Práctica 9.Almacenamiento (II).

Nombre: Luis Miguel Aguilar González

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 nodo91" >> /etc/hosts
                echo "192.168.12.12 nodo92" >> /etc/hosts
        SHELL

        config.vm.define :nodo91 do |ub_config|
                ub_config.vm.hostname = "nodo91.vm"
                ub_config.vm.network "private_network" , ip:"192.168.12.11"
                ub_config.vm.provider :virtualbox do |vb|
                        vb.name = "nodo91"
                        vb.customize ["modifyvm", :id, "--memory", "768"]
                        vb.customize ["modifyvm", :id, "--cpus", "1"]
                end
        end

        config.vm.define :nodo92 do |ub_config|
                ub_config.vm.hostname = "nodo92.vm"
                ub_config.vm.network "private_network" , ip:"192.168.12.12"
                ub_config.vm.provider :virtualbox do |vb|
                        vb.name = "nodo92"
                        vb.customize ["modifyvm", :id, "--memory", "768"]
                        vb.customize ["modifyvm", :id, "--cpus", "1"]
                end
        end
end
```

Como en la práctica anterior ya se crearon dos máquinas con el nombre de nodo1 y nodo2, debía destruir las máquinas antes de crearlas de nuevo en la carpeta de la práctica 9, al no recordar como destruir las máquinas decidí borrar los directorios .vagrant de P8 y P9, como ahora no existen, no es capaz de reconocer las máquinas al ejecutar el comando vagrant destroy, por eso he cambiado los nombres de las máquinas a nodo91 y nodo92.
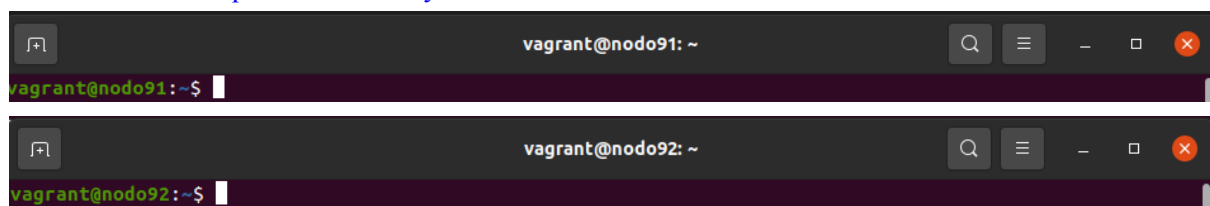
Creamos la clave ssh y la copiamos en el nodo91, para generar dicha clave y que sea admitida por duplicity, usaremos:

- ssh-keygen -p -m PEM -f ~/.ssh/id_rsa
- ssh-copy-id nodo91

- sudo apt-get install duplicity

```
vagrant@nodo92:~$ sudo apt-get install duplicity
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  librsync2 python3-bcrypt python3-fasteners python3-future python3-lockfile python3-monotonic
  python3-paramiko
Suggested packages:
  python3-boto ncftp lftp tahoe-lafs python3-swiftclient python3-pip par2 python-future-doc
  python-lockfile-doc python3-gssapi
The following NEW packages will be installed:
  duplicity librsync2 python3-bcrypt python3-fasteners python3-future python3-lockfile
  python3-monotonic python3-paramiko
0 upgraded, 8 newly installed, 0 to remove and 0 not upgraded.
Need to get 761 kB of archives.
After this operation, 3993 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 librsync2 amd64 2.0.2-1ubuntu1 [38.8 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-monotonic all 1.5-0ubuntu2 [5660 B]
Get:3 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-fasteners all 0.14.1-2 [14.1 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-future all 0.18.2-2 [336 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-lockfile all 1:0.12.2-2ubuntu2 [14.6 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/main amd64 duplicity amd64 0.8.11.1612-1 [199 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-bcrypt amd64 3.1.7-2ubuntu1 [30.4 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/main amd64 python3-paramiko all 2.6.0-2 [122 kB]
```

Creamos los directorios respectivos en las máquinas virtuales, en el nodo91 creamos el directorio backups y en el nodo92 creamos el directorio test9. Para ambos usaremos la orden **mkdir**.

Creamos en la máquina nodo92 dentro del directorio test9, unos ficheros de prueba.

