

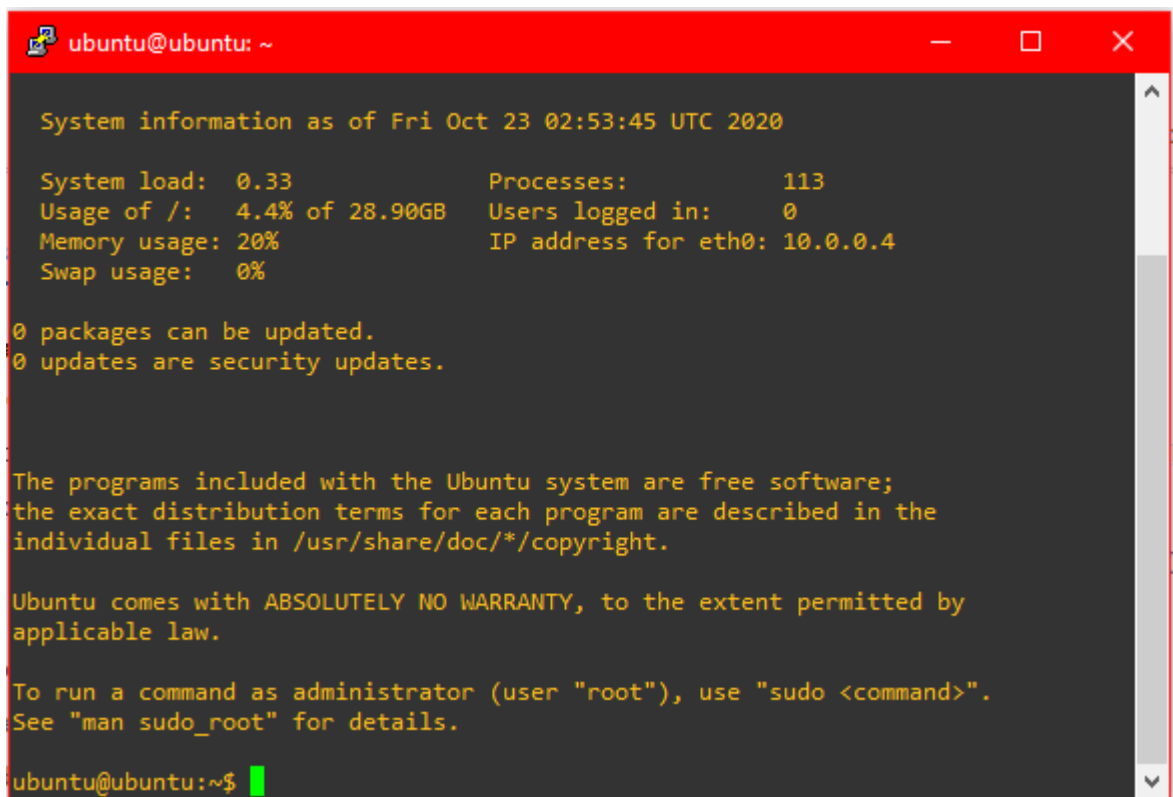
1. Considere el ejemplo de la plataforma de comercio electrónico global que planteamos en la clase.

