Práctica 8.Almacenamiento.

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Vagrantfile

```
Vagrant.configure("2") do |config|
        config.vm.box = "ubuntu/focal64"
        config.vm.provision "shell", inline: <<-SHELL
                sed -i 's/PasswordAuthentication no/PasswordAuthentication yes/' /etc/ssh/sshd_config
                systemctl restart sshd.service
                echo "192.168.12.11 nodo1" >> /etc/hosts
                echo "192.168.12.12 nodo2" >> /etc/hosts
        SHELL

        config.vm.define :nodo1 do |ub_config|
                ub_config.vm.hostname = "nodo1.vm"
                ub_config.vm.network "private_network" , ip:"192.168.12.11"
                ub_config.vm.provider :virtualbox do |vb|
                        vb.name = "nodo1"
                        vb.customize ["modifyvm", :id, "--memory", "768"]
                        vb.customize ["modifyvm", :id, "--cpus", "1"]
                end
        end

        config.vm.define :nodo2 do |ub_config|
                ub_config.vm.hostname = "nodo2.vm"
                ub_config.vm.network "private_network" , ip:"192.168.12.12"
                ub_config.vm.provider :virtualbox do |vb|
                        vb.name = "nodo2"
                        vb.customize ["modifyvm", :id, "--memory", "768"]
                        vb.customize ["modifyvm", :id, "--cpus", "1"]
                end
        end
end
```

```
(base) luis@luis-MS-7B86:~/UNI/4/1/CPD/Prácticas/P8$ vagrant box update
==> vagrant: A new version of Vagrant is available: 2.2.14 (installed version: 2.2.13)!
==> vagrant: To upgrade visit: https://www.vagrantup.com/downloads.html

==> nodo2: Checking for updates to 'ubuntu/focal64'
    nodo2: Latest installed version: 20201117.0.0
    nodo2: Version constraints:
    nodo2: Provider: virtualbox
==> nodo2: Updating 'ubuntu/focal64' with provider 'virtualbox' from version
==> nodo2: '20201117.0.0' to '20201123.0.0'...
==> nodo2: Loading metadata for box 'https://vagrantcloud.com/ubuntu/focal64'
==> nodo2: Adding box 'ubuntu/focal64' (v20201123.0.0) for provider: virtualbox
    nodo2: Downloading: https://vagrantcloud.com/ubuntu/boxes/focal64/versions/20201123.0.0/providers/vir
tualbox.box
Download redirected to host: cloud-images.ubuntu.com
==> nodo2: Successfully added box 'ubuntu/focal64' (v20201123.0.0) for 'virtualbox'!
(base) luis@luis-MS-7B86:~/UNI/4/1/CPD/Prácticas/P8$ vagrant up
Bringing machine 'nodo1' up with 'virtualbox' provider...
Bringing machine 'nodo2' up with 'virtualbox' provider...
==> nodo1: Importing base box 'ubuntu/focal64'...
==> nodo1: Matching MAC address for NAT networking...
==> nodo1: Checking if box 'ubuntu/focal64' version '20201123.0.0' is up to date...
==> nodo1: Setting the name of the VM: nodo1
==> nodo1: Clearing any previously set network interfaces...
==> nodo1: Preparing network interfaces based on configuration...
    nodo1: Adapter 1: nat
    nodo1: Adapter 2: hostonly
==> nodo1: Forwarding ports...
```