```
vagrant@nodo92:~$ touch test9/prueba{1,2,3}
```

1.- Hacer una copia de seguridad de la carpeta test9

- duplicity test9/ scp://nodo91/backups

```
vagrant@nodo92:~$ duplicity test9/ scp://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
GnuPG passphrase for decryption:
Retype passphrase for decryption to confirm:
--------------[ Backup Statistics ]--------------
StartTime 1607526822.87 (Wed Dec  9 15:13:42 2020)
EndTime 1607526822.87 (Wed Dec  9 15:13:42 2020)
ElapsedTime 0.00 (0.00 seconds)
SourceFiles 4
SourceFileSize 4096 (4.00 KB)
NewFiles 0
NewFileSize 0 (0 bytes)
DeletedFiles 0
ChangedFiles 0
ChangedFileSize 0 (0 bytes)
ChangedDeltaSize 0 (0 bytes)
DeltaEntries 0
RawDeltaSize 0 (0 bytes)
TotalDestinationSizeChange 110 (110 bytes)
Errors 0
-------------------------------------------------
```

```
vagrant@nodo92:~$ duplicity list-current-files scp://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
Wed Dec  9 14:57:33 2020 .
Wed Dec  9 14:57:33 2020 prueba1
Wed Dec  9 14:57:33 2020 prueba2
Wed Dec  9 14:57:33 2020 prueba3
```

2.- Añadir algunos fichero más y modificar alguno de ellos

```
vagrant@nodo92:~$ ls test9/
prueba1   prueba2   prueba3   prueba4   prueba5   prueba6
```

He añadido 3 ficheros más y he modificado el primero.

3.- Hacer una nueva copia de seguridad de la carpeta test9.

```
vagrant@nodo92:~$ duplicity test9/ scp://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
GnuPG passphrase for decryption:
Retype passphrase for decryption to confirm:
--------------[ Backup Statistics ]--------------
StartTime 1607528379.70 (Wed Dec  9 15:39:39 2020)
EndTime 1607528379.71 (Wed Dec  9 15:39:39 2020)
ElapsedTime 0.01 (0.01 seconds)
SourceFiles 7
SourceFileSize 4122 (4.03 KB)
NewFiles 4
NewFileSize 4096 (4.00 KB)
DeletedFiles 0
ChangedFiles 1
ChangedFileSize 26 (26 bytes)
ChangedDeltaSize 0 (0 bytes)
DeltaEntries 5
RawDeltaSize 33 (33 bytes)
TotalDestinationSizeChange 302 (302 bytes)
Errors 0
-------------------------------------------------
```

4.- Recuperar en la carpeta test9_A sólo el fichero que hemos modificado. Así podemos comprobar como fácilmente podemos recuperar un fichero.

```
vagrant@nodo92:~$ duplicity scp://nodo91/backups test9_A/prueba1 --file-to-restore prueba1
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
GnuPG passphrase for decryption:
vagrant@nodo92:~$ cat test9_A/prueba1
hola, esto es una prueba
```

5.- Recuperar en la carpeta test9_B la primera versión del fichero que hemos modificado utilizando la fecha y hora

```
vagrant@nodo92:~$ duplicity scp://nodo91/backups test9_B/prueba1 --file-to-restore prueba1 --time 3D
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
GnuPG passphrase for decryption:
vagrant@nodo92:~$ cat test9_B/prueba1
vagrant@nodo92:~$ 
```

El archivo original estaba vacío.

6.- Hacer 3 copias incrementales, con modificaciones de 1 fichero

```
vagrant@nodo92:~$ nano test9/prueba2
vagrant@nodo92:~$ duplicity incr test9/ scp://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
GnuPG passphrase for decryption:
Retype passphrase for decryption to confirm:
-------------[ Backup Statistics ]-------------
StartTime 1607531652.44 (Wed Dec  9 16:34:12 2020)
EndTime 1607531652.44 (Wed Dec  9 16:34:12 2020)
ElapsedTime 0.01 (0.01 seconds)
SourceFiles 7
SourceFileSize 4137 (4.04 KB)
NewFiles 1
NewFileSize 4096 (4.00 KB)
DeletedFiles 0
ChangedFiles 1
ChangedFileSize 15 (15 bytes)
ChangedDeltaSize 0 (0 bytes)
DeltaEntries 2
RawDeltaSize 22 (22 bytes)
TotalDestinationSizeChange 252 (252 bytes)
Errors 0
-----------------------------------------------

