

26-11-2021

INSTALACIÓN DE NFS EN LA NUBE UTILIZANDO COMUNICACIÓN SEGURA

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Desarrollo de Sistemas Distribuidos
PINEDA GUERRERO CARLOS

Introducción

Tomando como base la actividad que realizamos en clase, dónde instalamos NFS en dos máquinas virtuales en la nube, realizar el siguiente procedimiento:

- Crear tres máquinas virtuales con Ubuntu 18 en la nube de Azure.
- En una máquina virtual instalar un servidor NFS y en dos máquinas virtuales instalar clientes NFS.
- Crear en el servidor el directorio (punto de montaje del servidor): /var/servidor
- Crear en cada cliente el directorio (punto de montaje en el cliente): /cliente
- En el cliente 1 crear un archivo de texto llamado "archivo.txt" en el directorio /cliente
- Agregar al archivo "archivo.txt" el texto "esta es una prueba de NFS" y guardar el archivo.
- En el cliente 2 desplegar el contenido del archivo /cliente/archivo.txt utilizando el comando "more"
- Configurar cada cliente para que inicie NFS al momento encender la computadora.
- Apagar y encender cada cliente.
- En el cliente 1 desplegar el archivo /cliente/archivo.txt utilizando el comando "more"
- En el cliente 2 desplegar el archivo /cliente/archivo.txt utilizando el comando "more"
- En el cliente 2 modificar el archivo /cliente/archivo.txt, agregar al archivo el siguiente texto: "estamos agregando texto al archivo"
- En el cliente 1 desplegar el archivo /cliente/archivo.txt utilizando el comando "more"
- En el cliente 1 eliminar el archivo /cliente/archivo.txt utilizando el comando "rm"
- En el cliente 1 desplegar el contenido del directorio /cliente utilizando el comando "ls"
- En el cliente 2 desplegar el contenido del directorio /cliente utilizando el comando "ls"
- Se deberá implementar la comunicación segura entre los clientes y el servidor.

Desarrollo

Máquinas virtuales: nodo 0

Create a virtual machine - Microsoft Azure

Subscription: Azure for Students

Resource group: (New) SNFS_GROUP

Virtual machine name: SNFS2019630143-0

Region: (US) East US

Availability options: No infrastructure redundancy required

Security type: Standard

Image: Ubuntu Server 18.04 LTS - Gen1

Size: Standard_B1s - 1 vcpus, 1 GiB memory (MX\$160.19/month)

Review + create < Previous Next: Disks >

Create a virtual machine - Microsoft Azure

Authentication type: Password

Username: usuario

Password: (redacted)

Confirm password: (redacted)

Inbound port rules:

Public inbound ports: Allow selected ports

Select inbound ports: SSH (22)

Warning: This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

Review + create < Previous Next: Disks >

Nombre y SSH activado

Create a virtual machine - Microsoft Azure

portal.azure.com/#create/Microsoft.VirtualMachine

Microsoft Azure

Home > Virtual machines > Create a virtual machine

Basics Disks Networking Management Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

Disk options

OS disk type * Standard HDD (locally-redundant storage)

Choose Premium SSD disks for lower latency, higher IOPS and bandwidth, and bursting. Single instance virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA. [Learn more](#)

Encryption type * (Default) Encryption at-rest with a platform-managed key

Enable Ultra Disk compatibility

Ultra disk is supported in Availability Zone(s) 1,2,3 for the selected VM size Standard_B1s.

Data disks

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching
1	Data Disk 1	100	Standard SSD	None

[Create and attach a new disk](#) [Attach an existing disk](#)

Review + create < Previous Next : Networking >

Disco HDD

Create a virtual machine - Microsoft Azure

portal.azure.com/#create/Microsoft.VirtualMachine

Microsoft Azure

Home > Virtual machines > Create a virtual machine

Basics Disks Networking Management Advanced Tags Review + create

Configure monitoring and management options for your VM.

Azure Security Center

Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

Your subscription is protected by Azure Security Center basic plan.

Monitoring

Boot diagnostics Enable with managed storage account (recommended) Enable with custom storage account Disable