vagrant ssh nodo2
- ssh-keygen -t rsa
- ssh-copy-id nodo1

```
(base) luis@luis-MS-7B86:~/UNI/4/1/CPD/Prácticas/P8$ vagrant ssh nodo2
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-54-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Nov 26 10:53:04 UTC 2020

  System load:  0.61                Processes:             107
  Usage of /:   3.2% of 38.71GB     Users logged in:       0
  Memory usage: 25%                 IPv4 address for enp0s3: 10.0.2.15
  Swap usage:   0%                  IPv4 address for enp0s8: 192.168.12.12


1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable


vagrant@nodo2:~$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/vagrant/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/vagrant/.ssh/id_rsa
Your public key has been saved in /home/vagrant/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:u+007hG/5sOcNdFK99R3avRNpcq55w27YppwgJc7zEM vagrant@nodo2
The key's randomart image is:
+---[RSA 3072]----+
|                 |
|              .| |
|            oo|  |
|    . .    = O|  |
|   . E .. = O=|  |
|    = + o+ * +|  |
|     O =o.=.. |  |
|      X +X..+ |  |
|      .oB=o=+..| |
+----[SHA256]-----+
vagrant@nodo2:~$ ssh-copy-id nodo1
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/vagrant/.ssh/id_rsa.pub"
The authenticity of host 'nodo1 (192.168.12.11)' can't be established.
ECDSA key fingerprint is SHA256:70C9SZblYHSJ69cUnBi3suQYP0TyCVjMsbnFrYmlxao.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already
installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install t
he new keys
vagrant@nodo1's password:
```

1. Almacenamiento Rsync con SSH

```
vagrant@nodo2:~$ mkdir test1
vagrant@nodo2:~$ rsync -avz test1 vagrant@nodo1:.
sending incremental file list
test1/

sent 73 bytes  received 20 bytes  62.00 bytes/sec
total size is 0  speedup is 0.00
vagrant@nodo2:~$ touch test1/prueba
vagrant@nodo2:~$ rsync -avz test1 vagrant@nodo1:.
sending incremental file list
test1/
test1/prueba

sent 136 bytes  received 39 bytes  350.00 bytes/sec
total size is 0  speedup is 0.00
vagrant@nodo2:~$ logout
Connection to 127.0.0.1 closed.
(base) luis@luis-MS-7B86:~/UNI/4/1/CPD/Prácticas/P8$ vagrant ssh nodo1
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-54-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Nov 26 10:59:47 UTC 2020

  System load:  0.0               Processes:              103
  Usage of /:   3.2% of 38.71GB   Users logged in:        0
  Memory usage: 25%               IPv4 address for enp0s3: 10.0.2.15
  Swap usage:   0%                IPv4 address for enp0s8: 192.168.12.11


1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable


vagrant@nodo1:~$ ls test1/
prueba
vagrant@nodo1:~$
```

2. Servidor GIT

```
vagrant@nodo2:~$ mkdir devel
vagrant@nodo2:~$ mkdir devel/test2
vagrant@nodo2:~$ cd devel/test2
vagrant@nodo2:~/devel/test2$ git init
Initialized empty Git repository in /home/vagrant/devel/test2/.git/
vagrant@nodo2:~/devel/test2$ git config --global user.name "laguilarg99"
vagrant@nodo2:~/devel/test2$ git config --global user.email "laguilarg1644@gmail.com"
vagrant@nodo2:~/devel/test2$ >README
vagrant@nodo2:~/devel/test2$ git add *
vagrant@nodo2:~/devel/test2$ git commit -m "mi 1er commit"
[master (root-commit) 9ce50f1] mi 1er commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 README
```

```
vagrant@nodo1:~$ mkdir test2.git
vagrant@nodo1:~$ cd test2.git/
vagrant@nodo1:~/test2.git$ git init --bare
Initialized empty Git repository in /home/vagrant/test2.git/
```

```
vagrant@nodo2:~/devel/test2$ git remote add origin vagrant@nodo1:./test2.git
vagrant@nodo2:~/devel/test2$ git push -u origin master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 206 bytes | 206.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To nodo1:./test2.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

3.Copias de seguridad con duplicity con ssh