vagrant@nodo92:~$ nano test9/prueba2
vagrant@nodo92:~$ duplicity incr test9/ scp://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
GnuPG passphrase for decryption:
Retype passphrase for decryption to confirm:
-------------[ Backup Statistics ]-------------
StartTime 1607531682.09 (Wed Dec  9 16:34:42 2020)
EndTime 1607531682.10 (Wed Dec  9 16:34:42 2020)
ElapsedTime 0.01 (0.01 seconds)
SourceFiles 7
SourceFileSize 4137 (4.04 KB)
NewFiles 1
NewFileSize 4096 (4.00 KB)
DeletedFiles 0
ChangedFiles 1
ChangedFileSize 15 (15 bytes)
ChangedDeltaSize 0 (0 bytes)
DeltaEntries 2
RawDeltaSize 22 (22 bytes)
TotalDestinationSizeChange 255 (255 bytes)
Errors 0
-----------------------------------------------
```

Repetimos el proceso una vez más para realizar el total de 3 copias incrementales.

7.- Borrar las copias incrementales y quedarse sólo con 1. (remove-all-inc-of-but-n-full)

```
vagrant@nodo92:~$ duplicity remove-all-inc-of-but-n-full 1 file://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: none
```

8.- Comprobar la lista de ficheros

```
vagrant@nodo92:~$ duplicity list-current-files scp://nodo91/backups
Local and Remote metadata are synchronized, no sync needed.
Last full backup date: Wed Dec  9 15:13:07 2020
Wed Dec  9 16:54:59 2020 .
Wed Dec  9 15:29:51 2020 prueba1
Wed Dec  9 16:54:58 2020 prueba2
Wed Dec  9 14:57:33 2020 prueba3
Wed Dec  9 15:29:33 2020 prueba4
Wed Dec  9 15:29:33 2020 prueba5
Wed Dec  9 15:29:33 2020 prueba6
```

NEXTCLOUD

Tras instalar docker, iniciamos nextcloud usando docker-compose:

```
version: '2'

volumes:
  nextcloud:
  db:

services:
  db:
    image: mariadb
    command: --transaction-isolation=READ-COMMITTED --binlog-format=ROW
    restart: always
    volumes:
      - db:/var/lib/mysql
    environment:
      - MYSQL_ROOT_PASSWORD=vagrant
      - MYSQL_PASSWORD=vagrant
      - MYSQL_DATABASE=nextcloud
      - MYSQL_USER=nextcloud

  app:
    image: nextcloud
    ports:
      - 8080:80
    links:
      - db
    restart: always
    volumes:
      - nextcloud:/var/www/html
    environment:
      - MYSQL_PASSWORD=vagrant
      - MYSQL_DATABASE=nextcloud
      - MYSQL_USER=nextcloud
      - MYSQL_HOST=db
```