Enable OS guest diagnostics

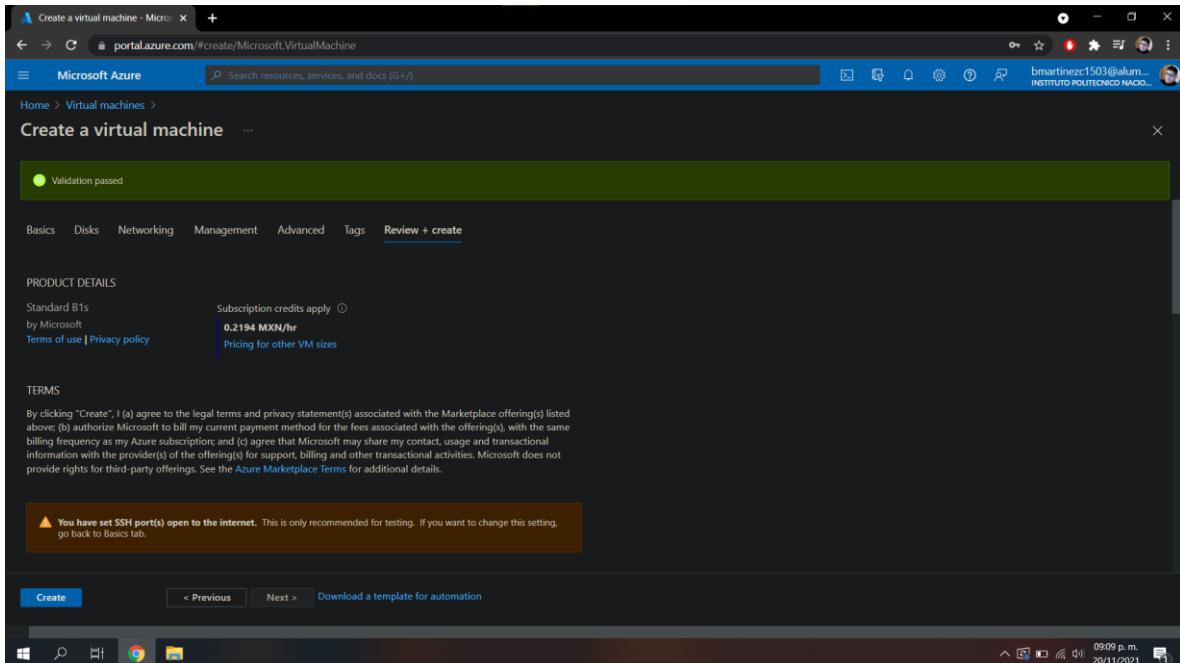
Identity

System assigned managed identity

Azure AD

Review + create < Previous Next : Advanced >

Deshabilitado de los diagnósticos de inicio



Precio

SNFS2019630143-0 | Networking

Virtual machine

Search (Ctrl+F)

Attach network interface Detach network interface Feedback

snfs2019630143-0150

IP configuration Ipconfig1 (Primary)

Network Interface: snfs2019630143-0150 Effective security rules Troubleshoot VM connection issues Topology

Virtual network/subnet: SNFS_GROUP-vnet/default NIC Public IP: 20.124.252.213 NIC Private IP: 10.0.0.4 Accelerated networking: Disabled

Inbound port rules Outbound port rules Application security groups Load balancing

Network security group SNFS2019630143-0-nsg (attached to network interface: snfs2019630143-0150)
Impacts 0 subnets, 1 network interfaces

Priority	Name	Port	Protocol	Source	Destination	Action	...
300	SSH	22	TCP	Any	Any	Allow	...
310	puerto_nfs	2049	TCP	Any	Any	Allow	...
65000	AllowNetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow	...
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	Deny	...

Para el resto de las máquinas se hace lo mismo, lo único que cambia es el nombre, las tres pertenecen al mismo grupo, esto para fines de facilidad a la hora de borrar.

Preparación del NFS

```

usuario@SNFS2019630143:~ - System information as of Sun Nov 21 03:22:42 UTC 2021
System load: 0.0 Processes: 108
Usage of /: 4.7% of 28.90GB Users logged in: 0
Memory usage: 20% IP address for eth0: 10.0.0.4
Swap usage: 0%
0 updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc//*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

usuario@SNFS2019630143:~$ 

A SNFS2019630143 - A SNFS2019630143 - A SNFS2019630143 - + Microsoft Azure Search resources, services, and docs (G+)

  Essentials
Resource group (Move) SNFS_GROUP
Status Running
Location East US
Subscription (Move) Azure for Students
Subscription ID f98426e-fc9-4df6-8081-24249a3f5e16
Tags (Edit)
Click here to add some

Operating system Linux (ubuntu 18.04)
Size Standard B1s (1 vcpu, 1 GiB memory)
Public IP address 20.124.179.167
Virtual network/subnet SNFS_GROUP-vnet/default
DNS name Not configured

JSON View

usuario@SNFS2019630143:~ - System information as of Sun Nov 21 03:23:04 UTC 2021
System load: 0.08 Processes: 108
Usage of /: 4.7% of 28.90GB Users logged in: 0
Memory usage: 20% IP address for eth0: 10.0.0.5
Swap usage: 0%
0 updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc//*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

usuario@SNFS2019630143:~$ 

System information as of Sun Nov 21 03:23:24 UTC 2021
System load: 0.58 Processes: 113
Usage of /: 4.6% of 28.90GB Users logged in: 0
Memory usage: 20% IP address for eth0: 10.0.0.6
Swap usage: 0%
0 updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc//*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

usuario@SNFS2019630143:~$ 