```
vagrant@nodo2:~$ duplicity test3/ scp://vagrant@nodo1/home/vagrant/test3b
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: none
GnuPG passphrase for decryption:
Cannot use empty passphrase with symmetric encryption!  Please try again.
GnuPG passphrase for decryption:
Cannot use empty passphrase with symmetric encryption!  Please try again.
GnuPG passphrase for decryption:
Retype passphrase for decryption to confirm:
No signatures found, switching to full backup.
--------------[ Backup Statistics ]--------------
StartTime 1606395457.25 (Thu Nov 26 12:57:37 2020)
EndTime 1606395457.27 (Thu Nov 26 12:57:37 2020)
ElapsedTime 0.02 (0.02 seconds)
SourceFiles 4
SourceFileSize 4096 (4.00 KB)
NewFiles 4
NewFileSize 4096 (4.00 KB)
DeletedFiles 0
ChangedFiles 0
ChangedFileSize 0 (0 bytes)
ChangedDeltaSize 0 (0 bytes)
DeltaEntries 4
RawDeltaSize 0 (0 bytes)
TotalDestinationSizeChange 241 (241 bytes)
Errors 0
-------------------------------------------------
```

## 4.Instalación del servidor Minio para objetos S3 (Bucket)

```
vagrant@nodo1:~$ docker --version
Docker version 19.03.13, build 4484c46d9d
```

Docker instalado en el nodo1 y añadido al grupo vagrant.

```
vagrant@nodo1:~$ docker run -p 9000:9000 --name minio1 -v /home/vagrant/minio_data:/data -e "MINIO_ACCESS
_KEY=CpDrandom20" -e "MINIO_SECRET_KEY=scretkcPd20CY" minio/minio server /data &
[1] 14883
vagrant@nodo1:~$ Unable to find image 'minio/minio:latest' locally
latest: Pulling from minio/minio
df20fa9351a1: Pull complete
3e096ea21f7b: Pull complete
Digest: sha256:3e6952ea1c5be5517c381fd725ab0cb8b36a00c877fbb4f654f9afe366040624
Status: Downloaded newer image for minio/minio:latest
Attempting encryption of all config, IAM users and policies on MinIO backend
Endpoint:  http://172.17.0.2:9000  http://127.0.0.1:9000

Browser Access:
   http://172.17.0.2:9000  http://127.0.0.1:9000

Object API (Amazon S3 compatible):
   Go:         https://docs.min.io/docs/golang-client-quickstart-guide
   Java:       https://docs.min.io/docs/java-client-quickstart-guide
   Python:     https://docs.min.io/docs/python-client-quickstart-guide
   JavaScript: https://docs.min.io/docs/javascript-client-quickstart-guide
   .NET:       https://docs.min.io/docs/dotnet-client-quickstart-guide
```
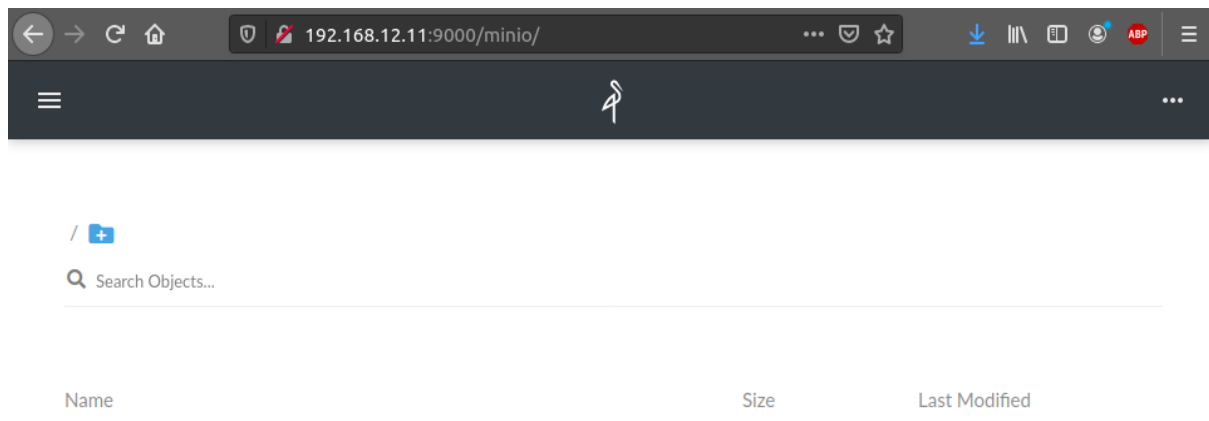
Arrancamos docker con minio y accedemos desde el navegador web. A continuación veremos como acceder desde el nodo2 o cliente.
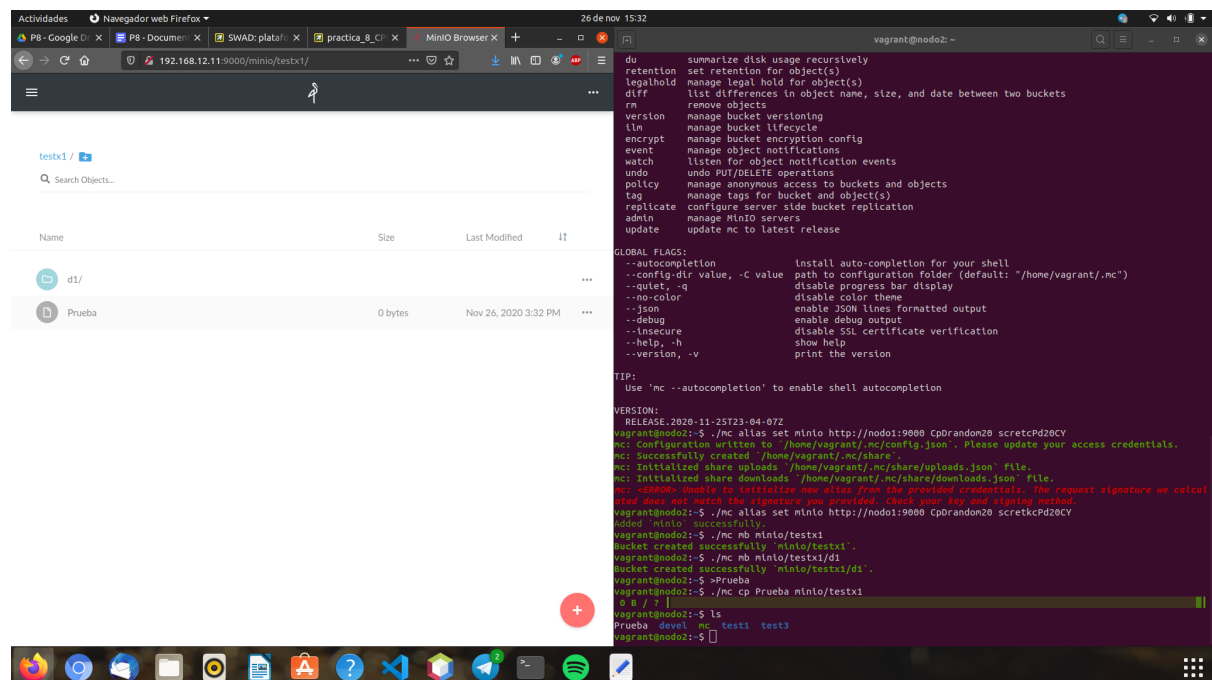

Se puede ver en el cliente web que el directorio ha sido creado correctamente y el fichero copiado de forma adecuada.

5. Configuración servidor Nextcloud.

```
vagrant@nodo1:~$ docker run -d -p 8080:80 nextcloud
Unable to find image 'nextcloud:latest' locally
latest: Pulling from library/nextcloud
852e50cd189d: Pull complete
0266fc315b01: Pull complete
4c8a5fa787a1: Pull complete
46fc127c1884: Pull complete
f768b7fadf16: Pull complete
345b578c1a78: Pull complete
90aafe41e78d: Pull complete
af01fae4e5fc: Pull complete
9e463236c8bc: Pull complete
cd12b0a220f2: Pull complete
d9f76220cef4: Pull complete
c09cf9a96ea9: Pull complete
6dda8bec068c: Pull complete
14a404028942: Pull complete
513be1926c4b: Pull complete
c18ae3d7c305: Pull complete
db70bc69eac5: Pull complete
02f39d19f269: Pull complete
1d851a99ca93: Pull complete
6b86a09f6d69: Pull complete
Digest: sha256:801447dad24c36e3ce60201b6307657d2fe887df4e1efda3e41229018722a4bf
Status: Downloaded newer image for nextcloud:latest
352ec4caacfe04feed1f2efb8676217e25d6dec18e02884f29782f5167e51b8a
```
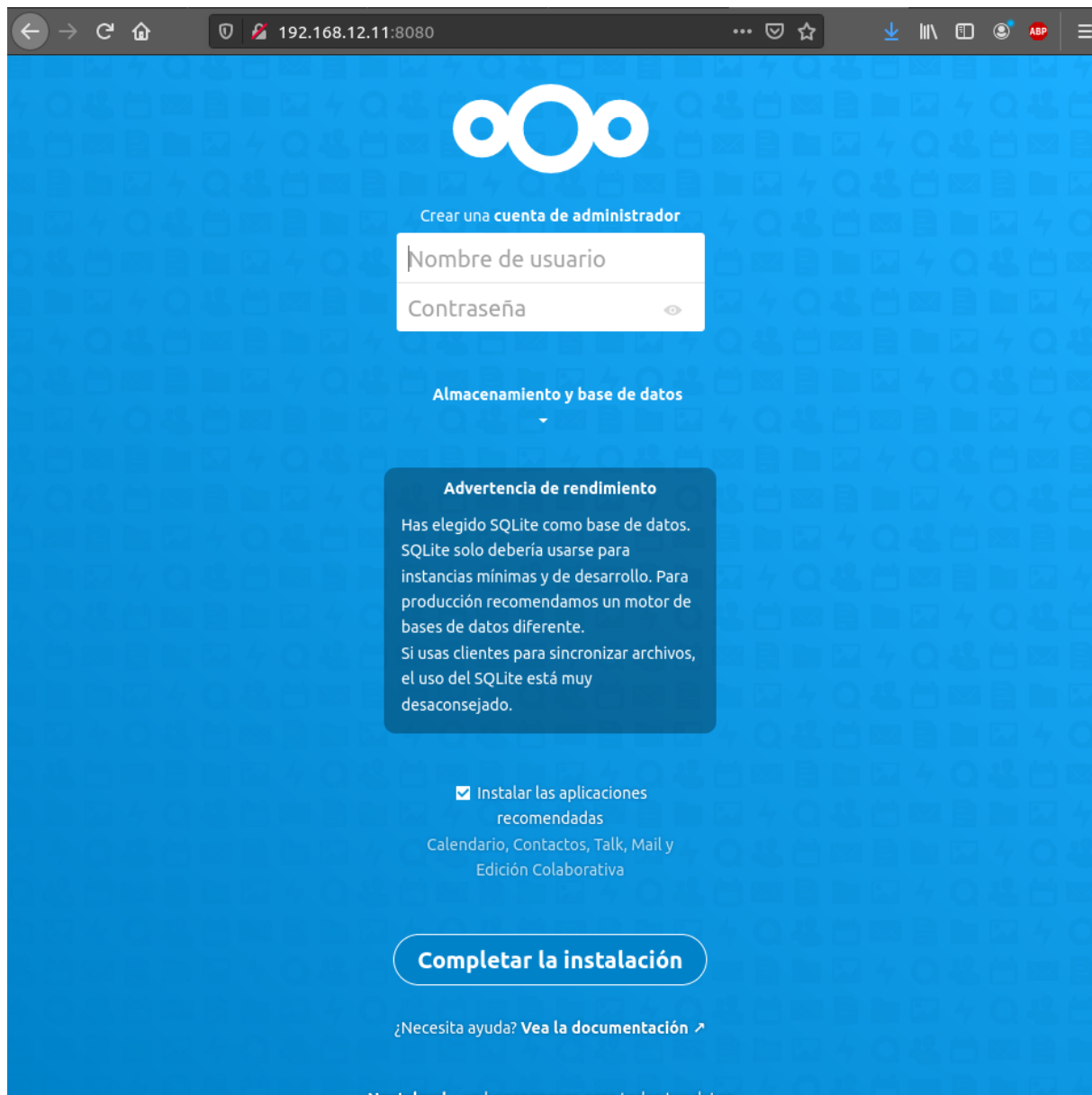
como se puede observar nextcloud está correctamente instalado.