1.1 Si cada servidor es una máquina virtual en la nube ¿las compras se registrarán en tiempo local o en tiempo global?

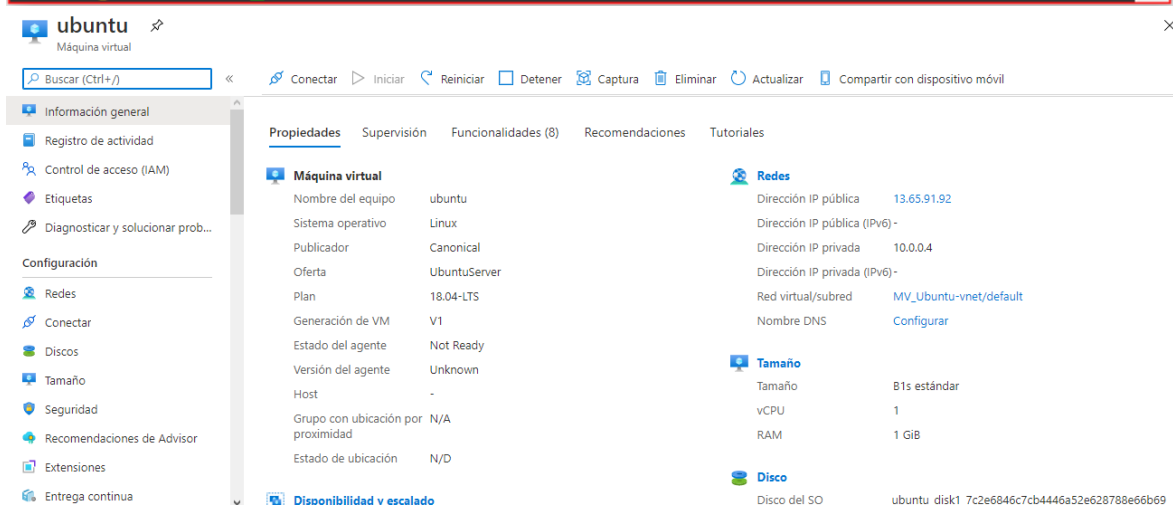
-En tiempo global (fecha y hora global)

1.2 Si se instala NTP en cada servidor ¿se puede garantizar que los relojes de los servidores tengan la misma hora?

-Si



```
ubuntu@ubuntu: ~  
  
System information as of Fri Oct 23 02:53:45 UTC 2020  
  
System load: 0.33          Processes:          113  
Usage of /: 4.4% of 28.90GB Users logged in:    0  
Memory usage: 20%         IP address for eth0: 10.0.0.4  
Swap usage: 0%  
  
0 packages can be updated.  
0 updates are security updates.  
  
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.  
  
ubuntu@ubuntu:~$
```



The screenshot shows the VMware Workstation interface with the 'Properties' tab selected for a virtual machine named 'ubuntu'. The interface includes a left sidebar with navigation options like 'Información general', 'Registro de actividad', and 'Configuración'. The main area displays the VM's configuration details.

Máquina virtual	
Nombre del equipo	ubuntu
Sistema operativo	Linux
Publicador	Canonical
Oferta	UbuntuServer
Plan	18.04-LTS
Generación de VM	V1
Estado del agente	Not Ready
Versión del agente	Unknown
Host	-
Grupo con ubicación por proximidad	N/A
Estado de ubicación	N/D

Redes	
Dirección IP pública	13.65.91.92
Dirección IP pública (IPv6)	-
Dirección IP privada	10.0.0.4
Dirección IP privada (IPv6)	-
Red virtual/subred	MV_Ubuntu-vnet/default
Nombre DNS	Configurar

Tamaño	
Tamaño	81s estándar
vCPU	1
RAM	1 GiB

Disco	
Disco del SO	ubuntu disk1 7c2e6846c7cb4446a52e628788e66b69

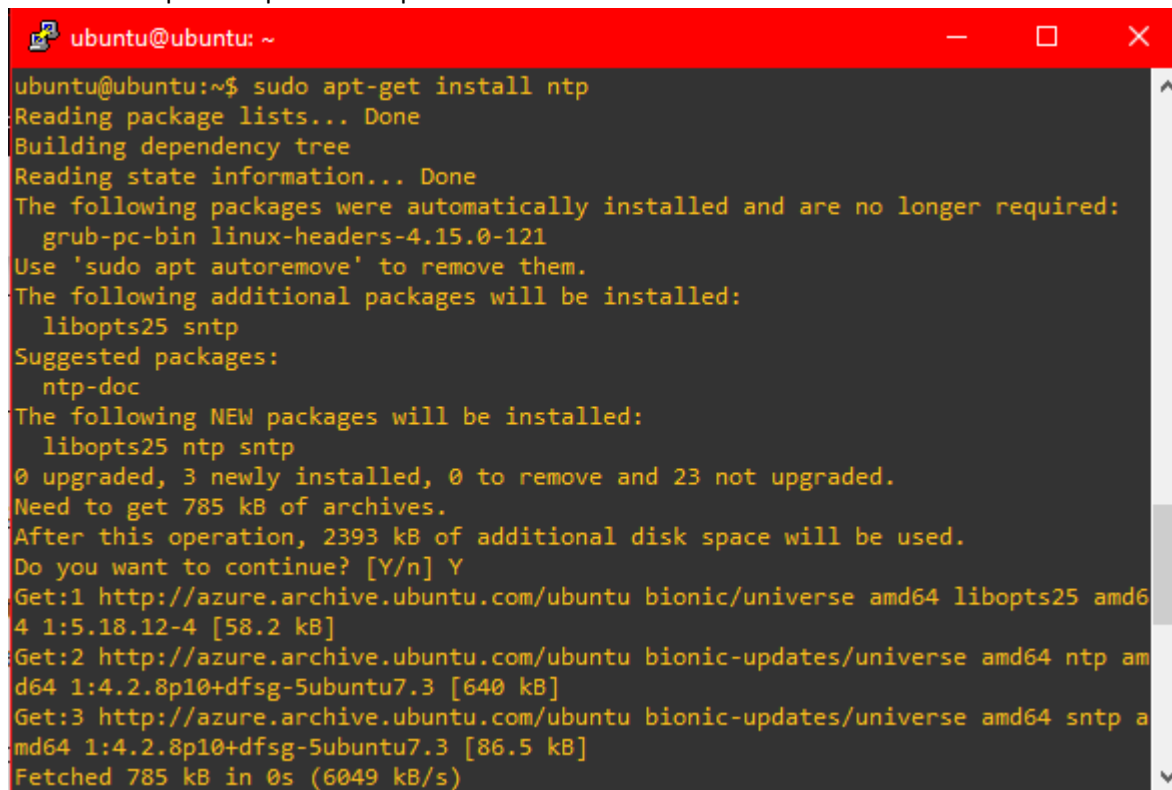
Ejecutando el comando date

```
ubuntu@ubuntu: ~  
ubuntu@ubuntu:~$ date  
Fri Oct 23 02:54:44 UTC 2020  
ubuntu@ubuntu:~$
```

Sudo apt update

```
ubuntu@ubuntu: ~  
ubuntu@ubuntu:~$ clear  
ubuntu@ubuntu:~$ date  
Fri Oct 23 02:54:44 UTC 2020  
ubuntu@ubuntu:~$ sudo apt-get update  
Hit:1 http://azure.archive.ubuntu.com/ubuntu bionic InRelease  
Get:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]  
Get:3 http://azure.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]  
Get:4 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]  
Get:5 http://azure.archive.ubuntu.com/ubuntu bionic/universe amd64 Packages [8570 kB]  
Get:6 http://azure.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]  
Get:7 http://azure.archive.ubuntu.com/ubuntu bionic/multiverse amd64 Packages [151 kB]  
Get:8 http://azure.archive.ubuntu.com/ubuntu bionic/multiverse Translation-en [108 kB]  
Get:9 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [1723 kB]  
Get:10 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main Translation-en [366 kB]  
Get:11 http://azure.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [182 kB]  
Get:12 http://azure.archive.ubuntu.com/ubuntu bionic-updates/restricted Translat
```

Instalando ntp `sudo apt install ntp`

A terminal window with a red title bar showing the command 'sudo apt-get install ntp' being executed on an Ubuntu system. The output shows the package lists being read, the dependency tree being built, and the state information being read. It lists packages that were automatically installed and are no longer required, and then lists the additional packages that will be installed: libopts25, ntp, and sntp. It also shows the suggested package ntp-doc. The terminal indicates that 0 packages will be upgraded, 3 will be newly installed, and 0 will be removed. It shows the disk space requirements and asks for confirmation to continue. The download progress for the three packages is shown at the bottom.

```
ubuntu@ubuntu: ~  
ubuntu@ubuntu:~$ sudo apt-get install ntp  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  grub-pc-bin linux-headers-4.15.0-121  
Use 'sudo apt autoremove' to remove them.  
The following additional packages will be installed:  
  libopts25 ntp sntp  
Suggested packages:  
  ntp-doc  
The following NEW packages will be installed:  
  libopts25 ntp sntp  
0 upgraded, 3 newly installed, 0 to remove and 23 not upgraded.  
Need to get 785 kB of archives.  
After this operation, 2393 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/universe amd64 libopts25 amd64 1:5.18.12-4 [58.2 kB]  
Get:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 ntp amd64 1:4.2.8p10+dfsg-5ubuntu7.3 [640 kB]  
Get:3 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 sntp amd64 1:4.2.8p10+dfsg-5ubuntu7.3 [86.5 kB]  
Fetched 785 kB in 0s (6049 kB/s)
```

2. Cree una máquina virtual con Ubuntu en la nube de Azure.

2.1 Ejecute el comando **date** ¿la hora es local o global?

2.2 Instale NTP en la máquina virtual.

2.3 Elimine la máquina virtual y sus recursos asociados.

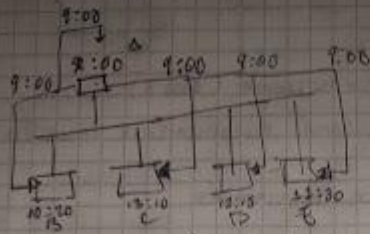
3. Suponga que tiene 5 computadoras con los siguientes tiempos: 10:20, 13:10, 9:00, 12:15 y 11:30.

3.1 Si la tercera computadora inicia el algoritmo de sincronización de relojes de Berkeley ¿qué hora tendrá cada computadora al terminar el proceso de sincronización? 11:15

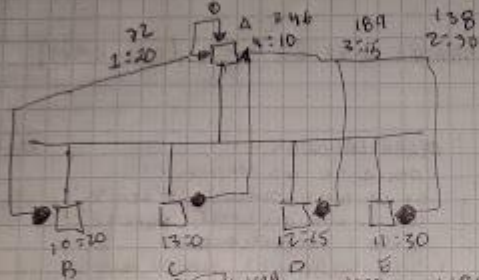
Señor

5 pc 10:20, 13:10, 9:00, 12:15, 11:30

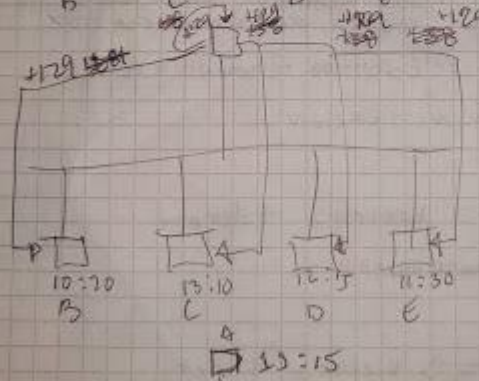
MANDAMOS A
TODOS SU
TIEMPO:



DIFFERENCIA DE TIEMPO
 $9:00 - 9:00 = 0$
 $10:20 - 9:00 = 1:20$ 72 min
 $13:10 - 9:00 = 4:10$ 246
 $12:15 - 9:00 = 3:15$ 189
 $11:30 - 9:00 = 2:30$ 138



PROMEDIOS =
 $\frac{0 + 72 + 246 + 189 + 138}{5}$
 $= 129$



TIEMPO AJUSTADO
 $129 = 2:15$
 $(9:00 + 2:15) \text{ hrs}$
 $= 11:15 \text{ hrs}$