```

0923 p.m. 20/11/2021

```

usuario@SNFS2019630143:~ - Get:12 http://azure.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [73.6 kB]
Get:13 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1766 kB]
Get:14 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [73.6 kB]
Get:15 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [73.6 kB]
Get:16 http://azure.archive.ubuntu.com/ubuntu bionic-updates/multiverse Translation-en [6880 B]
Get:17 http://azure.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [10.0 kB]
Get:18 http://azure.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [4764 B]
Get:19 http://azure.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [10.3 kB]
Get:20 http://azure.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [4588 B]
Get:21 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [1958 kB]
Get:22 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [1958 kB]
Get:23 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [516 kB]
Get:24 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [69.9 kB]
Get:25 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1150 kB]
Get:26 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [264 kB]
Get:27 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [20.9 kB]
Get:28 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [4732 B]
Fetched 23.9 MB in 5s (4850 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
9 packages can be upgraded. Run 'apt list --upgradable' to see them.

usuario@SNFS2019630143:~$ 

A SNFS2019630143 - A SNFS2019630143 - A SNFS2019630143 - + Microsoft Azure Search resources, services, and docs (G+)

  Essentials
Resource group (Move) SNFS_GROUP
Status Running
Location East US
Subscription (Move) Azure for Students
Subscription ID f98426e-fc9-4df6-8081-24249a3f5e16
Tags (Edit)
Click here to add some

Operating system Linux (ubuntu 18.04)
Size Standard B1s (1 vcpu, 1 GiB memory)
Public IP address 20.124.179.167
Virtual network/subnet SNFS_GROUP-vnet/default
DNS name Not configured

JSON View

usuario@SNFS2019630143:~ - Get:12 http://azure.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [73.6 kB]
Get:13 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1766 kB]
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Get:15 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [73.6 kB]
Get:16 http://azure.archive.ubuntu.com/ubuntu bionic-updates/multiverse Translation-en [6880 B]
Get:17 http://azure.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [10.0 kB]
Get:18 http://azure.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [4764 B]
Get:19 http://azure.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [10.3 kB]
Get:20 http://azure.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [4588 B]
Get:21 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [1958 kB]
Get:22 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [1958 kB]
Get:23 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [516 kB]
Get:24 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [69.9 kB]
Get:25 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1150 kB]
Get:26 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [264 kB]
Get:27 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [20.9 kB]
Get:28 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [4732 B]
Fetched 23.9 MB in 5s (4580 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
9 packages can be upgraded. Run 'apt list --upgradable' to see them.

usuario@SNFS2019630143:~$ 

A SNFS2019630143 - A SNFS2019630143 - A SNFS2019630143 - + Microsoft Azure Search resources, services, and docs (G+)

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Click here to add some

Operating system Linux (ubuntu 18.04)
Size Standard B1s (1 vcpu, 1 GiB memory)
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Virtual network/subnet SNFS_GROUP-vnet/default
DNS name Not configured

JSON View

usuario@SNFS2019630143:~ - Get:12 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [20.9 kB]
Get:13 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [4732 B]
Get:14 http://archive.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]
Get:15 http://archive.archive.ubuntu.com/ubuntu bionic/multiverse amd64 Packages [151 kB]
Get:16 http://archive.archive.ubuntu.com/ubuntu bionic/multiverse Translation-en [108 kB]
Get:17 http://archive.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [2304 kB]
Get:18 http://archive.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1955 kB]
Get:19 http://archive.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [549 kB]
Get:20 http://archive.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [73.6 kB]
Get:21 http://archive.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1766 kB]
Get:22 http://archive.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [381 kB]
Get:23 http://archive.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 Packages [27.3 kB]
Get:24 http://archive.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [10.0 kB]
Get:25 http://archive.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [4764 B]
Get:26 http://archive.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [10.3 kB]
Get:27 http://archive.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [4588 B]
Fetched 23.9 MB in 5s (4413 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
9 packages can be upgraded. Run 'apt list --upgradable' to see them.

usuario@SNFS2019630143:~$ 

```

0925 p.m. 20/11/2021

sudo apt update

```

usuario@SNFS2019630143:~$ Preparing to unpack .../libtirpc1_0.2.5-1.2ubuntu0.1_amd64.deb ...
Unpacking libtirpc1:amd64 (0.2.5-1.2ubuntu0.1) ...
Selecting previously unselected package rpcbind.
Preparing to unpack .../rpbind_0.2.3-0.6ubuntu0.18.04.4_amd64.deb ...
Unpacking rpbind (0.2.3-0.6ubuntu0.18.04.4)
Selecting previously unselected package nfs-common.
Preparing to unpack .../nfs-common_1:3.4-2.1ubuntu5.5_amd64.deb ...
Unpacking nfs-common (1:3.4-2.1ubuntu5.5) ...
Selecting previously unselected package nfs-kernel-server.
Preparing to unpack .../nfs-kernel-server_1:3.4-2.1ubuntu5.5_amd64.deb ...
Unpacking nfs-kernel-server (1:3.4-2.1ubuntu5.5) ...
Setting up libtirpc1:amd64 (0.2.5-1.2ubuntu0.1) ...
Setting up rpbind (0.2.3-0.6ubuntu0.18.04.4) ...
Created symlink /etc/systemd/system/multi-user.target.wants/rpcbind.service → /lib/systemd/system/rpcbind.
Created symlink /etc/systemd/system/sockets.target.wants/rpcbind.socket → /lib/systemd/system/rpcbind.
Setting up nfs-common (1:3.4-2.1ubuntu5.5) ...
Creating config file /etc/idmapd.conf with new version
[progress: 100% [=====] 100%]