```
vagrant@nodo91:~$ sudo docker-compose up -d
Creating network "vagrant_default" with the default driver
Creating volume "vagrant_nextcloud" with default driver
Creating volume "vagrant_db" with default driver
Pulling db (mariadb:)...
latest: Pulling from library/mariadb
da7391352a9b: Pull complete
14428a6d4bcd: Pull complete
2c2d948710f2: Pull complete
22776aa82430: Pull complete
90e64230d63d: Pull complete
f30861f14a10: Pull complete
e8e9e6a3da24: Pull complete
420a23f08c41: Pull complete
bd73f23de482: Pull complete
a8690a3260b7: Pull complete
4202ba90333a: Pull complete
a33f860b4aa6: Pull complete
Digest: sha256:cdc553f0515a8d41264f0855120874e86761f7c69407b5cfbe49283dc195bea8
Status: Downloaded newer image for mariadb:latest
Pulling app (nextcloud:)...
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
0b5d7691301b: Pull complete
e06cc2d9e2f8: Pull complete
6e9815fb33e7: Pull complete
9c620d71744c: Pull complete
66ef24dcaca4: Pull complete
83f52dab9487: Pull complete
ff0cf4699a7c: Pull complete
61c81276e6e3: Pull complete
e804ba2481bd: Pull complete
5341acd1f2b0: Pull complete
242c89a76899: Pull complete
93734026da15: Pull complete
990d88b1557e: Pull complete
Digest: sha256:cb55b9a72d45b7ff4010df80923b6dca83b46b3a8f1cf698654a8fd895870fa3
Status: Downloaded newer image for nextcloud:latest
Creating vagrant_db_1 ... done
Creating vagrant_app_1 ... done
```
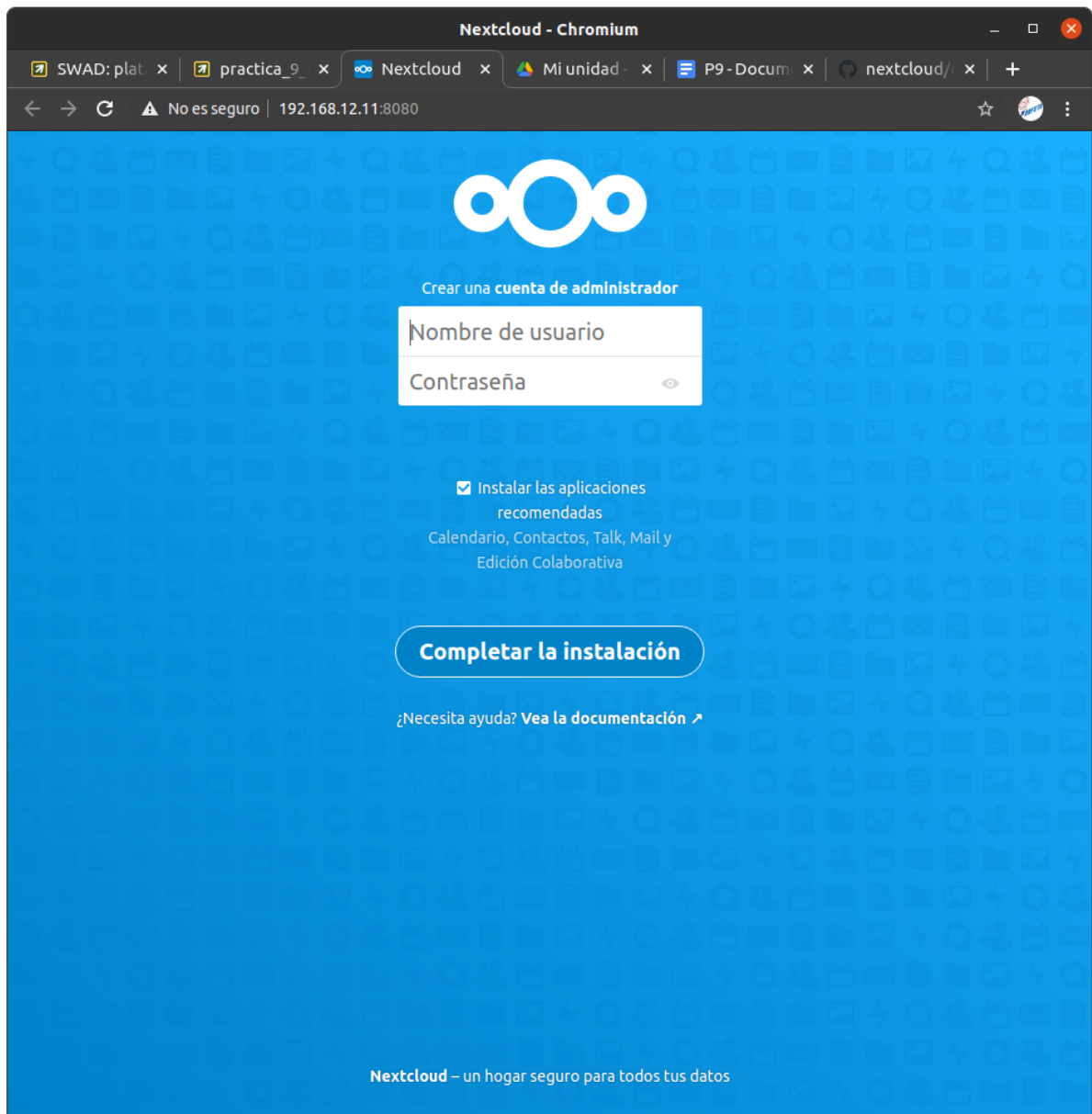
Nextcloud ya funciona correctamente, ahora instalaremos el cliente.
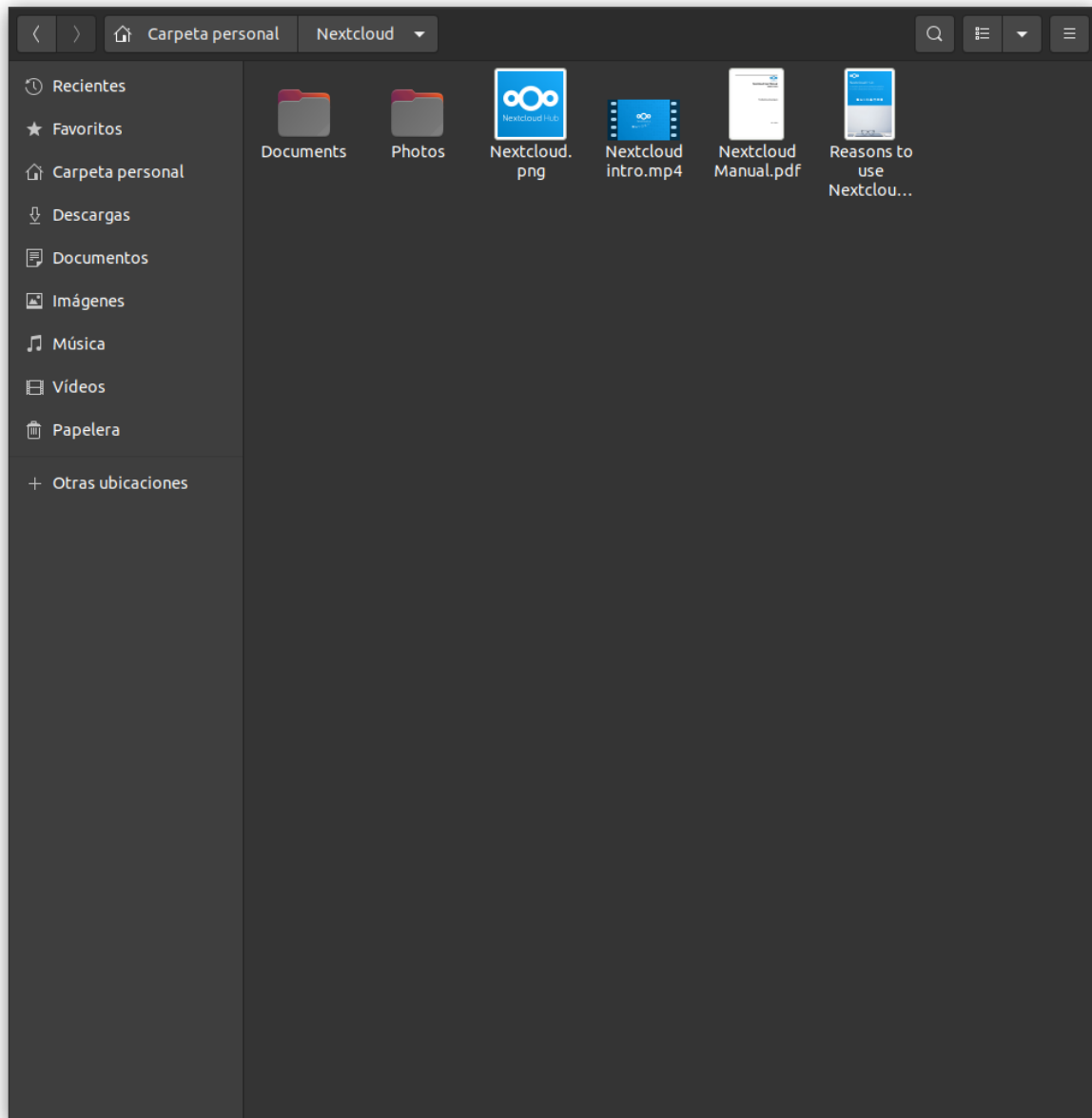
Todos los documentos subidos a esta carpeta se enviarán automáticamente al servidor de nextcloud.

Imagen del server: