process.
  + Ran: Initialize-WSLBlobNFS -No Issues
    - **Suggest**: Can a parameter be added to eliminate prompts to allow this to be automated by a build agent
    - **Suggest**: Not sure if this is possible, but perhaps have parameters to take a username and password and provide it to Ubunto so it does not request it during the install
    - **Suggest**: Again not sure if it is possible, but the Initialize step leave the user in the ubuntu command prompt. Users unfamiliar with ubuntu, might get confused. Alternatively add some detail around this to the documentation. Plus if it returns to the powershell prompt, then again this step can be automated.
    - You also need to exit the ubuntu command prompt in order for the script to continue. This does need clearer documentation.
  + Ran: Mount-WSLBlobNFS -RemoteMount "stwinwsltestaccount.blob.core.windows.net/stwinwsltestaccount/wsltest"   -Success
    - Suggest: There is a tripping point here as this is a linux format for the remote mount. that specific tripping point is the Colon i.e. ":". Might be worth creating a troubleshooting document that covers this as it is easy to miss.

**Tests Run**

**MB sized file write and read test**

1. A set of random files were created ranging from 50Mb to 150Mb all with random names
2. The file transfer was measured first to write the data first to the Blob storage, Then read from the blob storage to a new folder
3. Test Output

| Info | Test Run 1 | Test Run 2 | Test run 3 |
| --- | --- | --- | --- |
| Files Copied | 100 | 100 | 100 |
| Total write transfer time | 176.19 | 170.93 | 159.47 |
| Total MB written/read | 9559 | 10051 | 9886 |
| Average write throughput seconds/file | 1.76 | 1.71 | 1.59 |
| Average write throughput MB/s | 54.26 | 58.81 | 62 |
| Total read transfer time | 102 | 104 | 99.9 |
| Average read throughput seconds/file | 1.02 | 1.04 | 0.99 |
| Average read throughput MB/s | 93.71 | 95.91 | 98.96 |

Average CPU usage was hovering around the 50-60% mark for Write, and 80-90% mark for Read

**GB sized file write and read test**

1. A set of random files were created ranging from 2GB to 5GB all with random names
2. The file transfer was measured first to write the data first to the Blob storage, Then read from the blob storage to a new folder
3. Test Output

| Info | Test Run 1 | Test Run 2 | Test run 3 |
| --- | --- | --- | --- |
| Files Copied | 20 | 20 | 20 |
| Total write transfer time | 556 | 492 | 575 |
| Total MB written/read | 61661 | 54699 | 58402 |
| Average write throughput seconds/file | 27.82 | 24.63 | 28.75 |
| Average write throughput MB/s | 110.81 | 111.03 | 101.54 |
| Total read transfer time | 495 | 459 | 490.5 |
| Average read throughput seconds/file | 24.75 | 22.99 | 24.52 |
| Average read throughput MB/s | 124.57 | 118.93 | 119.07 |

Average CPU usage was hovering around the 70-80% mark for Write, and 90-100% mark for Read

**Small file write and read test**

1. A set of random files were created ranging from 1MB to 5MB all with random names
2. The file transfer was measured first to write the data first to the Blob storage, Then read from the blob storage to a new folder
3. Test Output

| Info | Test Run 1 | Test Run 2 | Test run 3 |
| --- | --- | --- | --- |
| Files Copied | 100 | 100 | 100 |
| Total write transfer time | 92.1 | 83.31 | 100.37 |
| Total MB written/read | 99.4 | 98.9 | 104.39 |
| Average write throughput seconds/file | 0.92 | 0.83 | 1.0 |
| Average write throughput MB/s | 1.08 | 1.19 | 1.04 |
| Total read transfer time | 7.44 | 7.34 | 8.4 |
| Average read throughput seconds/file | 0.07 | 0.07 | 0.08 |
| Average read throughput MB/s | 12.36 | 13.46 | 12.42 |

Average CPU usage was hovering around the 70-80% mark for Write, and 80-90% mark for Read