```

```

usuario@SNFS2019630143:~$ Get:1 http://azure.archive.ubuntu.com/ubuntu bionic/main amd64 libnfsidmap2 amd64 0.25-5.1 [27.2 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libtirpc1 amd64 0.2.5-1.2ubuntu0.18.04.4 [42.1 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main amd64 rpcbind amd64 0.2.3-0.6ubuntu0.18.04.4 [206 kB]
Fetched 351 kB in 0s (7778 kB/s)
Selecting previously unselected package libnfsidmap2:amd64.
(Reading database ... 76986 files and directories currently installed.)
Preparing to unpack .../libnfsidmap2:amd64_0.25-5.1_amd64.deb ...
Unpacking libnfsidmap2:amd64 (0.25-5.1) ...
Selecting previously unselected package libtirpc1:amd64.
Preparing to unpack .../libtirpc1_0.2.5-1.2ubuntu0.1_amd64.deb ...
Unpacking libtirpc1:amd64 (0.2.5-1.2ubuntu0.1) ...
Selecting previously unselected package rpcbind.
Preparing to unpack .../rpbind_0.2.3-0.6ubuntu0.18.04.4_amd64.deb ...
Unpacking rpbind (0.2.3-0.6ubuntu0.18.04.4) ...
Selecting previously unselected package nfs-common.
Preparing to unpack .../nfs-common_1:3.4-2.1ubuntu5.5_amd64.deb ...
Unpacking nfs-common (1:3.4-2.1ubuntu5.5) ...

```

Suggested packages:
watchdog

The following NEW packages will be installed:
libnfsidmap2 libtirpc1 nfs-common rpcbind

0 upgraded, 4 newly installed, 0 to remove and 9 not upgraded.
Need to get 351 kB of archives.
After this operation, 1233 kB of additional disk space will be used.

Do you want to continue? [Y/n] Y

```

Get:1 http://azure.archive.ubuntu.com/ubuntu bionic/main amd64 libnfsidmap2 amd64 0.25-5.1 [27.2 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libtirpc1 amd64 0.2.5-1.2ubuntu0.18.04.4 [42.1 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main amd64 rpcbind amd64 0.2.3-0.6ubuntu0.18.04.4 [206 kB]
Fetched 351 kB in 0s (10.7 kB/s)
Selecting previously unselected package libnfsidmap2:amd64.
(Reading database ... 80%)

```

Instalación del NFS para el servidor y dos para el cliente

```

usuario@SNFS2019630143:~$ Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service + /lib/systemd/system/nfs-server.service.
Job for nfs-server.service canceled.
Creating config file /etc/exports with new version
Creating config file /etc/default/nfs-kernel-server with new version
Processing triggers for systemd (237-Subuntu18.0.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ 

```

```

usuario@SNFS2019630143:~$ Adding new user 'statd' (UID 111) with group 'nogroup' ...
Not creating home directory '/var/lib/nfs'.
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
Created symlink /etc/systemd/system/remote-fs.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
nfs-utils.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-Subuntu18.0.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ 

```

```

usuario@SNFS2019630143:~$ Adding new user 'statd' (UID 111) with group 'nogroup' ...
Not creating home directory '/var/lib/nfs'.
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
Created symlink /etc/systemd/system/remote-fs.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
nfs-utils.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-Subuntu18.0.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
usuario@SNFS2019630143:~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ 

```

Instalación del port map

```

usuario@SNFS2019630143:~ 
Creating config file /etc/exports with new version
Creating config file /etc/default/nfs-kernel-server with new version
Processing triggers for systemd (237-Subuntu0.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
usuario@SNFS2019630143:~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ sudo mkdir /var/servidor
usuario@SNFS2019630143:~$ sudo chown nobody:nogroup /var/servidor
usuario@SNFS2019630143:~$ sudo chmod 777 /var/servidor
usuario@SNFS2019630143:~$ 

usuario@SNFS2019630143:~ 
Not creating home directory '/var/lib/nfs'.
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
Created symlink /etc/systemd/system/remote-fs.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
nfs-utils.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-Subuntu0.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
usuario@SNFS2019630143:~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ sudo mkdir -p /cliente
usuario@SNFS2019630143:~$ 

usuario@SNFS2019630143:~ 
Not creating home directory '/var/lib/nfs'.
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
Created symlink /etc/systemd/system/remote-fs.target.wants/nfs-client.target + /lib/systemd/system/nfs-client.target.
nfs-utils.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-Subuntu0.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
usuario@SNFS2019630143:~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143:~$ sudo mkdir -p /cliente
usuario@SNFS2019630143:~$ 

A SNFS2019630143:~ | A SNFS2019630143:~ | A SNFS2019630143:~ + 
  ↵ https://portal.azure.com/#@correo.ipn.mx/resource/subscriptions/f... 
  Microsoft Azure | Search resources, services, and docs (G+) 
  Essentials JSON View 
  Resource group (Move) SNFS_GROUP 
  Status Running 
  Location East US 
  Subscription (Move) Azure for Students 
  Subscription ID f98426e-fc9-4df6-8081-24249a3f5e16 
  Tags (Edit) 
  Click here to add tags 
  09:32 p.m. 20/11/2021 

```

Creación de los directorios

```

usuario@SNFS2019630143:~ 
/etc(exports: the access control list for filesystems which may be exported
      to NFS clients. See exports(5).)
# Example for NFSv2 and NFSv3:
# /srv/nfs4   hostneme1(rw,sync,no_subtree_check) hostname2(ro,sync,no_subtree_check)
# Example for NFSv4:
# /srv/nfs4   gss/krb5i(rw,sync,fslid=0,crossmnt,no_subtree_check)
# /srv/nfs4/homes  gss/krb5i(rw,sync,no_subtree_check)
# /var/servidor localhost insecure rw sync no_subtree_check

/etc/exports" 11L, 448C           11,58          All 
(usuario@SNFS2019630143:~) 
(usuario@SNFS2019630143:~) 
(usuario@SNFS2019630143:~) 
  ↵ https://portal.azure.com/#@correo.ipn.mx/resource/subscriptions/f... 
  Microsoft Azure | Search resources, services, and docs (G+) 
  Essentials JSON View 
  Resource group (Move) SNFS_GROUP 
  Status Running 
  Location East US 
  Subscription (Move) Azure for Students 
  Subscription ID f98426e-fc9-4df6-8081-24249a3f5e16 
  Tags (Edit) 
  Click here to add tags 
  09:37 p.m. 20/11/2021 

```

Edición del archivo exports

```
usuario@SNFS2019630143-0: ~
usuario@SNFS2019630143-0: ~$ sudo exportsfs -ra
usuario@SNFS2019630143-0: ~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143-0: ~$
```

```
Not creating home directory '/var/lib/nfs'.
Created symlink '/etc/systemd/system/multi-user.target.wants/nfs-client.target' to '/lib/systemd/system/nfs-client.target'.
Created symlink '/etc/systemd/system/remote-fs.target.wants/nfs-client.target' to '/lib/systemd/system/nfs-client.target'.
nfs-utils.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-3ubuntu0.52) ...
Processing triggers for triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
usuario@SNFS2019630143-1: ~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143-1: ~$ sudo mkdir -p /cliente
usuario@SNFS2019630143-1: ~$
```

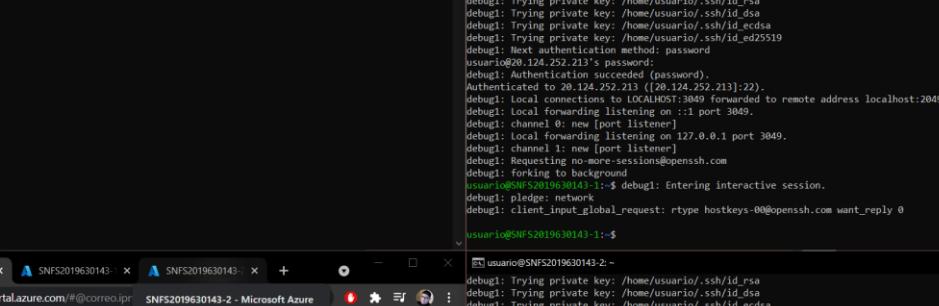
```
Not creating home directory '/var/lib/nfs'.
Created symlink '/etc/systemd/system/multi-user.target.wants/nfs-client.target' to '/lib/systemd/system/nfs-client.target'.
Created symlink '/etc/systemd/system/remote-fs.target.wants/nfs-client.target' to '/lib/systemd/system/nfs-client.target'.
nfs-utils.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-3ubuntu0.52) ...
Processing triggers for triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
usuario@SNFS2019630143-2: ~$ sudo apt install portmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'rpcbind' instead of 'portmap'
rpcbind is already the newest version (0.2.3-0.6ubuntu0.18.04.4).
rpcbind set to manually installed.
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
usuario@SNFS2019630143-2: ~$ sudo mkdir -p /cliente
usuario@SNFS2019630143-2: ~$
```

Configuración final del servidor

```
usuario@SNFS2019630143:~$ sudo exportsfs -ra
usuario@SNFS2019630143:~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143:~$
```

```
[ usuario@SNFS2019630143:~ ]+ debug1: SSH2_MSG_SERVICE_ACCEPT received
debug1: Authentications that can continue: publickey,password
debug1: Next authentication method: publickey
debug1: Trying private key: /home/usuario/.ssh/id_rsa
debug1: Trying private key: /home/usuario/.ssh/id_dsa
debug1: Trying private key: /home/usuario/.ssh/id_ecdsa
debug1: Trying private key: /home/usuario/.ssh/id_ed25519
debug1: Next authentication method: password
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: Local connections to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: Local forwarding listening on ::1 port 3049.
debug1: channel 0: new [port listener]
debug1: Local forwarding listening on 127.0.0.1 port 3049.
debug1: channel 1: new [port listener]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143:~$
```

```
[ usuario@SNFS2019630143:~ ]+ debug1: Trying private key: /home/usuario/.ssh/id_rsa
debug1: Trying private key: /home/usuario/.ssh/id_dsa
debug1: Trying private key: /home/usuario/.ssh/id_ecdsa
debug1: Trying private key: /home/usuario/.ssh/id_ed25519
debug1: Next authentication method: password
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: Local connections to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: Local forwarding listening on ::1 port 3049.
debug1: channel 0: new [port listener]
debug1: Local forwarding listening on 127.0.0.1 port 3049.
debug1: channel 1: new [port listener]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143:~$
```



Creación del túnel ssh

```

usuario@SNFS2019630143-0:~$ sudo exportfs -ra
usuario@SNFS2019630143-0:~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143-0:~$ 

[ usuario@SNFS2019630143-1: ~ ] 
^ debug1: Trying private key: /home/usuario/.ssh/id_rsa
debug1: Trying private key: /home/usuario/.ssh/id_ecdsa
debug1: Trying private key: /home/usuario/.ssh/id_ed25519
debug1: Next authentication method: password
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: local connections to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: local forwarding listening on ::1 port 3049.
debug1: channel 0: new [port listener]
debug1: channel 0: new [port listener]
debug1: channel 1: new [port listener]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143-1:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143-1:~$ sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente
debug1: Connection to port 3049 forwarding to localhost port 2049 requested.
debug1: channel 2: new [direct-tcpip]
usuario@SNFS2019630143-1:~$ 

[ usuario@SNFS2019630143-2: ~ ] 
debug1: Next authentication method: password
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: local connections to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: local forwarding listening on ::1 port 3049.
debug1: channel 0: new [port listener]
debug1: channel 1: new [port listener]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143-2:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143-2:~$ sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente
debug1: Connection to port 3049 forwarding to localhost port 2049 requested.
debug1: channel 2: new [direct-tcpip]
usuario@SNFS2019630143-2:~$ 

```

The screenshot shows a Windows desktop environment. In the center, there is a Microsoft Azure portal window displaying a virtual machine named "SNFS2019630143". To the left of the Azure window, there are two terminal windows. The top terminal window shows the command-line interface for mounting an NFS share from the local host to a directory named "/cliente". The bottom terminal window shows the log output of the NFS daemon, which includes messages about password authentication, port forwarding, and the successful creation of the "/cliente" directory.

Montado del directorio

Pruebas

```

usuario@SNFS2019630143-0:~$ sudo exportfs -ra
usuario@SNFS2019630143-0:~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143-0:~$ 

[ usuario@SNFS2019630143-1: ~ ] 
esta es una prueba de NFS.
[ usuario@SNFS2019630143-1: ~ ] 
-- INSERT -- 
1,26 A11

[ usuario@SNFS2019630143-2: ~ ] 
debug1: Next authentication method: password
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: Local connection to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: local forwarding listening on ::1 port 3049.
debug1: channel 0: new [port listener]
debug1: local forwarding listening on ::1 port 3049.
debug1: channel 1: new [port listener]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143-2:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143-2:~$ sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente
debug1: Connection to port 3049 forwarding to localhost port 2049 requested.
debug1: channel 2: new [direct-tcpip]
usuario@SNFS2019630143-2:~$ 

```

This screenshot is similar to the previous one, showing the same Windows desktop setup with the Azure portal and two terminal windows. The top terminal window now displays a test message "esta es una prueba de NFS.". The bottom terminal window continues to show the NFS daemon logs, including the successful mount operation and port forwarding details.

Creación y añadido de la línea en el archivo.txt

```

usuario@SNFS2019630143:~$ sudo exportfs -ra
usuario@SNFS2019630143:~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143:~$ 

[Terminal 2]
debug1: Trying private key: /home/usuario/.ssh/id_dsa
debug1: Trying private key: /home/usuario/.ssh/id_ecdsa
debug1: Trying private key: /home/usuario/.ssh/id_ed25519
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: local connections to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: local forwarding listening on ::1 port 3049.
debug1: channel 0: new [port listener]
debug1: channel 0: new [direct-tcpip]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143:~$ sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente
[Terminal 3]
debug1: Next authentication method: password
usuario@20.124.252.213's password:
debug1: Authentication succeeded (password).
Authenticated to 20.124.252.213 ([20.124.252.213]:22).
debug1: local connections to LOCALHOST:3049 forwarded to remote address localhost:2049
debug1: channel 0: new [port listener]
debug1: local forwarding listening on 127.0.0.1 port 3049.
debug1: channel 1: new [port listener]
debug1: Requesting no-more-sessions@openssh.com
debug1: forking to background
usuario@SNFS2019630143:~$ debug1: Entering interactive session.
debug1: pledge: network
debug1: client_input_global_request: rtype hostkeys-0@openssh.com want_reply 0
usuario@SNFS2019630143:~$ sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente
[Terminal 4]
debug1: Connection to port 3049 forwarded to localhost port 2049 requested.
debug1: channel 2: new [direct-tcpip]
usuario@SNFS2019630143:~$ vi /cliente/archivo.txt
esta es una prueba de NFS
usuario@SNFS2019630143:~$ 

[Microsoft Azure Portal]
Resource group (Move) SNFS_GROUP
Status Running
Location East US
Subscription (Move) Azure for Students
Subscription ID
Operating system Linux (ubuntu 18.04)
Size Standard B1s (1 vcpu, 1 GiB memory)
Public IP address 20.124.252.213
Virtual network/subnet SNFS_GROUP-vnet/default
DNS name

```

Visualización de contenidos

```

usuario@SNFS2019630143:~$ sudo exportfs -ra
usuario@SNFS2019630143:~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143:~$ 

[Terminal 2]
#!/bin/bash
runuser -l usuario -c 'sshpass -p "pass" ssh -p 3049 usuario@20.124.252.213;sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente'
exit

-- INSERT -- 3,7 All
[Terminal 3]
# /bin/bash
runuser -l usuario -c 'sshpass -p "pass" ssh -p 3049 usuario@20.124.252.213;sudo mount -t nfs -o port=3049 localhost:/var/servidor /cliente'
exit 0

-- INSERT -- 3,7 All

```

Contenido para montar automáticamente (la contraseña es otra, pero es para ejemplificar que ahí se puso al momento de guardarla)

```

usuario@SNFS2019630143-0:~$ sudo exportfs -ra
usuario@SNFS2019630143-0:~$ sudo systemctl restart nfs-kernel-server
usuario@SNFS2019630143-0:~$ 

usuario@SNFS2019630143-1:~$ sudo apt install sshpass
Reading package lists... Done
Building dependency tree...
Reading state information... Done
The following package was automatically installed and is no longer required:
linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
sshpass
0 upgraded, 1 newly installed, 0 to remove and 9 not upgraded.
Need to get 10.5 kB of archives.
After this operation, 30.7 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu Bionic/universe amd64 sshpass amd64 1.06-1 [10.5 kB]
Fetched 10.5 kB in 0s (585 kB/s)
Selecting previously unselected package sshpass.
(Reading database ... 77097 files and directories currently installed.)
Preparing to unpack .../sshpass_1.06-1_amd64.deb ...
Unpacking sshpass (1.06-1) ...
Setting up sshpass (1.06-1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
usuario@SNFS2019630143-1:~$ sudo vi /etc/rc.local
usuario@SNFS2019630143-1:~$ useradd@SNFS2019630143:1-$ sudo chmod +x /etc/rc.local
usuario@SNFS2019630143-1:~$ 

usuario@SNFS2019630143-2:~$ 
Reading package lists... Done
Building dependency tree...
Reading state information... Done
The following package was automatically installed and is no longer required:
linux-headers-4.15.0-162
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
sshpass
0 upgraded, 1 newly installed, 0 to remove and 9 not upgraded.
Need to get 10.5 kB of archives.
After this operation, 30.7 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu Bionic/universe amd64 sshpass amd64 1.06-1 [10.5 kB]
Fetched 10.5 kB in 0s (552 kB/s)
Selecting previously unselected package sshpass.
(Reading database ... 77097 files and directories currently installed.)
Preparing to unpack .../sshpass_1.06-1_amd64.deb ...
Unpacking sshpass (1.06-1) ...
Setting up sshpass (1.06-1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
usuario@SNFS2019630143-2:~$ sudo vi /etc/rc.local
usuario@SNFS2019630143-2:~$ sudo chmod +x /etc/rc.local
usuario@SNFS2019630143-2:~$ 


```

Microsoft Azure search bar: portal.azure.com/#@correo.ipn.mx/resource/subscriptions/f9842...

Microsoft Azure search bar: portal.azure.com/#@correo.ipn.mx/resource/subscriptions/f9842...

Activar que se haga al iniciar

Virtual Machine	Resource group (Move)	Status	Location	Subscription (Move)	Subscription ID	Operating system	Size	Public IP address	Virtual network/subnet	DNS name	Tags (Edit)
SNFS2019630143-1	: SNFS_GROUP	: Deallocating	: East US	: Azure for Students	: f984226e-fc9-4df6-8081-2...	: Linux	: Standard B1s (1 vcpus, 1 Gi...	: SNFS2019630143-1-ip	: SNFS_GROUP-vnet/default	: Not configured	: Click here to add tags
SNFS2019630143-2	: SNFS_GROUP	: Deallocating	: East US	: Azure for Students	: f984226e-fc9-4df6-8081-2...	: Linux	: Standard B1s (1 vcpus, 1 Gi...	: SNFS2019630143-2-ip	: SNFS_GROUP-vnet/default	: Not configured	: Click here to add tags
SNFS2019630143-3	: SNFS_GROUP	: Deallocating	: East US	: Azure for Students	: f984226e-fc9-4df6-8081-2...	: Linux	: Standard B1s (1 vcpus, 1 Gi...	: SNFS2019630143-3-ip	: SNFS_GROUP-vnet/default	: Not configured	: Click here to add tags

Apagado de los clientes

Encendido de los clientes

Mostrar el contenido

```

usuario@SNFS2019630143-0: /var/servidor
System information as of Sun Nov 21 07:47:24 UTC 2021
System load: 0.0      Processes:          122
Usage of /: 4.9% of 28.906B  Users logged in:   0
Memory usage: 26%     IP address for eth0: 10.0.0.4
Swap usage: 0%

4 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

New release '20.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Nov 21 03:22:44 2021 from 189.234.119.89
usuario@SNFS2019630143-0:~$ cd var/servidor
-bash: cd: var/servidor: No such file or directory
usuario@SNFS2019630143-0:~$ cd /var/servidor
usuario@SNFS2019630143-0:/var/servidor$ ls
archivo.txt
usuario@SNFS2019630143-0:/var/servidor$
```

```

usuario@SNFS2019630143-1:~$ more /cliente/archivo.txt
esta es una prueba de NFS
usuario@SNFS2019630143-1:~$ more /cliente/archivo.txt
esta es una prueba de NFS
estamos agregando texto al archivo
usuario@SNFS2019630143-1:~$
```

Microsoft Azure

Virtual machine

Resource group (Move) SNFS_GROUP

Status Running

Location East US

Subscription (Move) Azure for Students

Operating system Linux (ubuntu 18.04)

Size Standard B1s (1 vcpus, 1 GiB memory)

Public IP address 20.124.118.95

Virtual network/subnet SNFS_GROUP-vnet/default

/cliente/archivo.txt 2L, 61C

Agregado del texto en el cliente 2 y muestra en el 1

```

usuario@SNFS2019630143-0: /var/servidor
System information as of Sun Nov 21 07:47:24 UTC 2021
System load: 0.0      Processes:          122
Usage of /: 4.9% of 28.906B  Users logged in:   0
Memory usage: 26%     IP address for eth0: 10.0.0.4
Swap usage: 0%

4 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

New release '20.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Nov 21 03:22:44 2021 from 189.234.119.89
usuario@SNFS2019630143-0:~$ cd var/servidor
-bash: cd: var/servidor: No such file or directory
usuario@SNFS2019630143-0:~$ cd /var/servidor
usuario@SNFS2019630143-0:/var/servidor$ ls
archivo.txt
usuario@SNFS2019630143-0:/var/servidor$
```

```

usuario@SNFS2019630143-1:~$ rm /cliente/archivo.txt
usuario@SNFS2019630143-1:~$ ls /cliente
usuario@SNFS2019630143-1:~$
```

Microsoft Azure

Virtual machine

Resource group (Move) SNFS_GROUP

Status Running

Location East US

Subscription (Move) Azure for Students

Operating system Linux (ubuntu 18.04)

Size Standard B1s (1 vcpus, 1 GiB memory)

Public IP address 20.124.118.95

Virtual network/subnet SNFS_GROUP-vnet/default

/cliente/archivo.txt

Borrado y muestra del archivo

Conclusiones

Bueno, aunque me he ido acostumbrando más a la línea de comandos, tengo que admitir que me faltan muchas cosas por aprender, todavía tengo algo de temor por solo ver puras letras de colores, me marea a la vista. Pero también tengo que admitir que Linux es superior a Windows Server por mucho, quizá sea más complicado pero el dinero lo dice todo. Esta vez no me queda duda, parece complicado, y quizá lo es, tanto tiempo he evitado usar Linux, pero veo que realmente es útil para el desarrollo, he estado viendo un par de clases teóricas sobre la GCP, me sorprendió que las tres principales usen más Linux, aunque también los precios que tienen. No, no ha sido fácil su materia, y muchas veces me dan ganas de rendirme, y eso que no voy mal, aún así lo intento, pero parece que el ritmo se me está acabando, procuraré seguir el paso.